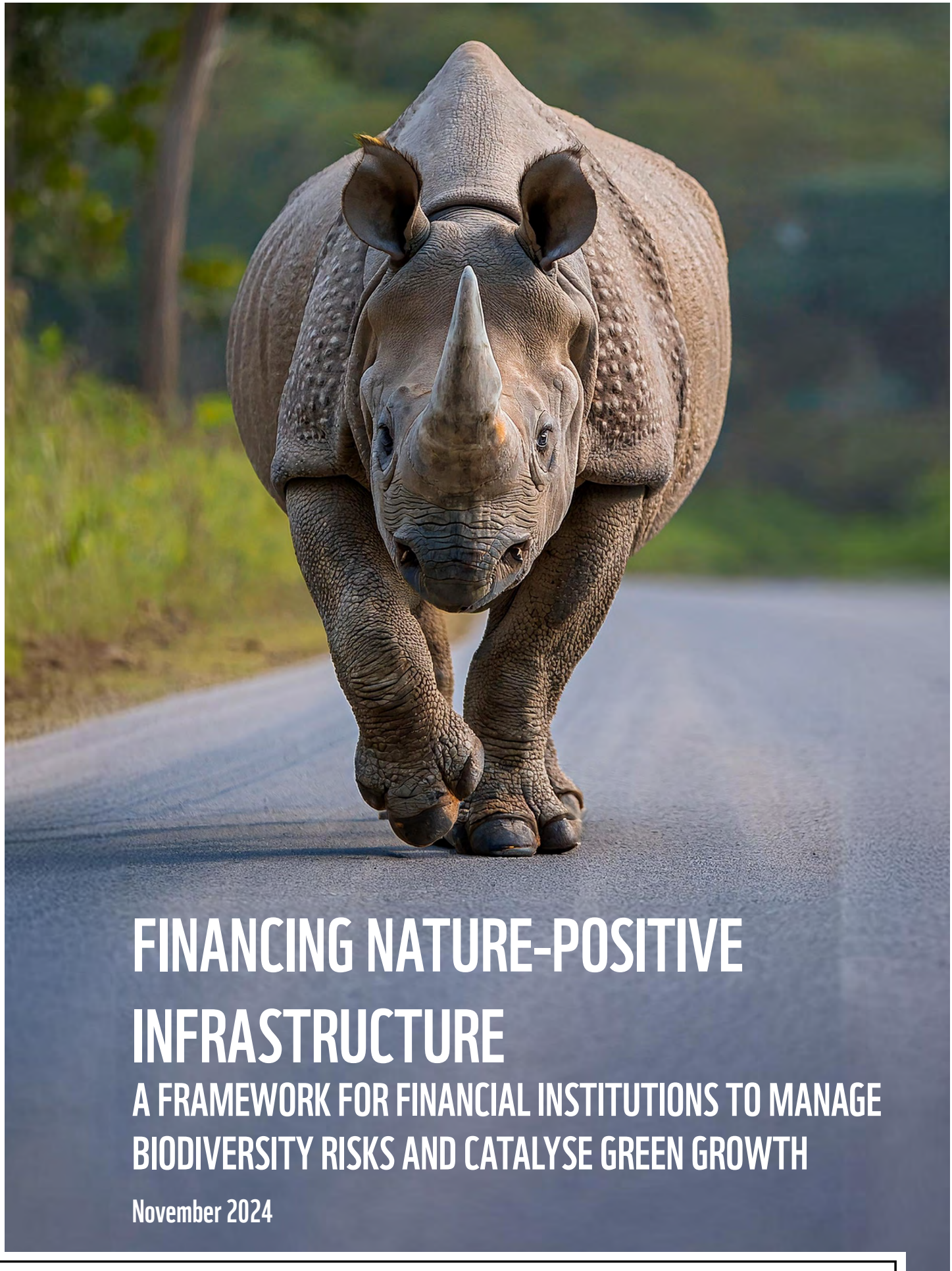

FINANCING NATURE-POSITIVE INFRASTRUCTURE

A FRAMEWORK FOR FINANCIAL INSTITUTIONS TO MANAGE BIODIVERSITY RISKS AND CATALYSE GREEN GROWTH

November 2024

USAID FROM THE AMERICAN PEOPLE

WWF

CENTER for LARGE LANDSCAPE CONSERVATION

ASFÍ ASIA SUSTAINABLE FINANCE INITIATIVE

FOREWORD

Dear Reader

As our world grapples with the twin crises of climate change and biodiversity loss, the role of financial institutions (FIs) in fostering sustainable development has never been more critical. The rapid expansion of infrastructure, particularly in developing regions, has brought unparalleled economic growth and social benefits. However, this progress has often come at the cost of our natural ecosystems, leading to a stark decline in global biodiversity. Recognising this, the international community has increasingly focused on integrating environmental, social, and governance (ESG) criteria into investment decisions, aiming to align financial flows with the goals of sustainable development.

This framework, “Financing Nature-Positive Infrastructure,” is a timely and essential resource for FIs committed to mitigating the adverse impacts of infrastructure development on biodiversity. Drawing from the latest global best practices and the lessons learned from the implementation of climate-related financial strategies, this guide provides a comprehensive roadmap for integrating nature-positive principles into financial decision-making.

The framework’s structured approach, encapsulated in the ‘6Ps’—Purpose, Policies, Processes, Products, People, and Portfolio—offers FIs a practical and actionable strategy to not only minimise negative impacts on nature but also to actively contribute to the restoration and preservation of ecosystems. By adopting these principles, FIs can play a pivotal role in reversing biodiversity loss and achieving the global objective of a nature-positive world by 2030.

As the financial sector faces increasing pressure from regulators, investors, and the public to contribute to sustainable development, this framework serves as a critical tool for navigating the complex landscape of nature-related risks and opportunities. It is our hope that this guide will empower FIs to lead the charge in building a future where economic growth and ecological sustainability go hand in hand.

Kate Newman,
Vice President Sustainable Infrastructure and Public Sector Initiatives, WWF-US

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ACRONYM LIST

ABS	Association of Banks Singapore
ADB	Asian Development Bank
ARCGIS	ARC Geographical Information System
ASEAN	Association of Southeast Asian Nations
ASFI	Asian Sustainable Finance Initiative
AVISTEP	Avian Sensitivity Tool for Energy Planning
BBA	Biodiversity Baseline Assessments
BFFI	Biodiversity Footprint Financial Institutions
BNG	Biodiversity Net Gain
BRF	Biodiversity Risk Filter
BRMI	Biodiversity Risk Method for Investors
CACF	Climate Action Catalyst Fund
CBI	Climate Bonds Initiative
CDL	City Developments Limited
CDP	Carbon Disclosure Project
CICERO	Centre for International Climate Research
CNH	Critical Natural Habitats
COP	Conference of the Parties
DFIs	Development Financial Institutions
DEFRA	Department for Environment, Food & Rural Affairs
DNB	Den Norske Bank
E&S	Environmental and Social
EIB	European Investment Bank
EMP	Environmental Management Plan
ENCORE	Exploring Natural Capital Opportunities, Risks and Exposure
EIAS	Environmental Impact Assessments
ESF	Environmental and Social Framework
ESG	Environmental, Social, and Governance
ESIA	Environmental and Social Impact Assessment
ESRS	European Sustainability Reporting Standards
ESSS	Environmental and Social Standards
EUNIS	European Nature Information System
EVS	Electric Vehicles
FAST-INFRA	Finance to Accelerate the Sustainable Transition-Infrastructure Initiative
FIs	Financial Institutions
GBF	Global Biodiversity Framework
GBIF	Global Biodiversity Information Facility
GIP	Good International Practices
GLOBIO	Global Methodology of Mapping Human Impacts on the Biosphere
GPSC	Global Power Synergy Public Company Limited
GRESB	Global Real Estate Sustainability Benchmark
GRI	Global Reporting Initiative
HSBC	Hong Kong and Shanghai Banking Corporate limited
IBAS	Important Bird and Biodiversity Areas
IBAT	Integrated Biodiversity Assessment Tool
ICMA	International Capital Markets Association
IDB	Inter-American Development Bank
IDB CLIMA	Inter-American Development Bank Climate-Linked Mechanism for Ambition
IFC	International Finance Corporation
IMAS	Investment Management Association of Singapore-
IMO	International Maritime Organization
ING	International Netherlands Group
INVEST	Integrated Valuation of Ecosystem Services and Tradeoffs
ISS	Institutional Shareholder Services
ISSB	International Sustainability Standards Board
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
KBAs	Key Biodiversity Areas
KPIS	Key Performance Indicators
KSTA	Knowledge and Support Technical Assistance
LNRSS	Local Nature Recovery Strategies
LEAP	Locate, Evaluate, Assess, Prepare
LI	Linear Infrastructure
LPAS	Local Planning Authorities
MDBS	Multilateral Development Banks
MSA	Mean Species Abundance
NBSs	Nature-based Solutions
NCFA	Natural Capital Finance Alliance
NDVI	Normalised Difference Vegetation Index
NNL	No Net Loss
NSFH	Nature Solutions Finance Hub

PACTA	Paris Agreement of Capital Transition Assessment
PBAF	Partnership for Biodiversity Accounting Financials
PCGS	Partial Credit Guarantees
PIDG	Private Infrastructure Development Group
PPPS	Public Private Partnerships
PRGS	Partial Risk Guarantees
PSS	Performance Standards
PWS	Phipsoo Wildlife Sanctuary
PT SMI	PT Sarana Multi Infrastruktur
PWS	Phipsoo Wildlife Sanctuary
S&P	Standard & Poor's
SBTI	Science Based Targets Initiative
SBTN	Science Based Targets Network
SDGS	Sustainable Development Goals
SEAS	Strategic Environmental Assessments
SLLS	Sustainability-Linked Loans
SPTS	Sustainability Performance Targets
SSSIS	Sites of Special Scientific Interest
STAR	Species Threat Abatement and Restoration
SUSBA	Sustainable Banking Assessment
TA	Technical Assistance
TIF	Tax Increment Financing
TNFD	Taskforce on Nature-related Financial Disclosures
TRTA	Transactions Technical Assistance
UN	United Nations
UOB	United Overseas Bank
USAID	United States Agency for International Development
VELMA	Visualising Ecosystems for Land Management Assessment
WDPAS	World Database on Protected Areas
WMBC	We Mean Business Coalition
WRF	Water Risk Filter
WRI	World Resources Institute
WWF	World Wide Fund for Nature

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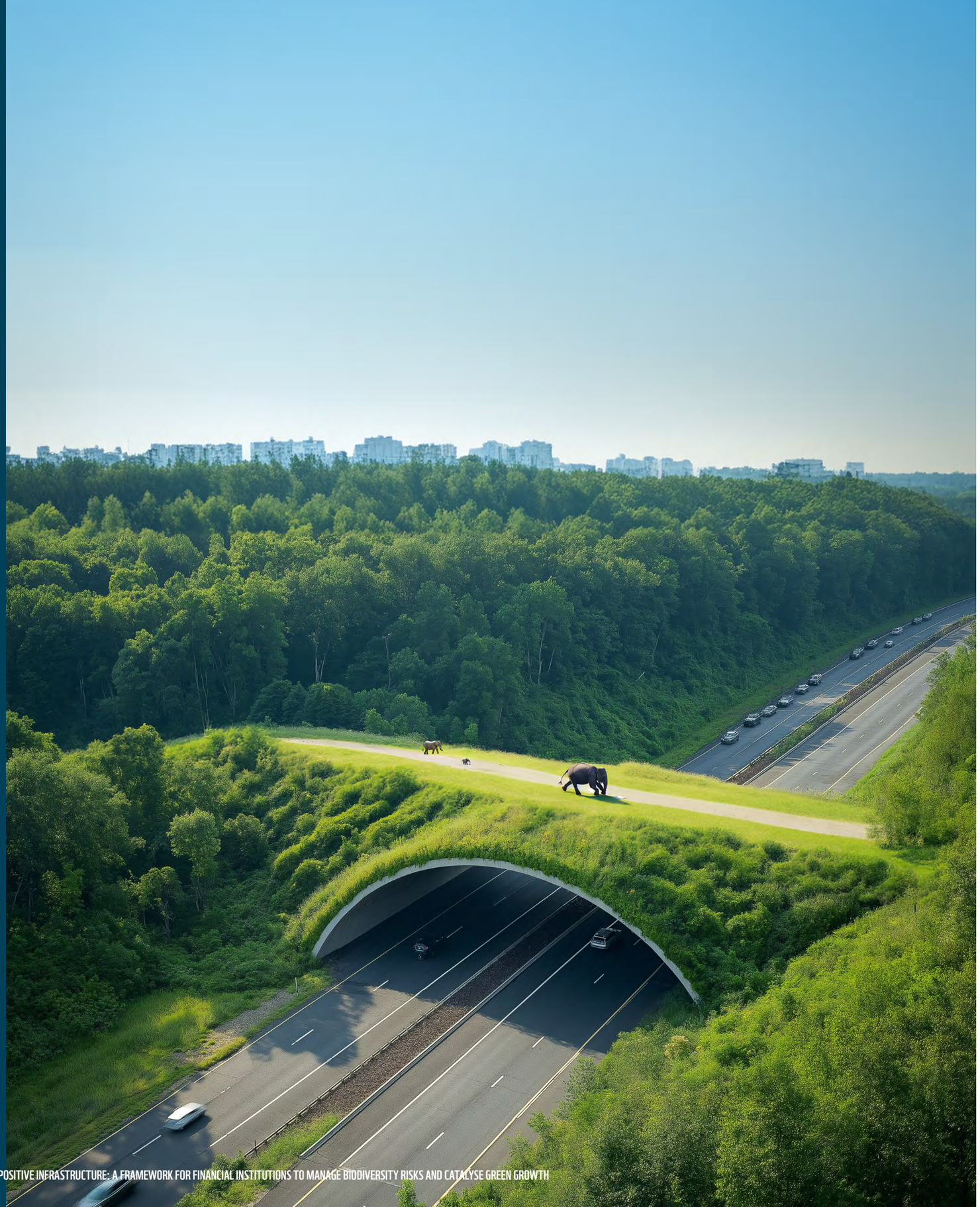


EXECUTIVE SUMMARY

The adoption of the Kunming-Montreal Global Biodiversity Framework (GBF) signifies a watershed moment in the global endeavour to halt and reverse the alarming decline in biodiversity by 2030. As countries translate this ambitious framework into their national regulatory environments, financial institutions (FIs) investing in infrastructure face a complex and evolving landscape of transition and physical risks.

These risks stem not only from the dynamic regulatory requirements for nature protection in infrastructure projects, which can substantially impact project planning, construction, and operations but also from the fluctuating economic factors such as subsidy structures and land prices, coupled with the growing prominence of biodiversity and carbon credits in the financial landscape. Additionally, the physical risks associated with biodiversity loss—such as the increased frequency and severity of natural disasters, changes in ecosystem services, and the direct impacts of climate change—pose significant challenges. This intricate interplay of factors has the potential to significantly influence the financial viability and long-term sustainability of infrastructure schemes, particularly those of considerable scale.

Infrastructure, being the backbone of human existence, is inextricably linked to the health of our planet's ecosystems. However, the rapid expansion of infrastructure networks over recent decades has coincided with a distressing decline in global biodiversity, with wildlife populations having plummeted by an average of 60%. This stark reality underscores the urgent need to re-evaluate the relationship between infrastructure development and its impact on the delicate balance of our natural world.

INTRODUCTION

Recognising the interconnectedness of the climate and nature crises, there is an increasing imperative to realign financial flows to support both climate resilience and the restoration of natural ecosystems. The lessons gleaned from addressing climate change offer valuable insights into navigating the complexities of the nature crisis. These lessons can inform the development of effective tools and strategies to harmonise the private sector with nature objectives, including the strategic implementation of transition plans that address both climate and nature-related risks.

Transition plans, in this context, are comprehensive and time-bound action plans that articulate how companies and FIs intend to not only reduce their carbon emissions and mitigate climate risks but also address their broader impact on nature. These plans transcend theoretical frameworks by outlining clear, actionable steps towards achieving science-based nature targets that are harmonised with climate goals, recognising the critical interdependencies between these two pressing global challenges. The integration of climate and nature considerations is crucial for identifying and managing potential trade-offs, ensuring that actions taken to address one crisis do not inadvertently exacerbate the other.

Furthermore, transition planning is not merely confined to risk mitigation; it represents a profound and holistic transformation of entire institutions and their operational paradigms. This transformation necessitates a comprehensive revaluation and redesign of commitments, strategies, policies, processes, products and services, staff competencies, and investment portfolios to align with the overarching goal of fostering a nature-positive world.

Against the backdrop of escalating environmental challenges and evolving regulatory landscapes, this Framework emerges as a critical tool for guiding FIs through this transformative journey. This practical framework, drawing on expertise from initiatives like the WWF-Singapore's SUSBA and incorporating international best practices, provides a structured, step-by-step approach to help institutions achieve nature-positive goals. These goals encompass not only minimising negative environmental impacts but also actively contributing to the protection, restoration, and regeneration of natural ecosystems, while also ensuring alignment with reporting requirements set by either the Taskforce on Nature-related Financial Disclosures (TNFD) framework or national regulations.

This framework's comprehensive approach, encapsulated in the '6Ps' of environmental and social (E&S) integration – *Purpose, Policies, Processes, Products, People, and Portfolio* – ensures that every facet of activities performed by FIs are aligned with nature-positive principles. From establishing a clear commitment to supporting a healthy planet to integrating nature considerations into investment policies, developing robust methodologies for assessing nature-related risks, designing innovative financial products that incentivise sustainable practices, investing in staff training and capacity building, and actively managing portfolios to reduce nature-negative exposure, the framework provides a holistic roadmap for institutional transformation.

By embracing this framework and developing credible transition plans, FIs can play a pivotal role in reversing biodiversity loss, achieving the global goal of a nature-positive planet by 2030, and fostering a resilient and sustainable future for both the planet and its inhabitants. This transformative journey will not only mitigate risks and enhance their reputation but also unlock new opportunities for sustainable growth and innovation in the infrastructure sector. In doing so, FIs can demonstrate their commitment to environmental stewardship, build trust among stakeholders, and contribute to a world where economic prosperity and ecological well-being are inextricably linked.

LINEAR INFRASTRUCTURE DEVELOPMENT AND BIODIVERSITY LOSS

The adoption of the Kunming-Montreal GBF in 2022 marks a pivotal moment in the global effort to halt and reverse the alarming decline in biodiversity by 2030. However, while this framework sets ambitious targets for conservation and restoration, it also introduces a new layer of complexity for FIs investing in infrastructure. As countries translate the GBF into national regulations, FIs face an evolving landscape of risks, both physical and transitional. These risks are not only financial but also environmental, as the framework necessitates stricter regulations on infrastructure projects to protect and restore biodiversity.

One of the most pressing concerns highlighted by the GBF is the escalating threat of biodiversity loss. Scientific evidence indicates that species populations have plummeted by 69% across all biomes since 1970, with some regions experiencing even more catastrophic declines, such as the 94% decrease in Latin America and the Caribbean[1].

A significant driver of this alarming trend is the rapid and often poorly planned expansion of **linear infrastructure (LI)**. LI encompasses a vast network of infrastructure built along horizontal alignments, including roads, railways, pipelines, power transmission lines, and even recreational trails. These projects fragment habitats, disrupt migration corridors, and modify natural landscapes, severely impairing ecological connectivity.

The consequences of LI-induced habitat fragmentation are far-reaching. By restricting the movement of wildlife and disrupting gene flow, it can lead to local extinctions, reduced genetic diversity, and increased vulnerability to disease and environmental stressors[2]. Moreover, habitat fragmentation disrupts essential ecosystem services, such as pollination, seed dispersal, and nutrient cycling, upon which both wildlife and human communities depend[3]. These impacts are not confined to the immediate vicinity of LI projects; noise, air, and light pollution can radiate outwards, affecting the behaviour, health, and reproductive success of numerous species[4].

The urgency of addressing the biodiversity crisis, as underscored by the GBF, is further amplified by the growing recognition of LI's detrimental role in ecological degradation. The continued expansion of LI without adequate consideration for biodiversity conservation will undoubtedly exacerbate the ongoing decline of species and ecosystems, with potentially irreversible consequences for both nature and human society.

Globally, infrastructure investment is expected to reach $94 trillion by 2040, with a further $3.5 trillion needed to meet the United Nations (UN) Sustainable Development Goals (SDGs) for electricity and water[5]. Construction of LI is steadily increasing in Asia, where the highest infrastructure investment rates take place, mostly led by the transport and energy sectors[6]. Even though LI is necessary in such emerging economies to support accessibility to transportation and electricity, the UN SDGs have included goals to protect biodiversity (i.e., SDG 9 aims to develop infrastructure networks while SDGs 14 and 15 aim to end biodiversity loss[7]).

Without structured planning, habitats surrounding LI will begin to lose biodiversity locally[8]. This can have devastating consequences for the environment, such as reduced carbon sequestration, increased soil erosion, and disrupted water cycles. If LI investments are not low-carbon or nature-positive in the future, it will lead to even more severe environmental risks and impacts.

BOX 1

WHY THE GBF MATTERS TO THE FINANCIAL SECTOR

NEW RISK ASSESSMENTS: Infrastructure projects that previously may have seemed low-risk now carry the potential for biodiversity-related impacts. FIs will need to implement more comprehensive due diligence processes that identify and quantify these risks before investing. This will likely increase costs and due diligence timelines.

CHANGING PROJECT LANDSCAPES: Infrastructure projects might need to be redesigned, relocated, or even cancelled altogether if they are found to be in significant conflict with biodiversity goals. This could lead to delays, cost increases, or the stranding of already committed capital.

REPUTATIONAL RISKS: FIs associated with financing projects that negatively impact biodiversity could face reputational damage and public backlash, leading to divestment and difficulty attracting future clients.

EVOLVING REGULATORY ENVIRONMENT: New policies and regulations inspired by the GBF's implementation will likely create compliance burdens and increase scrutiny of infrastructure investments. FIs will need to enhance their processes and potentially build new capacity to navigate this shifting field.

OPPORTUNITY FOR INNOVATION: The GBF's goals of restoration and sustainability open up sizable opportunities for FIs specialising in nature-based solutions (NbS), ecological infrastructure, and regenerative project financing. Proactive FIs that lead in these areas can attract new capital, gain market share, and position themselves as leaders in the transition to a greener economy.

1 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). 2019. Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (eds.). IPBES secretariat, Bonn, Germany.

2 Jaeger, J. A. G., Bertiller, R., Schwick, C., Müller, N., Steinmeier, C., Ewald, K. C., & Jetz, W. 2018. Implementing global infrastructure development goals in a biodiversity conservation framework. Proceedings of the National Academy of Sciences, 115(34), 8530-8535.

3 Hilty, J. A., Keeley, A. T., Lidicker Jr, W. Z., & Merenlender, A. M. 2020. Corridor ecology: Linking landscape and population ecology. Island Press.

4 Bennett, Y. M., Zurcher, H., & Betts, M. G. 2019. Impacts of anthropogenic linear features on wildlife: a global synthesis. Environmental Reviews, 27(1), 1-17.

5 Global Infrastructure Outlook. 2017. Infrastructure Investment needs 50 countries, 7 sectors to 2040. Available here.

6 World Bank Group. 2023. Private Participation in Infrastructure (PPI) 2023 Annual Report. Available here.

7 United Nations Development Programme. Undated. The SDGs in Action. Available here.

8 Zhao X., Li F., Yan Y., Zhang Q. 2022. Biodiversity in Urban Green Space: A Bibliometric Review on the Current Research Field and Its Prospects. Available here.

DOUBLE MATERIALITY

Infrastructure assets have critical impacts and dependencies on biodiversity and ecosystems. Throughout their lifespan, these assets encounter a spectrum of E&S issues, with variations based on factors such as asset type, sector, size, location, and life cycle stage. Some challenges stem directly from the asset itself, adversely affecting its surroundings and neighbouring communities—examples include the loss of carbon sinks and impacts on local quality of life, representing externalities. On the other hand, external factors, like water scarcity or evolving regulations, can influence an asset's operational capability and profitability. The interconnected nature of these challenges, coupled with the potential for feedback loops, such as community protests, underscores the intricate relationship between infrastructure assets and their financial performance. Recognising the dual impact pathways—from the asset to its surroundings and from external factors onto the asset—becomes imperative, as both directions can yield financial consequences for investors. This comprehensive understanding, often referred to as **'double materiality**', is crucial for incorporating sustainability considerations into investment decisions and managing the multifaceted risks associated with infrastructure assets.

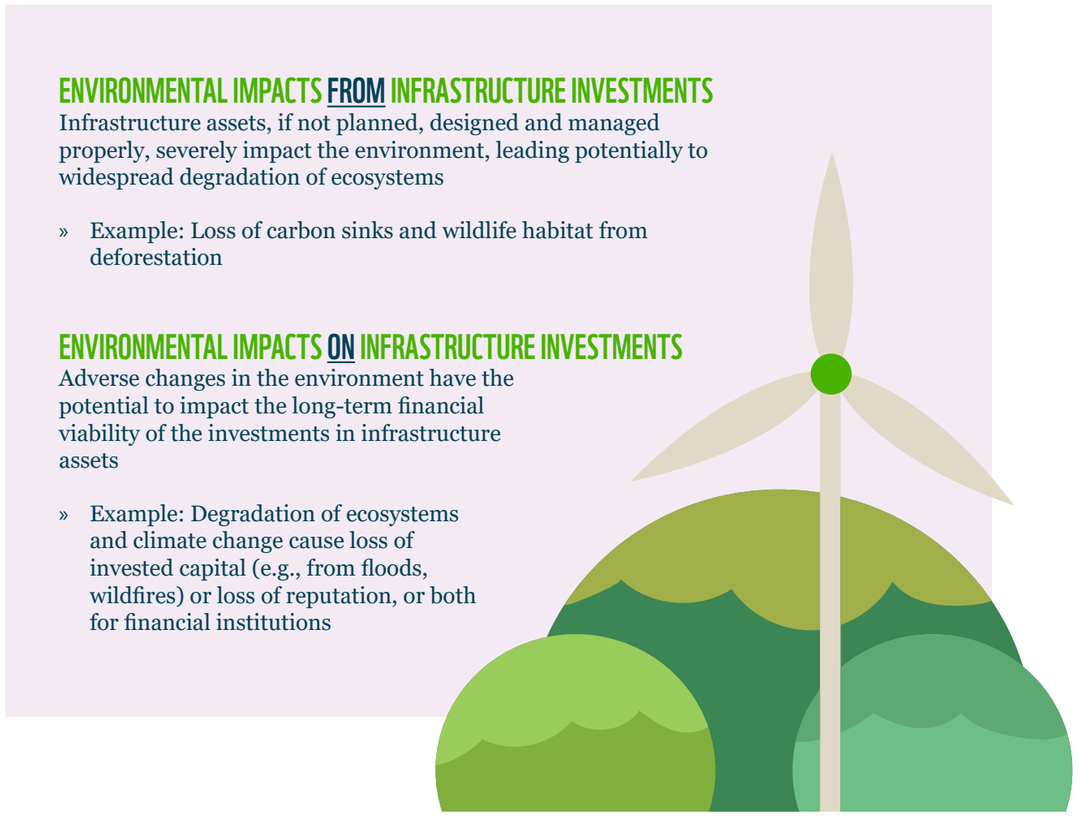


Figure 1. Environmental impacts both from and on infrastructure-related investments. Source: WWF, 2022.

LI investments can exert profound and multifaceted effects on the environment, encompassing both direct and indirect impacts that reshape ecosystems, biodiversity, and natural resources. These impacts are not always immediately apparent or easily quantifiable, but understanding their nuances is crucial for comprehensive environmental assessments and informed decision-making.

Direct impacts are the most immediate and tangible consequences of LI investments. They result from the physical alteration of landscapes during the construction, operation, and decommissioning of infrastructure projects. They are characterised by their immediate onset, typically occurring during or shortly after project implementation, and their localised nature, often confined to the project's immediate vicinity. Examples of direct impacts are provided in the box below.

IMPACT	DESCRIPTION
HABITAT LOSS	LI development often leads to conversion of land and other ecosystems. Environmental problems caused by LI, such as loss and fragmentation and degradation of habitat, significantly impacts the climate, biodiversity and people.
HABITAT FRAGMENTATION	LI can fragment existing natural habitats, restricting the movement of vital species, disrupting animal migration patterns and increasing the risk of species extinction. Fragmentation can result in change in vegetation in LI corridors. Habitat loss and fragmentation also affects indigenous communities who rely on local natural resources for their livelihoods.
BARRIER AND FILTER EFFECTS	LI can form a barrier or a filter to the movement of wildlife, impede ecological flows, and reduce beneficial natural processes and ecosystem services. High volume and high-speed roads and railways, for example, are considerable barriers impeding animal movement, and these barrier effects increase with road width, traffic volume and speed, noise, vibration, and habitat alteration.
ANIMAL MORTALITY OR INJURY	LI sites can potentially be dangerous areas for animals, resulting in injury or death. This has long-term consequences for the survival of wildlife, especially those that are rare, occur at low-densities or have low reproductive potential. Some examples include wildlife mortality/injury caused by vehicle collisions as animals attempt to cross roads intersecting their habitats, strikes by trains in areas where animals live adjacent to railway lines, electrocution from power lines and utility poles, and drownings in canals while attempting to cross or access water for drinking.
POLLUTION	Constructing LI, such as roads, through animal habitats result in an increase in noise and air pollution through emissions by vehicles. The introduction of foreign noises can severely impact the survivability of nearby animal species[9], and increased anthropogenic emissions can increase nearby plant's susceptibility to disease[10] and other environmental stresses.
DISPLACEMENT AND SOCIAL DISRUPTION	Large-scale LI projects can lead to the displacement of communities living in project areas, causing social disruption, loss of cultural heritage, and displacement-related challenges such as inadequate housing, loss of access to resources, and disruptions to social networks and community cohesion.

Table 1: Direct impacts of LI on the environment, accompanied by their descriptions.

9 Arcangeli G., Lulli L., Traversini V., Sio S.,Cannizzaro E., Galea R., Mucci N . 2022. Neurobehavioral Alterations from Noise Exposure in Animals: A Systematic Review. Available here.

10 Smith F., Luna E. 2023. Elevated atmospheric carbon dioxide and plant immunity to fungal pathogens: do the risks outweigh the benefits? Available here.

Figure 2. (Left) Nine-banded armadillo (Dasypus novemcinctus) roadkill in Costa Rica. Source: IUCN, 2023[11]. Figure 3 (Right). Forest clearing for construction of a toll road through rural land. The amount of land that needs to be cleared for infrastructure projects is often much wider than the roads, rails, or canals themselves. Source: IUCN, 2023[12].

Indirect impacts are more complex and may manifest over a more extended period, unfolding gradually or at a broader scale, often extending beyond the project's boundaries.

These consequences are often secondary or cumulative, arising from the interactions and cascading effects triggered by infrastructure activities.

IMPACT	DESCRIPTION
HABITAT DEGRADATION FROM POLLUTION	LI can produce light, noise and runoff pollution from passing vehicles and trains. This includes air, water and noise pollution, particularly from vehicle emissions and industrial activities associated with infrastructure construction which can collectively degrade habitats and their ecological functions.
HABITAT DEGRADATION FROM HUMAN PROXIMITY	Increased human access enables poaching, illegal logging, unplanned development and the introduction of invasive species. Infrastructure plays a key role in opening otherwise intact forested regions to legal and illegal logging, hunting, mining and settlement. The proliferation of unplanned illegal roads and other infrastructure in remote and intact ecosystems is one of the most serious conservation problems in tropical countries today.
DEFORESTATION AND CONVERSION	Deforestation is a significant contributor to global greenhouse gases and is a major driver of both climate change and biodiversity loss. Deforestation and conversion also destroy nature's carbon sinks, reducing their capacity to absorb carbon dioxide from the atmosphere, further exacerbating climate change. Locally, land conversion damages and reduces the territory of wildlife habitats, as well as contributing to soil erosion, further decreases access to fertile land and clogging waterways, resulting in a decline in fish and other species13.
LOSS OF ECOSYSTEM SERVICES	Intact ecosystems provide a wide range of ecosystem services, including clean air and water, soil fertility, pollination, and climate regulation. Degradation of these ecosystems due to LI development can diminish the provision of these services, impacting human health, well-being, and resilience to environmental changes. Communities relying on ecosystems for agriculture, fishing, hunting, gathering, and other subsistence activities may face reduced access to essential resources, threatening their economic stability and food security. For example, changes in water runoff patterns can lead to soil erosion, altered river courses, and increased risk of flooding or drought, negatively affecting aquatic ecosystems.
INVASIVE SPECIES	Constructing LI that incorporates natural solutions or anything regarding biodiversity offsets runs the chance of introducing a non-native species into the environment. Sometimes, these alien species can become a significant threat to the surrounding biodiversity by becoming invasive, spreading rapidly and destroying, or out-competing, native species.
HEALTH IMPACTS	Degraded environments may increase exposure to pollution, waterborne diseases, and other health risks, affecting the health and well-being of local communities. Reduced access to clean water, nutritious food, and medicinal plants can exacerbate health disparities and undermine community resilience to disease outbreaks and environmental disasters.

Table 2: Indirect effects of LI on the environment, accompanied by their descriptions.

Typically, direct impacts are often more easily observed and quantified, whereas indirect impacts may necessitate a deeper understanding of complex ecological, social, and economic systems for their identification and measurement. For instance, the direct impact of a new highway might be the immediate loss of forest habitat, while the indirect impacts could include changes in local hydrology, altered species migration patterns, or shifts in community dynamics. Importantly, both direct and indirect nature-related impacts can present either risks or opportunities for infrastructure projects. Risks can manifest as financial losses due to project delays, cost overruns, or asset devaluation, as well as reputational damage resulting from negative environmental or social impacts. On the other hand, opportunities can arise from projects that enhance biodiversity, promote sustainable resource use, or contribute to climate change mitigation. These projects can attract new investment, improve operational efficiency, and bolster the project's social licence to operate.

11 IUCN. 2023. Addressing ecological connectivity in the development of roads, railways and canals. Available here.

12 Ibid.

13 WWF. Undated. What is Soil Erosion? Effects of Soil Erosion and Degradation. Available here.

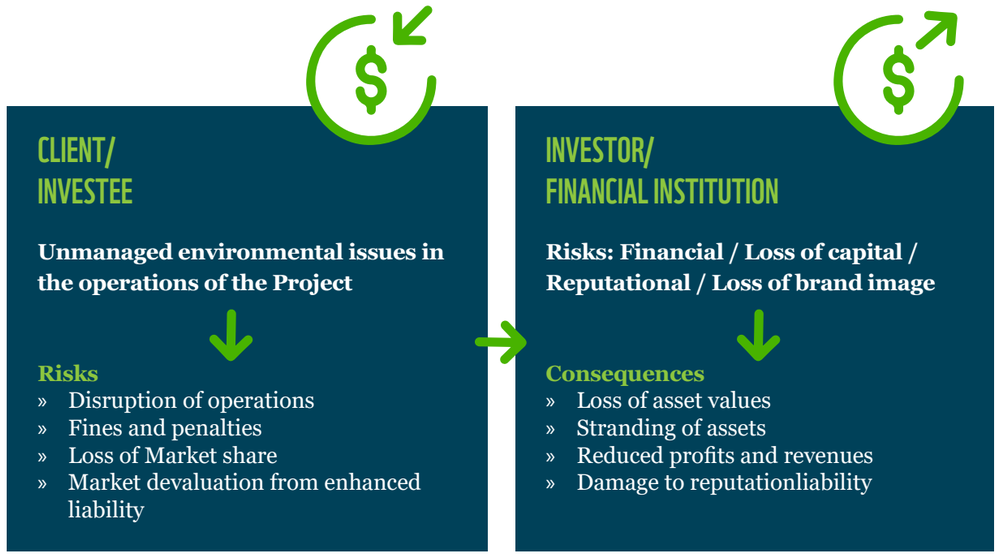


Figure 4. Infrastructure investments face environmental risks given the extensive ecological damage poorly managed assets can cause: Source: WWF, 2022.

FINANCIAL RISKS: These pertain to the potential loss of invested capital. For instance, if the negative impacts of projects on biodiversity are not effectively managed, it could lead to project delays, increased costs, or even project cancellations. These outcomes, in turn, adversely impact the cash flows of the project proponent and subsequently diminish the return on capital for the investor. The financial risks associated with inadequate environmental, social and governance (ESG) management are tangible and can significantly affect the economic viability of infrastructure projects.

REPUTATIONAL RISKS: These involve the adverse impact on an institution's reputation stemming from negative public perception. In some instances, these risks may result in immediate financial losses for investors, especially when projects face public opposition or negative media attention. Additionally, even if the losses do not have an immediate monetary impact, they can have medium to long-term consequences by directly affecting the viability of a particular project or influencing the overall brand perception of the investor. Managing reputational risks is crucial for sustaining investor trust and ensuring the long-term success of infrastructure investments.

In essence, the effective management of E&S issues is essential not only for mitigating negative impacts but also for recognising and capitalising on positive business opportunities. Investors who proactively address these risks and opportunities contribute not only to the financial success of infrastructure assets but also to the overall sustainability and resilience of their investment portfolios.

BOX 2

THE INTER-AMERICAN DEVELOPMENT BANK PROJECT REVIEW: FINANCIAL RISKS DUE TO FAILURE TO MANAGE NEGATIVE IMPACTS OF INFRASTRUCTURE PROJECTS ON NATURE CAN CAUSE DELAYS, INCREASE COSTS, OR LEAD TO CANCELLATIONS

The Inter-American Development Bank (IDB) conducted a notable study in 2017, investigating the nature and repercussions of conflicts in infrastructure projects across Latin America and the Caribbean. Of the 200 projects, which encountered diverse E&S conflicts, the findings revealed significant impacts on project outcomes. Specifically, 36 projects were outright cancelled, 116 experienced cost overruns, and 162 faced delays. Furthermore, conflicts escalated more often in countries that lack the institutional capacity to manage them effectively. IDB also found that project cancellations, cost overruns, and delays not only affect the operational and financial aspects of the projects themselves but also have broader implications for investors and stakeholders.

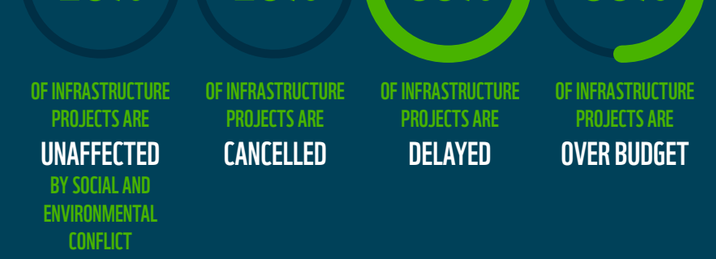


Figure 5. Financial risks arising from failure to manage negative impacts of infrastructure projects on nature can cause delays, increase costs or lead to cancellations. Source: IDB, 2017.

The study underscores the tangible consequences that E&S conflicts can have on infrastructure initiatives. These findings emphasise the importance of robust institutional frameworks for conflict resolution and project management in ensuring the successful implementation of infrastructure projects. The IDB's investigation serves as a compelling illustration of how E&S considerations, particularly conflicts, can directly impact the outcomes of infrastructure ventures, influencing both their financial viability and overall success.

14 IDB. 2017. Lessons from Four Decades of Infrastructure Project-related Conflicts in Latin America and the Caribbean. Available here.
15 Ibid.

INTEGRATING SUSTAINABILITY INTO INFRASTRUCTURE INVESTMENT

To mitigate negative E&S risks and impacts and capitalise on opportunities, FIs need to integrate sustainable decision-making into all phases of their infrastructure investment projects. To do this, FIs need to remain relevant with ever-changing sustainable developments and best practices. For instance, several of these factors have been recently driving the surge of interest in biodiversity risk and impact assessment:

EVOLVING REGULATORY LANDSCAPE: New standards and disclosure frameworks like those from the TNFD and the Science Based Targets Network (SBTN) are setting expectations for how companies and FIs must assess and report on their biodiversity impacts.

LANDMARK GLOBAL AGREEMENT: The Kunming-Montreal GBF, adopted at the 15th conference of the parties, COP15, outlines a crucial roadmap with internationally agreed targets for biodiversity protection.

NATIONAL-LEVEL POLICY SHIFTS: Countries like France, with Article 29 of its Energy Transition Law, are leading the way by mandating biodiversity impact reporting from FIs.

INVESTOR PRESSURE: Initiatives such as Nature Action 100 are mobilising investors to demand accountability from corporations, pushing them to take their role in halting biodiversity loss seriously.

These interlinked forces are fundamentally changing the way businesses and FIs consider biodiversity, from a side issue to a key risk that needs to be understood, measured and managed. This paradigm shift necessitates the adoption of guiding principles that embody a nature-positive approach, encompassing both overarching principles that shape a holistic sustainability framework and more granular, finance/asset-specific principles. A prime example of such an approach is the World Wide Fund for Nature (WWF) philosophy on sustainable infrastructure investment. WWF advocates for a dual strategy: prioritising natural infrastructure solutions whenever possible and minimising the negative impacts of traditional "grey" infrastructure when it is unavoidable. This approach aligns with the growing recognition that investing in nature can yield significant benefits for both biodiversity and the financial bottom line.

1 INVEST IN NATURAL INFRASTRUCTURE:

Whenever possible, WWF encourages investors to choose natural infrastructure as a primary option. This involves initiatives such as rehabilitating natural features like mangroves rather than opting for conventional structures such as seawalls to manage issues like flooding. By leveraging the inherent benefits of ecosystems, this approach aligns with the principles of conservation and sustainability.

2 IMPROVE EXISTING ASSETS:

WWF recommends enhancing the footprint or utilisation of existing infrastructure assets before considering new developments. Utilising technologies like smart road systems, sensors, and software can optimise the capacity of existing infrastructure, contributing to efficiency gains and minimising the need for expansion.

3 PRIORITISE SUSTAINABLE ASSET OPTIONS AND APPROACHES:

When embarking on new infrastructure projects, WWF stresses the importance of prioritising sustainability across various dimensions. This includes considerations such as the type of asset (e.g., favouring solar energy over environmentally impactful alternatives like coal or hydropower), location choices that avoid undermining essential ecosystem services and critical habitats, and the adoption of sustainable practices in construction materials and methodologies. Consulting with Indigenous people and local communities, along with integrated planning and environmental assessments, are crucial in ensuring comprehensive sustainability.

By integrating these principles into investment decisions, FIs and investors can contribute to more sustainable and resilient LI solutions that align with conservation goals and benefit both ecosystems and communities.

To get a sense of how FIs can implement these principles along their sustainability journey, WWF has defined 6 phases that FIs and investors typically go through. These are Purpose, Policies, Processes, People, Products and Portfolio (the 6Ps). This framework serves as a roadmap, guiding organisations through the essential steps of integrating E&S considerations into their core operations and investment strategies. This 6P framework is deeply rooted in the WWF's SUSBA tool, a comprehensive methodology for evaluating an FI's ESG integration performance. The SUSBA tool provides a robust benchmark against industry peers, highlighting strengths and areas for improvement. This data-driven approach enables organisations to track their progress, identify gaps, and make informed decisions to enhance their ESG practices over time.

Pillars		Criteria	Description
PURPOSE	1	Acknowledgement of nature double materiality & commitment	Establish an unwavering commitment to addressing nature loss by integrating environmental stewardship into every financial decision. Acknowledge the double materiality of nature-related issues, recognising that strong sustainability performance is essential for meeting national and international targets (e.g., GBF) and for responding to growing regulatory demands. Engage stakeholders in sustainable finance and prioritise data sharing on biodiversity to enhance collaboration and informed decision-making. As sustainability is an ever-evolving field, this commitment must steer all actions and strategic planning to adapt and thrive in a changing landscape.
	2	Stakeholder engagement & sustainable finance initiatives participation	
	3	Sustainability strategy development	
POLICIES	4	Public statements on specific E&S issues	Clearly articulate positions on specific Environmental & Social (E&S) issues to guide stakeholders. Issue sector-specific statements, particularly for LI, to address unique challenges and standards. Embed nature-related factors into every aspect of investment policies and risk management frameworks, including safeguard policies and due diligence processes, to ensure comprehensive assessment and mitigation of nature-related impacts and risks. Ensure transparent policies that reflect commitments are integrated into daily operations. Develop specific policies for high-risk sectors and critical cross-cutting issues like climate change and biodiversity loss to ensure consistent and effective performance.
	5	Public statements on specific sectors	
PROCESSES	6	Assessing nature-related risks and impacts at project, transaction and client level	Assess nature-related risks and impacts at the project, transaction, and client levels. Implement ongoing monitoring and stakeholder engagement to ensure continuous alignment with nature-positive goals. Establish robust monitoring and reporting mechanisms to track progress toward nature-positive objectives, identifying areas for improvement. Ensure that E&S policies are effectively implemented by integrating relevant criteria transparently into client and transaction approval processes, with meaningful consequences for non-compliance.
	7	Monitoring and engagement	
PEOPLE	8	Responsibilities for E&S risks and opportunities	Clearly define and allocate responsibilities for E&S risks and opportunities across all levels, including different departments and senior management. Provide comprehensive E&S training for staff and regularly evaluate their performance to ensure they are equipped to effectively implement E&S policies. Ensure sufficient staff capacity and clear role allocation are in place to support the effective implementation of E&S strategy, policies and processes.
	9	Staff E&S training and performance evaluation	
PRODUCTS	10	E&S integration in products and services	Design and offer innovative financial products that explicitly support nature conservation and restoration. This includes green bonds, sustainability-linked loans (SLLs), and other financial instruments that incentivise sustainable practices in infrastructure projects. Actively seek opportunities to finance projects that contribute to biodiversity conservation, habitat restoration, and ecosystem services enhancement.
PORTFOLIO	11	E&S risk assessment and mitigation at portfolio level	Conduct comprehensive E&S risk assessments at the portfolio level, rigorously evaluating nature-related risks and impacts, and implementing mitigation strategies to address identified issues. Disclose E&S risk exposure and set science-based targets for transparency and accountability. Actively manage portfolios to minimise exposure to nature-negative activities, such as projects involving deforestation or habitat loss, while increasing investments in nature-positive projects that deliver tangible environmental benefits and support ecosystem restoration.
	12	Disclosure of E&S risk exposure and science based targets	

Figure 6. WWF's six pillar ESG integration framework. Source: WWF, 2021[16].

16 WWF. 2021. Mapping ESG Integration in Public Infrastructure Finance in the Asia Pacific. Available here.

PILLAR 1: PURPOSE

ESTABLISHING A NATURE-POSITIVE FOUNDATION

ACKNOWLEDGING NATURE LOSS ISSUES AND COMMITMENT

In the face of accelerating nature loss as a result of poorly planned LI projects, FIs and investors must first internalise the importance of sustainability and weave environmental factors into their core commitments and strategies. While the UN SDGs serve as a valuable framework, there is a critical need to elevate the focus on biodiversity conservation.

Senior management plays a crucial role in driving this commitment forward by crafting a strategic statement aligned with the Kunming-Montreal GBF. This entails wholeheartedly embracing and endorsing the framework's goals and targets, which encompass the restoration of ecosystems, the sustainable utilisation of biodiversity, the responsible sharing of genetic resources, and the facilitation of technology access and dissemination for framework implementation. This proactive approach should acknowledge the dual materiality associated with LI investment decisions.

To operationalise this commitment, FIs must proactively realign their asset allocation practices and investment strategies with biodiversity conservation goals. This involves **making credible and comprehensive sustainable finance commitments** that explicitly include a commitment to biodiversity action. Effective engagement with relevant stakeholders is essential, fostering collaboration among FIs through mechanisms such as impact and risk-related data sharing and transition planning that integrates nature considerations.

BOX 3

ASN BANK'S BIODIVERSITY COMMITMENT

For example, ASN Bank is committed to maintaining and strengthening biodiversity. By 2030, the bank wants all its lending and investment activities to have a net positive impact on biodiversity. The bank has set a long-term biodiversity objective for all their investments. Their aim is to prevent further loss of biodiversity and contribute to net biodiversity gains — and thereby actively strengthen nature in the Netherlands and the wider world. This is laid down in the bank's long-term objective: all their investments and loans must have a net positive effect on biodiversity by 2030. In other words, their activities must, on balance, produce more benefit than harm for biodiversity.

They do this in three ways:

REDUCE BIODIVERSITY LOSS: they aim to minimise the biodiversity loss resulting from their loans and investments. They believe that the carrying capacity of our earth is sufficient to sustain our prosperity - whilst keeping our ecology and economy in balance. They can use the resources that nature offers us but must do so responsibly without crossing the earth's planetary boundaries. The challenge, therefore, is to make more careful and efficient use of our resources. You can find more information on this topic in their Circular Entrepreneurship Policy Document.

INCREASE BIODIVERSITY GAINS: they are exploring ways to boost their biodiversity gains - notably by strengthening or restoring the carrying capacity of ecosystems. To this end, they invest in nature development, renewable energy, and the circular economy. And work together with nature organisations, water companies, and developers of biodiversity projects, such as the Rijke Noordzee Project.

DEVELOP AND SHARE A MONITORING METHOD: they have developed the Biodiversity Footprint Financial Institutions (BFFI) to calculate their ecological footprint and monitor their progress. They are also continuously improving the quality of their ecological footprint data. By reporting on their efforts, they help FIs gain greater understanding and awareness of their impact on biodiversity in order to assist better decision-making on biodiversity issues.

In addition, ASN Bank is an active member of the Sustainable Finance Platform of Den Norske Bank (DNB) and a co-initiator of the biodiversity working group. Within this working group, the bank makes a contribution towards disseminating knowledge on and raising awareness of the urgency of biodiversity loss and studying how FIs can do more to track down and stop deforestation.

17 ASN Bank. 2021. Biodiversity Policy. Available here.

STAKEHOLDER ENGAGEMENT AND PARTICIPATION IN SUSTAINABLE FINANCE INITIATIVES

Encouragingly, FIs have the opportunity to **participate in nature coalitions such as the Finance for Biodiversity pledge**[18]. The Pledge was initiated by a group of 26 FIs calling on global leaders and committing to protect and restore biodiversity through their finance activities and investments and launched during the Nature for Life Hub[19] and the Biodiversity Summit of the UN General Assembly[20] in 2020.

By joining such initiatives, FIs commit to protecting and restoring biodiversity through their financial activities and investments[21]. Similarly, development financial institutions (DFIs) beyond Multilateral Development Banks (MDBs), can align with the Joint Statement by the MDBs: Nature, People, and Planet, and begin applying the Common Principles to Track Nature-Related Finance[22].

For example, the Finance for Biodiversity Foundation[23] has garnered support from 163 FIs across 25 countries, managing over €21.7 trillion in assets. These institutions have signed the **Finance for Biodiversity Pledge**, committing to protect and restore biodiversity through their finance activities and investments. The foundation also launched the third edition of the 'Guide on Biodiversity Measurement Approaches' to support FIs in measuring and understanding their impact on biodiversity. FIs should join similar organisations and commit to safeguard policies to follow.

STRATEGY DEVELOPMENT

Once FIs recognise the nature-related risks and opportunities associated with LI projects, they must develop a comprehensive strategy to address these considerations. This strategy, which can be referred to as a **'nature strategy', 'biodiversity strategy', or 'nature-positive strategy'**, must outline the end goals for climate and nature and include high-level objectives, measurable targets with clear timelines, and the guiding principles that will govern their actions. The strategies should be aligned with international frameworks like the Kunming-Montreal GBF and the TNFD, as well as national regulations and standards. The choice of terminology will depend on the specific focus and priorities of the FI, but the overarching goal remains the same: to ensure that all LI financing contributes positively to biodiversity and ecosystem conservation.

With respect to LI, the strategy should ensure that all LI financing contributes positively to biodiversity and ecosystem conservation by prioritising conservation, promoting sustainability, and protecting critical habitats. This means demonstrating a clear commitment to advancing conservation efforts, supporting the sustainable use of natural resources, and actively minimising the impact on critical habitats.

18 Finance for Biodiversity Foundation. Undated. About the Pledge. Available here.

19 Nature of Life Hub. 2020. Learning for Nature. Available here.

20 Convention on Biological Diversity. 2020. Summit on Biodiversity. Available here.

21 Finance for Biodiversity Pledge. 2024. Finance for Biodiversity. Reverse nature loss in this decade. Guidance to the Pledge Available here.

22 IDB. 2023. Multilateral Development Banks Announce Common Principles to Track Nature-Related Finance. Available here.

23 Finance for Biodiversity Foundation. Undated. Reverse nature loss in this decade. Available here.

TYPICAL COMPONENTS OF A ROBUST AND NATURE STRATEGY', 'NATURE-POSITIVE STRATEGY' OR BIODIVERSITY RISK MANAGEMENT STRATEGY INCLUDE:

INTEGRATION OF FACTORS: The FI articulates clearly how it incorporates nature considerations into all investment decisions and risk management frameworks. This includes clear guidelines for identifying, assessing, and managing biodiversity risks throughout all investment decisions, addressing key issues like water pollution risk, deforestation, and habitat fragmentation.

NATURE-BASED SOLUTIONS (NBS): The FI demonstrates how it prioritises investments in projects that specially utilise NbS, such as through green infrastructure and ecosystem restoration.

BIODIVERSITY NET GAIN (BNG)[24]: The FI describes how it strives to achieve a net positive impact on biodiversity through investments and operations.

CLIMATE RESILIENCE: The FI ensures that infrastructure projects are resilient to the impacts of climate change, such as extreme weather events and rising sea levels.

CIRCULAR ECONOMY PRINCIPLES: The FI describes how it intends to promote the use of circular economy principles in infrastructure design and construction to minimise waste and resource consumption.

STAKEHOLDER ENGAGEMENT: The FI highlights the standards and policies which require clients to engage with local communities, Indigenous peoples, and other stakeholders throughout the lifecycle of the proposed project to ensure that their perspectives are considered and that projects deliver social and economic benefits.

TRANSPARENCY AND REPORTING: The FI commits to publicly disclose progress towards nature-positive goals and adhere to relevant reporting frameworks and standards.

By developing and implementing such a nature strategy, FIs can manage risks proactively, demonstrate responsible financing practices, track progress and contribute to a future with thriving biodiversity and ecosystems. For example, during COP28, several MDBs published a series of common principles[25] for identifying and tracking nature-positive finance. As one of the contributing MDBs, the IDB showcased its strong nature-positive strategy by committing to triple its climate financing[26] over the next 10 years to $150 billion. Besides this, the IDB is also piloting an innovative finance tool known as the Biodiversity and Climate-Linked Mechanism for Ambition (IDB CLIMA)[27] which provides borrowers a 5% discount when nature and climate objectives of a loan project are met.

24 BNG is an approach to development. It makes sure that habitats for wildlife are left in a measurably better state than they were before the development. Where a development has an impact on biodiversity it encourages developers to provide an increase in appropriate natural habitat and ecological features over and above that being affected in such a way it is hoped that the current loss of biodiversity through development will be halted and ecological networks can be restored.

25 EIB. 2023. COP28: Multilateral development banks publish first common principles for nature-positive finance. Available here.

26 IDB. 2023. Multilateral Development Banks Announce Common Principles to Track Nature-Related Finance. Available here.

27 IDB. 2023. IDB's Innovative Financing Tool Rewards Results on Nature and Climate. Available here.

Furthermore, the **sharing of risk data among stakeholders** facilitates more informed decision-making when planning biodiversity-inclusive projects. Initiatives like Data4Nature[28] provide a platform for development actors to share biodiversity data generated by their projects through the Global Biodiversity Information Facility (GBIF) network. GBIF aggregates species occurrence data from partners worldwide, offering free and open access to information about Earth's biodiversity. By participating in Data4Nature, development actors can leverage this comprehensive platform and international network to share biodiversity data across all biological groups, enhancing collaboration and informed decision-making on biodiversity-inclusive projects globally.

BOX 4

FIs BEAR RESPONSIBILITY FOR REDIRECTING CAPITAL AWAY FROM NATURE-DESTRUCTIVE ACTIVITIES AND TOWARDS NATURE-POSITIVE OUTCOMES

To achieve this, FIs should:

SET AMBITIOUS COMMITMENTS: Establish specific and measurable targets for biodiversity protection in tandem with broader sustainable finance objectives.

DEVELOP A COMPREHENSIVE NATURE STRATEGY: Formulate a strategic framework dedicated to promoting biodiversity conservation, sustainable resource utilisation, and the preservation of critical habitats.

COLLABORATE WITH STAKEHOLDERS: Engage with clients, governments, and civil society to catalyse transformative change across various sectors, fostering collective efforts towards nature-positive outcomes.

SHARE DATA AND EXPERTISE: Participate in initiatives such as the Finance for Biodiversity Pledge, facilitating the exchange of knowledge and collaborative planning to accelerate the transition towards sustainable practices.

28 Data4Nature. Undated. Data4Nature: Share to protect. Available here.

PILLAR 2: POLICIES

DEVELOPING SECTOR- AND ISSUE-RELATED POLICIES TO SUPPORT NATURE-POSITIVE STRATEGY

OVERVIEW

After acknowledging the importance of nature risks and opportunities and incorporating it into their strategies, FIs would begin to implement their strategies across the organisation. This is a rigorous process for banks that involves developing detailed policies.

Pillar 2 focuses on developing and implementing policies that directly support a nature-positive strategy within FIs. The emphasis is on sector- and issue-specific approaches, ensuring that FIs foster economic activities that positively impact the environment. The ultimate goal is to ensure that their investments and financing decisions benefit natural ecosystems and biodiversity. This involves strategically aligning financial practices with policies focused on environmental conservation, while prioritising funding for sectors and projects with clear, beneficial impacts on nature. The development of these policies often necessitates a thorough understanding of the unique environmental and social impacts associated with different types of LI, leading to the creation of tailored sector-specific policies and issue-specific policies.

Typical key actions under Pillar 2 include:

STRATEGIC ALIGNMENT: Following the strategy development phase mentioned above, FIs should then start to align their financial practices with policies that prioritise environmental conservation. This means prioritising funding for sectors and projects that have demonstrated positive impacts on nature.

» *For example, BNP Paribas has made significant contributions to the TNFD, indicating a strong commitment to managing nature-related risks and promoting biodiversity conservation. Their active involvement in developing the TNFD framework highlights an implementation of policies to open innovation and shift the global economy towards more nature-positive impacts[29].*

29 BNP Paribas. 2023. The TNFD: creating a common language for biodiversity. Available here.

ISSUE-SPECIFIC POLICIES SUCH AS A NO DEFORESTATION POLICY or in other words, a commitment to avoid financing infrastructure projects (and clients) that contribute to deforestation.

» *For example, more than 30 FIs such as Aviva, Storebrand Asset Management, Generation Investment Management have committed to tackle agricultural commodity-driven deforestation by 2025[30]. This includes engaging with companies and clients exposed to deforestation risks, establishing policies to address these risks, and increasing investments in NbS.*

SECTOR-SPECIFIC POLICIES: FIs can also significantly mitigate their nature-related risks by developing and enforcing sector- or issue-specific policies tailored to address the unique E&S impacts of different types of LI. Examples include:

» **A sustainable transportation policy** which should provide guidelines for financing transportation projects with minimal environmental footprints, promoting sustainable LI. This includes encouraging the adoption of eco-friendly technologies, such as electric vehicles (EVs), hydrogen fuel cells, and biofuels, which significantly reduce greenhouse gas emissions and air pollution compared to traditional fossil fuel-powered vehicles. Additionally, the policy should emphasise the development of transportation infrastructure that minimises habitat destruction, biodiversity loss, and other adverse environmental impacts. This may involve investing in projects that prioritise public transportation, cycling networks, and pedestrian-friendly urban designs, reducing reliance on individual car usage and encouraging healthier and more sustainable modes of transportation.

» *For example, 26 banks and AP Moller-Maersk developed a $5bn sustainability-linked revolving credit facility, integrating CO2 reduction targets directly into the financial terms to align Maersk's sustainability objectives with its financing strategy. The interest rate on this facility is directly tied to Maersk's achievement of its ambitious CO2 reduction target of 60% per cargo moved by 2030, surpassing the International Maritime Organization's (IMO) target of a 40% reduction.[31]*

NATURE-POSITIVE RENEWABLE ENERGY FINANCING POLICY which articulates how the FIs prioritises investments in clean energy sources that also designate clear space for nature and promote nature-friendly solutions and energy efficiency.

» To strike a balance between climate and nature protection considerations, while the needed renewable capacity will be deployed in the most favourable areas from an environmental perspective, clear space for nature should be established (and required by FIs) in the spatial planning process carried out by clients and project proponents. These areas would include all strictly protected areas as well as areas subject to nature restoration measures and Natura 2000 sites.

» *For example,* while there is *no blanket ban on renewables in Natura 2000 areas under the EU Birds and Habitats Directives, an appropriate assessment needs to be carried out to ensure that projects do not adversely affect the integrity of the site. As the result of the assessment will most likely be negative, these areas would serve as de facto 'no-go areas' for large-scale renewable energy projects.*

» In deploying additional renewable energy capacity, it is key to minimise any disruption to ecosystemic services and biodiversity. Planning of additional renewable energy capacity and related permit-granting processes should therefore promote low-disruption renewables projects fitted with the best available technologies to mitigate their impact and even seek synergies that can benefit biodiversity, such as for certain applications of agri-PV. Minimising land use, limiting disruption during the construction of renewable plants and infrastructure, and developing biodiversity-friendly operational procedures for solar and wind energy installations are further examples of nature-friendly solutions that should guide renewable development.

» When planning the total renewable energy deployment needed, FIs should require public authorities at all levels and clients in general, to apply the energy efficiency first principle and promote energy efficiency measures. This means considering all available measures to reduce energy consumption and therefore reduce the needed renewable energy deployment to the minimum necessary to ensure the security of supply.

ENVIRONMENTAL AND SOCIAL FRAMEWORK (ESF) which provides comprehensive E&S requirements that promote sustainable development outcomes for LI financing activities. The ESF typically comprises:

» a **vision**, which sets out the FI's aspirations regarding E&S sustainability.

» an **E&S policy,** which sets out the mandatory requirements that apply to the FIs.

» an **exclusion** or **prohibited investment activities** List which clearly defines the industries, activities, and projects that a FI will not support due to their adverse environmental impacts.

» *For example, the European Investment Bank (EIB) excludes activities that significantly degrade, convert, or destroy critical habitats, including conversion of natural forests to plantations (irrigated or not), logging, clear-cutting, or degradation of tropical or high conservation value forests in any region. Additionally, the EIB excludes financing for commercial concessions in these forests and the purchase of logging equipment for such purposes[32].*

» *Another example comes from International Netherlands Group (ING) bank, which had announced their goal to deliberately phase out their fossil fuel financing by 2040, and to instead triple renewable energy financing by 2050, is committed to a low-carbon economy, as emphasised from COP28, and is practising their implementation of the transition via the removal of financial support from fossil fuel initiatives. Thus, the ceasing of financial support from fossil fuel initiatives indicates the importance and effectively demonstrates the FI's outlook on the promotion of sustainability efforts.*

ENVIRONMENTAL AND SOCIAL STANDARDS (ESS), which set out the minimum mandatory E&S performance requirements that projects or companies must meet in order to receive financing from the FI. These standards help avoid and mitigate risks and ensure that funded activities align with nature-positive outcomes.

30 Climate Champions. 2021. Leading financial institutions commit to actively tackle deforestation. Available here.

31 Seatrade Maritime News. 2020. AP Moller-Maersk links new $5bn credit facility to CO2 reduction goal. Available here.

32 EIB. 2022. Eligibility excluded activities and excluded sectors list. Available here.

- *For example, the World Bank's ESF includes a standard called ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources[33]. This standard emphasises that protecting biodiversity and sustainably managing natural resources are essential for long-term development. ESS6 focuses on several key areas:*
  - Maintaining healthy habitats, which includes protecting forests and the diverse life they support by ensuring core ecological functions remain intact.
  - Considering local communities, which recognise that projects can impact people who rely on these resources, including Indigenous Peoples. It also acknowledges the potential role these communities can play in conservation efforts.
- ESS6 aims to achieve multiple goals such as:
  - Protecting biodiversity and habitats.
  - Minimising project impacts on biodiversity through careful planning and a precautionary approach.
  - Promoting sustainable management of natural resources.
  - Supporting the livelihoods of local communities, including Indigenous Peoples, by integrating conservation needs with development goals.

KEY OBJECTIVES OF A NATURE-POSITIVE E&S OR SAFEGUARD POLICY

A robust nature-positive E&S policy should strive to prioritise the following objectives:

PROTECTION AND CONSERVATION OF BIODIVERSITY WHICH COMPRISES:

- Thorough biodiversity assessments at every stage of a project's lifecycle to understand the potential ecological impacts.
- Mitigation hierarchy, focusing on avoidance, ensuring a no net loss (NNL)[34] of biodiversity and aiming for a BNG.

MAINTAINING ECOSYSTEM SERVICES WHICH MAY INCLUDE:

- Preserving the integrity of natural habitats and their ability to provide essential services like water purification, climate regulation, and pollination.
- Incorporating ecosystem service assessments into project planning to ensure these vital benefits continue.

SUSTAINABLE RESOURCE MANAGEMENT SUCH AS:

- Promoting sustainable management of resources within the project's area of influence, aligning for example with Good International Practices (GIP) standards.
- Efficiency and circularity by emphasising efficient resource use and adopting circular economy principles to minimise waste.

33 World Bank. 2018. Environmental & Social Framework for IPF Operations. ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. Available here.

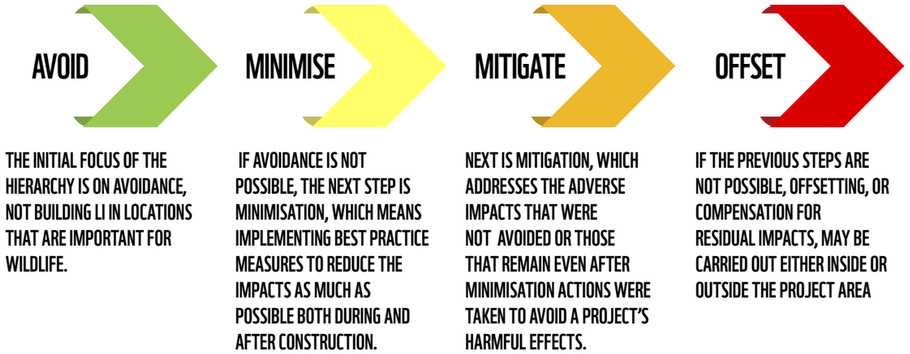
34 No Net Loss and Net Gain (NNL/NG) policies are planning goals aimed at ensuring development leaves biodiversity in the same or better (respectively) condition as an acceptable reference condition.

APPLYING THE MITIGATION HIERARCHY TO SAFEGUARD POLICIES

At the core of most E&S or safeguard policies lies the mitigation hierarchy, a simple framework used to assess and address project E&S impacts.

By integrating the mitigation hierarchy into safeguard policies, FIs can:

- Demonstrate sustainability leadership or in other words, show their commitment to responsible financing and positive environmental outcomes.
- Manage risks or in other words proactively identify and avoid potential E&S liabilities.
- Achieve positive outcomes by contributing to the protection of critical habitats, biodiversity, and ecosystem services.



* Some versions of the hierarchy also include rehabilitation restoration as a distinct step between mitigation and offsetting.

Figure 7. The Mitigation hierarchy is a framework recommended for LI proponents to follow to achieve NNL during and after construction. Source: USAID, 2020[35].

A robust application of the mitigation hierarchy emphasises **avoiding adverse environmental impacts as the primary objective**. Prioritising avoidance highlights that not taking an action (or parts of an action) is the most effective way of safeguarding biodiversity. Avoidance is also prioritised as it is considered to be more cost-effective than having to consider other mitigation measures within the hierarchy. In LI projects, avoidance means:

- **RISK ASSESSMENT:** Projects should be classified according to their potential risks to habitats and biodiversity. Development activities must be restricted or sometimes even disallowed in areas of high ecological sensitivity.
- **ALTERNATIVES:** Where possible, projects should explore alternative routes that minimise harm to biodiversity and ecosystems.
  - For instance, before considering developing a project within a critical habitat, considerations should be given to whether there is a natural habitat that fits the project criteria. Recursively, before considering development within a natural habitat, considerations should be given to whether a modified habitat exists that fit the project criteria.

35 USAID. 2022. Building a Foundation for Linear Infrastructure Safeguards in Asia. Available here.

WHEN AVOIDANCE IS NOT FULLY POSSIBLE:

If overriding social or economic factors prevent complete avoidance, the mitigation hierarchy provides a framework for minimising, mitigating, and offsetting impacts:

» **MINIMISATION:** Implement measures to reduce the severity and extent of impacts on biodiversity.
  – Measures could include minimising habitat fragmentation, or noise and light pollution that disrupts wildlife.
  – At this stage within the hierarchy and onwards, projects will typically require an environmental management plan (EMP), procured during the assessment stage, to properly account for how negative impacts will be addressed.

» **MITIGATION:** Take steps to repair or compensate for environmental harm during and after construction.
  – Mitigation is the physical extent of addressing the impacts procured in the EMP.
  – For instance, with relation to noise and pollution, barriers could be used during the construction process to prevent spillover into adjacent habitats.
  – An example of mitigation to address issues after construction could be wildlife underpasses to address connectivity issues, or exclusionary fencing to minimise animal injuries.

» **OFFSETTING:** As a last resort, invest in conservation projects elsewhere to achieve at least NNL of ecological value, or ideally, a BNG. This process only occurs when there are residual impacts that cannot be avoided or minimised.
  – Offsets could involve supporting biodiversity conservation projects in other areas, specifically targeting the types of habitats or species affected by the project. This kind of support focuses on **protecting** and maintaining biodiversity that is under threat.
  – Offsets could also involve **restoration** efforts such as repairing ecosystem structures through reforestation, restoring degraded habitats, or re-establishing functional ecological connectivity.
    – It is important to note that while restoration is an important effort to reverse the negative effects within the vicinity of a project, an emphasis on restoring beyond a site's original state may be necessary to account for the impact during the development of the project.
  – As offsets are the last stage of the mitigation hierarchy, they should **contribute significantly to tipping the scale towards achieving NNL** of biodiversity. Whether the focus is on protection or restoration, offsets can cover various aspects such as funding sustainable management plans, supporting biodiversity research within an area, or enhancing/implementing the aforementioned offset efforts.

SAFEGUARDING BIODIVERSITY: MOVING FROM NNL TO BNG AS A BEST PRACTICE POLICY CONSIDERATION

FIs should establish and maintain an up-to-date sector and safeguard policies that address LI-related nature risks and impacts, ensuring it reflects the latest scientific knowledge and best practices in conservation. FIs should implement policies that commit to no deforestation and prevent habitat fragmentation, supporting the maintenance of ecological connectivity and biodiversity conservation.

They also need to implement both all-encompassing, as well as internal sector policies which dictate the efficient use of resources for new LI, including reducing the significant impacts on nature, climate and people. As a guide, both all-encompassing policies covering all sectors in the bank's portfolio, as well as sector policies should contain NNL and BNG requirements as described in the International Union for Conservation of Nature (IUCN) BNG Review Protocol[36]. As IUCN describes it, the difference between NNL and BNG is determined by the level of ambition in applying the mitigation hierarchy. In some cases, the development project goal is to achieve an NNL of biodiversity and in others, it is to ensure BNG significantly exceeds the loss, in which case the term 'net gain' may be used.

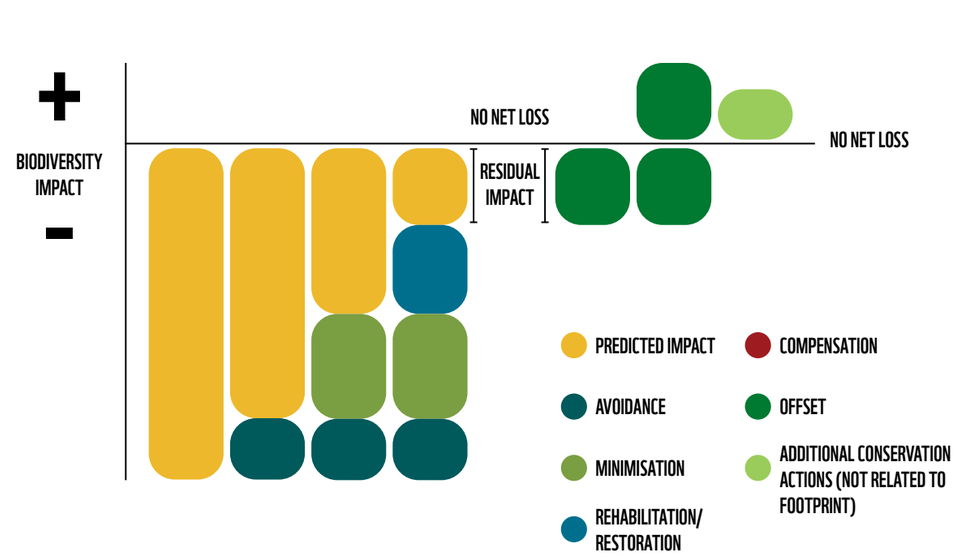


Figure 8. This simple graphic depicts the steps of the mitigation hierarchy, (avoid, mitigate, restore or rehabilitate and finally offset or, failing that, compensate). Following the mitigation hierarchy enables a development project to work towards 'NNL' of biodiversity, and preferably, a 'BNG'. Source: Forest Trends, undated[37].

36 IUCN. 2017. IUCN Review Protocol for Biodiversity Net Gain. Available here.

37 Forest Trends. Undated. Mitigation hierarchy. Available here.

WWF believes that NNL is ideally suited for previously disturbed habitats like agricultural lands or brownfields. Here, the focus is on mitigating further loss by minimising impact, implementing on-site habitat restoration measures, and potentially offsetting residual impacts through comparable habitat creation elsewhere. For instance, a highway expansion through farmland could achieve NNL by creating wildlife corridors and planting native vegetation within the new right-of-way. However, for natural and critical habitats, aiming for NNL may not be enough. These ecosystems often harbour irreplaceable ecological diversity and provide vital ecosystem services. Therefore, BNG becomes the preferred approach in such areas. BNG goes beyond mitigating losses by actively increasing overall biodiversity. BNG goes beyond mitigating losses by actively increasing overall biodiversity. This involves enhancing existing habitats, reintroducing native species, and implementing improved management practices. Imagine a renewable energy project impacting a wetland. BNG could be achieved by restoring degraded areas, creating new ponds for amphibians, and introducing native plant species to attract pollinators.

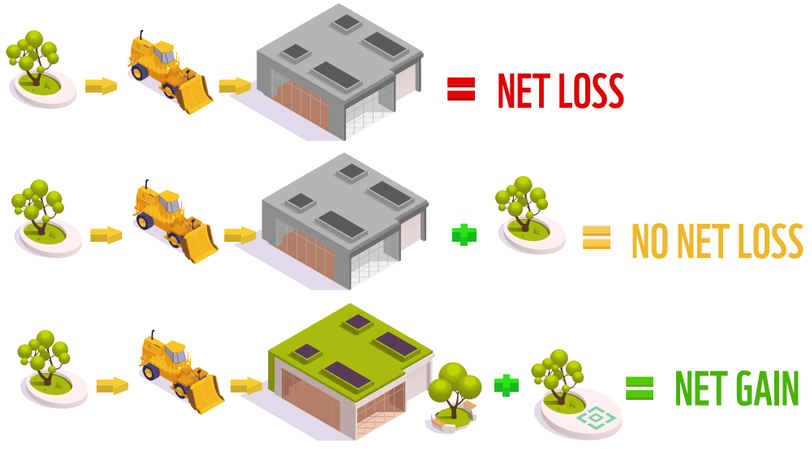


Figure 9. Development often results in impacts on, and losses of, nature. By reinforcing and complementing the mitigation hierarchy, mandatory BNG requires development to deliver more for nature. Source: Natural England, 2022[38].

Implementing BNG, however, is not without its challenges. Quantifying biodiversity gains can be complex, and there's a risk of unintended consequences from offsetting measures. Long-term monitoring and adaptive management are crucial to ensure the success and effectiveness of BNG initiatives. FIs need to be aware of these challenges and work closely with experts and stakeholders to develop robust BNG plans that deliver measurable and lasting benefits for biodiversity.

But, by applying NNL to already modified habitats and BNG to natural and critical ones, FIs can ensure a nuanced approach to biodiversity conservation. While NNL prevents further decline, BNG actively contributes to ecosystem restoration and enhances the resilience of vital natural areas. Choosing the right approach based on the habitat type maximises the positive impact of development on biodiversity, paving the way for a more sustainable future.

38 Natural England. 2022. Biodiversity Net Gain: An introduction to the benefits. Available here.

BOX 5

ASIAN DEVELOPMENT BANK'S NEW ESS 6[39] - BIODIVERSITY AND SUSTAINABLE NATURAL RESOURCES MANAGEMENT

This standard, currently in consultation, sets out the requirements for conservation of biodiversity and sustainable management of living natural resources by the Asian Development Bank (ADB).

The high-level objectives of this standard are to:

- protect and conserve biodiversity and ecological function and connectivity in a changing climate;
- apply the **mitigation hierarchy** and the precautionary approach to achieve a minimum of NNL and, preferably, a BNG; and
- maintain the benefits from ecosystem services and promote the sustainable management and use of living natural resources.

ACHIEVING BNG THROUGH NATURE-POSITIVE INFRASTRUCTURE

One way to achieve the goals of preserving and enhancing the various elements of habits and moving towards a BNG approach is through Nature-positive infrastructure. Some key principles of Nature-positive Infrastructure include:

DESIGN WITH NATURE: Utilising existing structures and rhythms instead of introducing new ones minimises environmental disruption and reduces remediation efforts. For example, integrating green roofs into building designs not only mitigates urban heat island effects[40], but also enhances biodiversity and stormwater management.

USE NATURE AS INFRASTRUCTURE: Taking a holistic approach to infrastructure design involves leveraging natural processes to fulfil engineering functions. Practices such as reforestation to reduce erosion and mitigate flood risks demonstrate how nature can be harnessed as a cost-effective and resilient infrastructure solution.

DESIGN FOR NATURE: Redirecting infrastructure side-effects to benefit nature represents a proactive strategy for ecological enhancement. Collecting and redirecting rainwater from roads to create wetland habitats or utilising railway ballast that promotes plant growth and wildlife colonisation are examples of this approach.

RECREATE NATURE: Greenfield offsetting and habitat creation initiatives contribute to biodiversity conservation and ecosystem restoration. By colonising barren landscapes with native vegetation or incorporating wildlife-friendly features into infrastructure, such as habitat cavities in roadways, we enhance ecological connectivity and resilience.

39 ADB. 2023. Environmental and Social Standard 6. Biodiversity Conservation and Sustainable Natural Resources Management. Available here.

40 United States Environmental Protection Agency (EPA). 2023. Using Green Roofs to Reduce Heat Islands. Available here.

BOX 6

IMPLEMENTING BNG - THE UK'S ENVIRONMENT BANK

Environment Bank is establishing an expanding network of Habitat Banks across England, generating high-integrity Biodiversity Units to meet strict BNG planning requirements for developers. These Habitat Banks are fully funded throughout their lifetime, covering capital works, habitat management, ecological monitoring, and detailed reporting. Each site is designed by ecologists in collaboration with local planning authorities (LPAs) to maximise contributions to local nature recovery strategies (LNRSs).

Located strategically in ecologically important areas, the Habitat Banks comprise a mosaic of habitats to fulfil off-site development biodiversity needs. They are typically established on low-yielding land to avoid impacting food security. They also offer long-term income security for rural landowners through secure annual land leases and management payments, which is particularly beneficial amid reduced government subsidies[41].

The nationwide network of Habitat Banks significantly reduces the need for cross-boundary delivery, providing off-site Biodiversity Units from local Habitat Banks, thus ensuring benefits remain local. On-site BNG delivery is carried out on the development site itself while off-site delivery occurs anywhere beyond its red line boundary.

BEYOND INTERNAL POLICIES: A COMPREHENSIVE APPROACH TO PROTECTING FORESTS AND HABITATS

Internal policies are a starting point, but FIs and project developers must take bolder action to ensure infrastructure projects minimise – or ideally eliminate – their impact on deforestation and habitat fragmentation. Here's how FI might be able to elevate their approach:

INFRASTRUCTURE IN HARMONY WITH COMMUNITIES

- **Rights-based approach:** Biodiversity protection plans must go beyond acknowledging the rights of local and indigenous communities. They must actively integrate these communities into the planning, decision-making, and potential benefit-sharing arrangements from a project's inception.
- **Social impact assessments:** Thorough social impact assessments are crucial to identify potential conflicts and to design projects that respect or even enhance the livelihoods and traditional practices of affected communities.

RAISING THE BAR: RIGOROUS STANDARDS AND IMPLEMENTATION

- International benchmarks: FIs must establish and enforce policies exceeding basic adherence to standards like the International Finance Corporation (IFC) Performance Standard (PS) 6. They should consider the recommendations set forth by frameworks like the Equator Principles as a starting point.
- Accountability through transparency: FIs and developers must publicly disclose project details, E&S impact assessments, mitigation plans, and progress reports. This promotes accountability and external scrutiny.
- Beyond compliance: FIs should incentivise and reward infrastructure projects that actively contribute to the restoration of degraded landscapes or the enhancement of biodiversity in the region.

41 Environment Bank. Undated. Biodiversity Net Gain. Available here.

PILLAR 3: PROCESSES

ASSESSING AND MONITORING BIODIVERSITY RISKS AT PROJECT, TRANSACTION AND CLIENT LEVEL

OVERVIEW

By establishing systematic processes for identifying, measuring, and managing biodiversity impacts, Pillar 3 empowers FIs to make informed investment decisions. This minimises negative environmental effects, promotes conservation efforts, and fosters sustainable resource use. Furthermore, Pillar 3 supports responsible investment by ensuring biodiversity considerations are factored into financing decisions. It also strengthens risk management by helping FIs avoid projects with potentially high environmental costs and reputational damage. Ultimately, Pillar 3 positions FIs to contribute positively to biodiversity and ecosystem health by enabling them to support projects that actively promote conservation.

Pillar 3 encourages FIs to implement the following processes:

SCREENING: FI should conduct initial E&S assessments to identify potential biodiversity risks associated with clients and their proposed projects and transactions.

RISK CLASSIFICATION: Next, FIs should categorise clients, projects, and transactions based on their environmental risk profile (e.g., high, medium, low).

DETAILED ASSESSMENT: By using standardised frameworks, tools, and data providers, FIs should be able to thoroughly evaluate any identified risks.

METRICS: FIs need to develop clear metrics to track the environmental performance of their investments over time.

SCREENING FOR BIODIVERSITY RISKS

FIs must implement robust screening processes to identify and categorise biodiversity risks associated with projects or clients. This initial assessment guides the scope and depth of subsequent environmental reviews. Key actions under the screening phase would typically include:

- the adoption of standards such as the Equator Principles, which integrate biodiversity considerations into project screening.
- the utilisation of the IFC PSs (especially PS6), which provides a detailed framework for assessing biodiversity risks and impacts.
- categorising projects or in other words, classifying projects based on their potential environmental risk profile (e.g., high, medium, low) to determine the appropriate level of environmental assessment needed.

To effectively screen biodiversity risks, FIs should leverage industry-leading tools and methodologies such as:

ADB'S AVIAN SENSITIVITY TOOL FOR ENERGY PLANNING (AVISTEP)[42], which helps in identifying areas where renewable energy projects could potentially impact sensitive bird species, habitats, and designated important areas like protected zones and Important Bird and Biodiversity Areas (IBAs).

42 ADB. 2022. Avian Sensitivity Tool for Energy Planning (AVISTEP). Ensuring Bird-Safe Renewable Energy Expansion in Asia. Available here.

BOX 7

ADB'S AVISTEP

AVISTEP, the Avian Sensitivity Tool for Energy Projects, is a powerful resource developed by the ADB to minimise the unintended negative impacts of energy infrastructure on sensitive bird species. It achieves this by conducting a detailed spatial assessment that considers the specific sensitivities of birds in relation to various energy infrastructure types, including onshore and offshore wind, photovoltaic solar, and overhead transmission and distribution lines.

The tool operates by integrating comprehensive avian sensitivity data, encompassing bird distribution, movement, and habitat use, with specific details about the energy project in question. This includes its location, type, layout, and operational characteristics. Through spatial analysis and modelling, AVISTEP identifies areas of potential overlap between bird habitats and project sites, allowing for an assessment of potential risks and impacts, such as collision risk, habitat loss, and disturbance.

By identifying high-risk areas where projects may significantly impact sensitive bird species, AVISTEP facilitates the development of effective mitigation plans. This involves recommending project design modifications, implementing bird diverters or flight path adjustments, and establishing monitoring programs.

The information provided by AVISTEP aids decision-making processes for project developers, investors, and regulators, enabling them to make informed choices about project siting, design, and implementation. It ultimately promotes the sustainable development of energy infrastructure while minimising harm to biodiversity and ecosystems, contributing to a more harmonious coexistence between energy production and environmental conservation.

AVISTEP is a game-changer in promoting sustainable energy development while protecting bird populations. Its benefits are numerous and impactful:

» **Early Identification of Low-Risk Sites:** AVISTEP provides critical biodiversity insights early in the planning cycle, enabling developers to steer projects towards areas with minimal impact on birds and their habitats. This proactive approach ensures that development is concentrated in suitable locations, minimising potential conflicts and delays.

» **Accelerated Renewable Energy Expansion:** By identifying potential biodiversity risks early on, AVISTEP allows developers to implement appropriate mitigation measures from the outset. This streamlines the project approval process, reducing the likelihood of controversial disputes and accelerating the overall expansion of renewable energy.

» **Enhanced Project Design:** Developers gain a comprehensive understanding of the biodiversity landscape upfront, empowering them to integrate effective mitigation strategies into the project design from the beginning. This results in more environmentally responsible projects that minimise harm to bird populations.

» **Strategic Planning for Sustainable Growth:** AVISTEP encourages strategic planning by identifying areas with abundant renewable energy potential and minimal impact on birdlife. This approach optimises resource utilisation and fosters sustainable energy growth while safeguarding avian biodiversity.

Currently deployed in several Asian countries, including India, Nepal, Thailand, and Vietnam, AVISTEP's ultimate goal is to expand its reach globally. By providing a standardised and scientifically rigorous framework for assessing avian sensitivity, AVISTEP will empower decision-makers worldwide to develop renewable energy infrastructure responsibly and in harmony with the natural world.

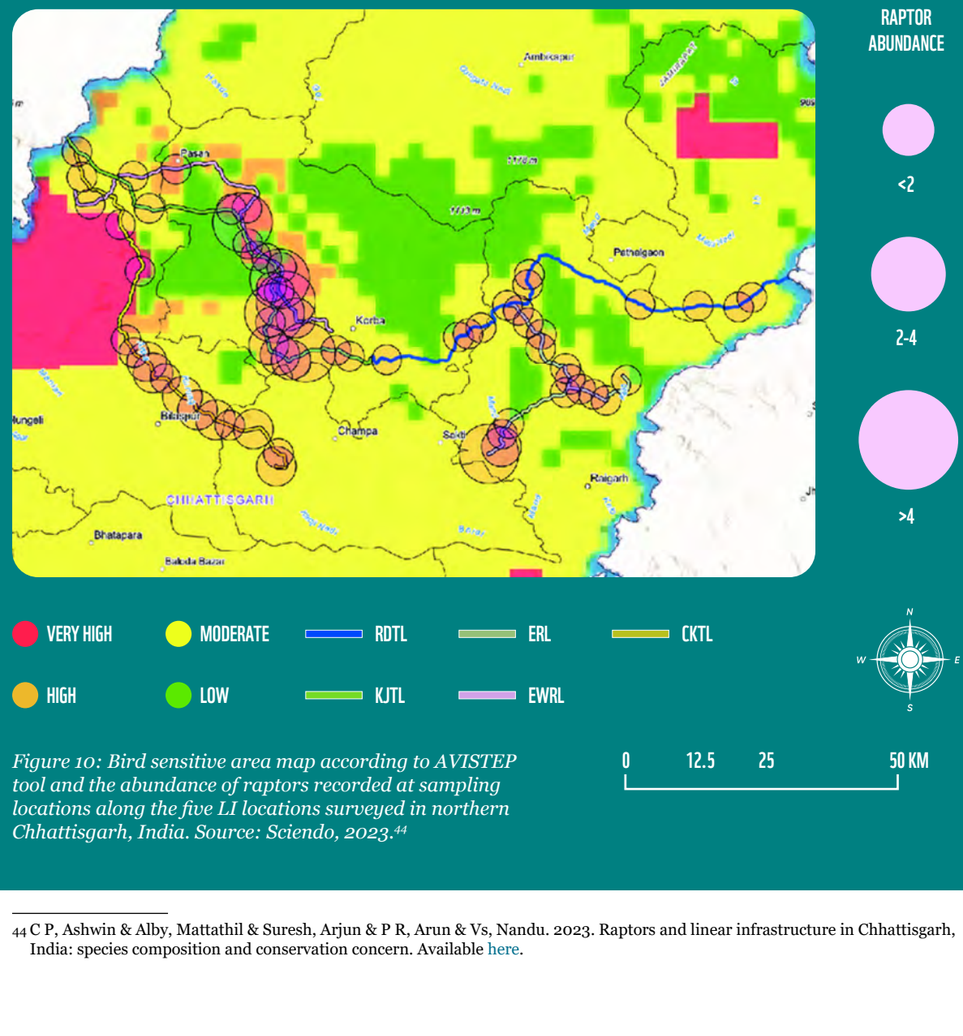


Figure 10: Bird sensitive area map according to AVISTEP tool and the abundance of raptors recorded at sampling locations along the five LI locations surveyed in northern Chhattisgarh, India. Source: Sciendo, 2023.[44]

43 Serratosa, J., and Allinson, T. 2022. AVISTEP: the Avian Sensitivity Tool for Energy Planning. Technical Manual. Cambridge, UK: BirdLife International. Available here.

44 C P, Ashwin & Alby, Mattathil & Suresh, Arjun & P R, Arun & Vs, Nandu. 2023. Raptors and linear infrastructure in Chhattisgarh, India: species composition and conservation concern. Available here.

IUCN'S INDUSTRY GUIDANCE FOR EARLY SCREENING OF BIODIVERSITY RISK[45]: This framework provides brief practical guidance on early risk screening for offshore wind projects. It outlines how to identify and avoid areas of high biodiversity sensitivity, based on the IUCN/ Biodiversity Consultancy Guidelines for Mitigating biodiversity impacts associated with solar and wind energy development. FIs can use the guidance on early risk screening for offshore wind projects to enhance their investment strategies.

INTEGRATED BIODIVERSITY ASSESSMENT TOOL (IBAT): This tool provides rapid visual screening for critical biodiversity areas, aiding in the identification of sensitive sites that may be affected by infrastructure projects such as roads or pipelines.

BOX 8

IBAT

The IBAT aims to provide authoritative biodiversity data results in organisations taking positive action for nature via the provision of data, tools and guidance to help organisations act on biodiversity-related risks and opportunities and generating sustainable funding to support biodiversity datasets[46].

The IBAT comprises 3 main datasets: the World Database on Protected Areas (WDPAs), the World Database of Key Biodiversity Areas (KBAs), and the IUCN Red List of Threatened Species. Not only does the IBAT provide a comprehensive data search service for those seeking authoritative global biodiversity information, it also offers rapid visual screening for critical biodiversity by providing authoritative geographic information about global biodiversity.

Raster data underpinning the Species Threat Abatement and Restoration Metric (STAR) Metric[47] in IBAT is also available to download via PAYG or subscription options. STAR scores for any terrestrial 5x5km grid cell provide an indication of the relative potential contribution to reducing species extinction risk through either threat abatement or restoration activities. STAR scores are derived based on a species' current and restorable areas of habitat. Terrestrial scores are currently calculated for species of amphibians, birds and mammals for which current or historical areas of habitat are available.This allows quantification of the potential contributions that species threat abatement and restoration activities offer towards reducing extinction risk across the world.

However, there are several limitations of IBAT which include the following:

1. While the IBAT provides a quick screening, the initial assessment is still solely a desktop exercise. Thus, it should be further supplemented with further research via literature reviews, spatial analysis, expert opinions and stakeholder consultation during each phase of a project.[48]
2. Access to IBAT is limited due to its associated cost for commercial use.[49] This is observed via the subscription-based service provided by IBAT, with the most comprehensive plan costing up to $35,000. These subscriptions are directly attributed to updates and the maintenance of three of the world's most authoritative global datasets which the IBAT comprises. However, the implementation of such a system creates a financial barrier to consumers who genuinely require the information provided in the database.
3. Furthermore, the spatial resolution on the STAR Metric for instance is a 50 km resolution for the more affordable subscription plans. Contrastingly, the STAR metric reaches a 5km resolution for the Enterprise and Enterprise Plus plans.[50] Thus, the spatial resolution could negatively affect the consumer's ability to truly interpret the data presented.

45 IUCN. 2021. Industry guidance for early screening of biodiversity risk. Offshore wind. Available here.

46 IBAT. Undated. About us. Available here.

47 IBAT. Undated. Species Threat Abatement and Restoration Metric. Available here.

48 IPBES. Undated. Policy Support Tool. Integrated Biodiversity Assessment Tool (IBAT). Available here.

49 EU Business @ Biodiversity Platform. 2021. Assessment of Biodiversity Measurement Approaches for Businesses and Financial Institutions. Available here.

50 IBAT. Undated. Subscriptions. Available here.

RISK CLASSIFICATION

After screening projects and identifying key biodiversity risks, FIs need to classify a project's risk level and determine if there is a need for further specialised biodiversity/habitat assessments. Biodiversity assessments often become necessary when screening and scoping processes identify potential impacts on biodiversity and ecosystem services (considered in the context of both safeguard policy standards (e.g., ADB ESS6) and project-specific characteristics), especially for projects located in ecologically sensitive areas or those with potentially significant biodiversity impacts. These efforts are essential for sound financial risk management and for aligning with global efforts to support nature conservation and sustainable development.

A key action typically carried out at this stage includes assigning each project one of four classifications: (i) **high risk**; (ii) **substantial risk**; (iii) **moderate risk**; and (iv) **low risk**, based on consideration of the relevant E&S risks and impacts as described in the ESSs of the FI:

HIGH RISK corresponds to significant adverse risks and impacts due to complexity, scale, or location sensitivity. Features include long-term, permanent, or irreversible impacts, impacts on highly valuable or sensitive areas, and challenging mitigation.

SUBSTANTIAL RISK concerns E&S risks and impacts that are not as complex as high-risk projects. Risks may be temporary and reversible but could cause social conflicts or cumulative impacts. Mitigation is feasible and reliable.

MODERATE RISK covers potential adverse risks and impacts that are not likely to be significant, with projects being simpler and located away from sensitive areas. Risks are predictable, temporary, low in magnitude, and site-specific, with straightforward mitigation.

LOW RISK comprises minimal or negligible potential adverse risks and impacts, posing little to no threat to human health or the environment. Mitigation measures are simple and effective.

Furthermore, FIs should carefully evaluate the adequacy and effectiveness of a client/borrower's mitigation plans in addressing biodiversity risks and impacts. Successful implementation of (biodiversity-focused) mitigation plans typically requires:

BIODIVERSITY-CENTRIC INTEGRATION which means that clients should incorporate biodiversity mitigation plans from the earliest stages of project planning.

PRIORITISATION where the mitigation report's importance should reflect the severity of potential biodiversity risks and impacts.

BIODIVERSITY KEY PERFORMANCE INDICATORS (KPIs) specifically focused on biodiversity health. Monitor these regularly for compliance and to assess the effectiveness of mitigation efforts.

BIODIVERSITY-DRIVEN ADVANCEMENT BASED BY qualitative criteria for progressing to the next project phase should prioritise biodiversity outcomes. Projects should demonstrate a strong commitment to maintaining or enhancing biodiversity values throughout their lifecycle.

Typically features of effective mitigation measures that FI clients and projects should consider include:

BIODIVERSITY SPECIFICITY or in other words, mitigation measures must directly address the specific biodiversity components affected by each identified adverse impact.

COMPLIANCE CONSIDERATIONS OR measures that show how projects align with relevant national laws, regulations, and standards, as well as international good practices specifically focused on biodiversity conservation.

FEASIBILITY: Mitigation measures must be technically and financially viable.

BEST PRACTICE FRAMEWORKS, TOOLS, AND DATA PROVIDERS FOR DETAILED ASSESSMENTS

To conduct a detailed assessment of biodiversity-related risks, it is crucial for FIs to utilise standardised frameworks, tools, and data providers to effectively evaluate these risks. This approach helps to manage potential environmental impacts effectively and ensures investments are both profitable and environmentally responsible. FIs can make use of some standardised frameworks such as:

THE 'FINANCE TO ACCELERATE THE SUSTAINABLE TRANSITION-INFRASTRUCTURE INITIATIVE LABEL (FAST-INFRA)[51] is designed to show that an infrastructure asset meets international sustainability standards in terms of four dimensions: Environmental, Adaptation & Resilience, Social and Governance. The FAST-Infra Label builds upon, and fills the gaps in, the IFC PSs and requires that the project makes a positive contribution towards a sustainability objective. The 14 sustainability criteria that underpin the four dimensions of the FAST-Infra Label were developed by extensive mapping of leading standards, taxonomies, and principles in the market, with each criterion having a specified minimum or baseline requirements. For instance, concerning the Environmental dimension, E1, Biodiversity and Ecosystem Services, the baseline requirements include that the project must achieve net gains of biodiversity in critical habitats and ecological corridors or NNL of biodiversity in non-critical habitats. The use of the FAST-Infra Label Framework and application of the associated FAST-Infra Label are voluntary. The FAST-Infra Label can be applied at all lifecycle stages, including planning, designing, sponsoring, developing, constructing, operating, financing, and decommissioning.
The FAST-Infra Label may be applied to an infrastructure asset at any stage of its life cycle that fulfils all of the following requirements:

- Meets minimum safeguards.
- Meets (or is committed to meeting) the baseline requirements under the 14 criteria across the four dimensions.
- Demonstrates (or is forecast to demonstrate) a significant positive contribution to at least one criterion.

GLOBAL REPORTING INITIATIVE (GRI) 101: BIODIVERSITY 2024[52] standard which facilitates the reporting of biodiversity impacts throughout an organisation's supply chain. The standard offers recommendations on the type of information FIs, for example, should provide regarding products and services in the supply chain that have the most significant impacts on biodiversity. The new GRI 101: Biodiversity 2024 standard introduces several key disclosures:

- It emphasises the need for **organisations** to explain how they determine which sites and products/services in their supply chain have the most significant impacts on biodiversity. The focus is on providing location-specific information as impacts on biodiversity are location-specific.

51 FAST-Infra. 2021. FAST-Infra Sustainable Infrastructure Label: Framework. Available here.

52 GRI. 2024. Launch of GRI 101: Biodiversity 2024. Available here.

- It requires specific information on the location of sites with the most significant impacts on biodiversity.
- It introduces reporting on direct drivers of biodiversity loss, such as land and sea use change, exploitation of natural resources, pollution, and invasive alien species.
- It requires information on the changes to the state of biodiversity, including the type, size, and condition of affected ecosystems.
- It addresses the impacts on people resulting from an organisation's impacts on biodiversity, including stakeholder engagement, respect for the Nagoya Protocol, proximity to areas important for ecosystem service delivery, and identification of affected ecosystem services and beneficiaries
- It requires biodiversity-specific management disclosures on organisation policies or commitments to halt and reverse biodiversity loss and the application of the mitigation hierarchy.

ENVIRONMENTAL IMPACT ASSESSMENTS VS STRATEGIC ENVIRONMENTAL ASSESSMENTS

In infrastructure development, **assessments** play a crucial role in understanding and mitigating potential environmental and social impacts of LI development. Safeguards processes often emphasise **environmental impact assessments (EIAs),** which serve as a comprehensive qualitative evaluation of potential **project-related impacts** on the environment. However, there's a growing recognition of the need for broader and more quantitative analyses, particularly concerning biodiversity and ecosystem services. Enhancing due diligence processes to better assess and mitigate E&S risks associated with LI requires DFIs and clients/borrowers to upgrade their assessments and due diligence processes beyond standard assessments (e.g. EIAs) by **systematically integrating connectivity and biodiversity into the evaluation process.** For LI projects, it's crucial to conduct frequent and intensive appraisals of impacts on connectivity and biodiversity. This involves selecting multiple target species, optimising scale, and applying adaptive management to maximise the effectiveness of the mitigation hierarchy. Additionally, it's essential to evaluate all development options comprehensively, including non-action alternatives, for a better understanding of their potential impacts

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BOX 9

EIB'S BIODIVERSITY-FOCUSED EIAs

The EIB conducts EIAs that include biodiversity considerations from the earliest project stages, aligning with EU biodiversity strategies. The EIB Statement of E&S Principles and Standards 2009 highlights some key processes:

- **Alignment with EU strategies:** The EIB's policy aligns with overall European Union biodiversity protection goals, demonstrating institutional commitment and coherence.
- **Alternatives analysis:** Mandating analysis of project alternatives ensures that less impactful options on biodiversity are thoroughly considered before a project design is finalised.
- **Mitigation hierarchy:** The EIB's strong emphasis on the mitigation hierarchy (avoid, minimise, rehabilitate/ mitigate, offset) provides a structured approach for minimising biodiversity impacts in a prioritised way.
- **Protected areas:** The EIB's policy on protected areas sets a high standard. It ensures that projects in critical habitats only proceed if they align with strict conservation principles and management plans.

The EIB's framework sets an example for FIs in several ways:

- **Demonstrated feasibility:** It shows that integrating biodiversity into EIAs is not just desirable, but achievable within major FIs.
- **Risk management:** This approach helps mitigate long-term financial risks associated with projects that could face delays, regulatory hurdles, or reputational damage due to biodiversity impacts.
- **Leadership opportunity:** FIs can follow this model to position themselves as leaders in sustainable finance and align investments with broader environmental goals.

IUCN emphasises the need for strategic environmental assessments (**SEAs**). These proactive assessments consider alternatives within a broader set of objectives, ensuring comprehensive coverage of environmental, social, economic, and health issues. Specialised assessments, such as critical habitat screening, further enhance the effectiveness of SEAs. SEAs play a crucial role in mainstreaming environmental considerations into strategic decisions for LI development. They provide a framework for integrating multiple projects and addressing concerns at national or regional scales. For effective integration of ecological connectivity and biodiversity considerations, well-developed SEAs (in addition to EIAs) are essential for all LI projects. These assessments should allocate sufficient capacity, conduct effective scoping, explore sustainable alternatives, and deliver timely assessments during decision-making processes. By conducting SEAs, banks can gain insights into the systematic impacts of LI projects on natural resources, biodiversity, ecosystems, and ecological connectivity. This enables banks to make informed investment decisions and assess the environmental risks associated with financing LI projects. Furthermore, SEAs can mitigate reputational risks for banks. Funding projects with negative environmental consequences can lead to public backlash and damage a bank's image. SEAs help identify potential issues early on, allowing banks to avoid financing environmentally harmful projects.

UNDERSTANDING BIODIVERSITY BASELINE ASSESSMENTS

A biodiversity baseline assessment (BBA) provides a comprehensive snapshot of the biodiversity present at a project site before development begins. It gathers data on species, habitats, ecological systems, their current condition, and any existing trends. This information serves several crucial purposes for both project developers and FIs:

IMPACT ASSESSMENT: BBAs allow for the quantification of potential biodiversity gains and losses within a project's area of influence. This helps in applying the mitigation hierarchy to minimise negative impacts and explore potential biodiversity enhancement opportunities.

RISK MANAGEMENT: BBAs help identify and mitigate risks associated with biodiversity loss that could affect the project's financial viability or reputation.

COMMUNITY WELL-BEING: By analysing the dependence of project-affected communities on ecosystem services and natural capital, BBAs reveal potential social and economic impacts linked to biodiversity changes.

LONG-TERM PLANNING: BBAs provide a benchmark for effective, long-term biodiversity management and monitoring throughout the project's lifecycle.

By mandating comprehensive BBAs from their clients, FIs can:

MAKE INFORMED DECISIONS: Gain in-depth insights into the biodiversity risks and opportunities associated with potential investments, leading to better risk-adjusted returns.

PROMOTE ACCOUNTABILITY: Encourage greater transparency and responsible environmental practices among clients.

DEMONSTRATE LEADERSHIP: Contribute to global efforts to halt biodiversity loss and align with emerging best practices in sustainable finance.

A typical biodiversity assessment is developed with the following steps[53] :

1 IDENTIFYING THE BASELINE STUDY AREA

a The baseline study area for a biodiversity assessment encompasses the geographic scope of a project's activities and impacts, often extended to align with the distribution of biodiversity and ecosystem values.

b This area is delineated by overlaying the project footprint with spatial data such as satellite imagery and existing maps. The area of influence usually exceeds the project's physical footprint to include adjacent and associated areas affected directly, indirectly, or cumulatively by the project and its activities.

2 SCOPING THE BASELINE STUDY

a Scoping the biodiversity baseline study involves defining the biodiversity values to be assessed, selecting appropriate methodologies, and determining the spatial and temporal scale of the study. It also includes identifying stakeholders for consultation.

b The scope should be precise to avoid collecting unnecessary data while ensuring it meets the needs of the Environmental and Social Impact Assessment (ESIA). Key biodiversity values to consider typically include habitats of high conservation importance, protected areas, recognised biodiversity-sensitive areas, and species that are threatened, have restricted ranges, or are of significant local use.

3 DESK-BASED ASSESSMENT OF BIODIVERSITY VALUES

a Desk-based assessment in biodiversity baseline studies involves compiling and reviewing existing information to understand biodiversity values within a project's scope. This method is crucial for low-risk areas and acts as a preliminary step to plan field assessments in high-risk areas.

b This includes looking at global and regional databases, National and Sub-national Information, scientific literature and field reconnaissance.

4 FIELD-BASED ASSESSMENT OF BIODIVERSITY VALUES

a The choice of methodology for field assessments depends on regulatory requirements, cost-effectiveness, credibility, comparability with other data, and the ability to accurately measure biodiversity values. It's essential to engage experts to ensure the scientific validity of the surveys.

b Surveys should begin with creating a habitat map to guide the sampling strategy, using it to inform the distribution and abundance studies of various biodiversity values. This map aids in sampling design and impact measurement.

c General surveys: These aim to characterise biodiversity, often using methods like timed transects or random sampling within defined habitat types.

53 Ibid.

d Focal surveys: These target specific, often rare or threatened species or habitats, maximising the likelihood of detection based on known biological factors.

e Temporal planning: Surveys should consider seasonal and temporal variations in biodiversity, scheduling fieldwork during periods of high detectability for target species.

5 INCORPORATING INPUT FROM STAKEHOLDERS AND EXPERTS INTO THE BASELINE

a Engaging stakeholders and experts is crucial throughout the EIA process.

6 BIODIVERSITY BASELINE REPORT

a Once necessary field surveys have been completed, the biodiversity baseline report can be prepared.

b The report will integrate the information from the preliminary baseline report with the information collected from the field-based assessment to describe the biodiversity values present in the baseline study area.

BOX 10

BBA: PHIPSOO WILDLIFE SANCTUARY IN BHUTAN

Consultants from ADB conducted a BBA in preparation for a proposed road that would have crossed through the Phipsoo Wildlife Sanctuary (PWS), Bhutan's smallest protected area (269 square kilometres), which harbours high biodiversity.

Firstly, a Study Plan for BBA Tasks was created which included Overstory tree and snag sampling Understory plant, orchid sampling and Fish population survey. In addition, Desktop Biodiversity Screening utilised IBAT to identify species of concern near PWS and assess if the area serves as critical habitat for endangered species. The Forest Plantation Inventory documented changes in forest habitat due to teak plantation, showing a decrease in plant species diversity in parts of PWS. Normalised Difference Vegetation Index (NDVI) modelling was also used to analyse satellite imagery to assess changes in forest canopy cover over time, providing insights into vegetation and canopy trends. Mammalian Camera Trapping was conducted camera trapping to document mammal species presence and abundance, offering data on species richness and human impacts on wildlife.

54 ADB. 2018. Biodiversity Baseline Assessment: Phipsoo Wildlife sanctuary in Bhutan. Available here.

ADDITIONAL TOOLS

There are additional tools that can help FIs understand the ecological and social impacts of their infrastructure investments, which in turn can guide them towards their internal sustainability and conservation goals. FIs should leverage industry-leading tools and frameworks[55] like:

IUCN'S GLOBAL STANDARD FOR NBS: Provides users with a robust framework for designing and verifying NbS that yield the outcomes desired, solving societal challenges.This helps FIs compare against good practices, with a traffic light system to identify areas for further work and adherence to the IUCN Global Standard.

INTEGRATED VALUATION OF ECOSYSTEM SERVICES AND TRADEOFFS (INVEST): Provides users with open-source software models to map and value ecosystem services, including different models designed for terrestrial, freshwater, marine and coastal ecosystems. This helps FIs assess quantified trade-offs associated with alternative management choices and to identify areas where investment in natural capital can enhance human development and conservation.

VISUALISING ECOSYSTEMS FOR LAND MANAGEMENT ASSESSMENT (VELMA) MODEL: Provides users with a software model that improves the water quality of streams, rivers and estuaries by making better use of both natural and engineered green infrastructure. This helps FIs identify possible trade-offs of different green infrastructure solutions through (comparative) modelling exercises and thereby facilitates decision-making.

TECHNOLOGICAL INNOVATION FOR BIODIVERSITY ASSESSMENT: In addition to these established tools, FIs should also explore emerging technologies that can enhance their ability to assess and monitor biodiversity impacts. Remote sensing, for example, can provide valuable data on land-use change and habitat fragmentation, while artificial intelligence can help analyse large datasets to identify trends and patterns in biodiversity loss. Blockchain technology can also play a role in ensuring transparency and traceability in supply chains, helping FIs identify and avoid investments linked to deforestation or other harmful practices

Furthermore, FIs can use bespoke frameworks for biodiversity that involve creating an internal set of guidelines, processes, and metrics designed specifically for the unique environmental impact and sustainability goals of a project or company. Such a multi-faceted approach can include a combination of:

ESG RATING INTEGRATION: Incorporate a robust ESG rating process that specifically accounts for biodiversity impacts. This involves identifying and prioritising companies demonstrating biodiversity leadership and partnering with specialised biodiversity data providers.

INVESTMENT EXCLUSION AND INCLUSION CRITERIA: Define clear criteria for excluding companies that have a high negative impact on biodiversity and including those that significantly contribute to biodiversity conservation or have sustainable practices related to natural capital Include specific targets for investments in nature-positive enterprises and NbS. Consider supporting companies with credible biodiversity transition strategies.

55 Sustainable Infrastructure Tool Navigator. Undated. Navigate our Tool Catalogue. Available here.

USE OF BIODIVERSITY METRICS: Implement specific biodiversity metrics such as the Mean Species Abundance (MSA) to assess and compare the biodiversity footprint of companies and sectors. This metric helps in understanding the extent of biodiversity loss attributed to a company or sector relative to an undisturbed ecosystem. Consider aligning metrics with science-based targets for biodiversity.

BIODIVERSITY-RELATED METRICS FOR FIS TO MEASURE PROJECT IMPACTS, RISKS, AND PROGRESS

To effectively manage biodiversity risks and align investments with sustainability goals, FIs need to implement clear biodiversity-related metrics. Metrics enable FIs to measure the specific biodiversity footprints of projects and investments. This data is crucial for understanding the scale and nature of environmental impacts, both positive and negative. Furthermore, by tracking biodiversity trends over time, FIs can proactively identify potential risks associated with biodiversity loss. These risks might include regulatory hurdles, increased operational costs, or reputational damage. Metrics also provide a benchmark to measure the environmental performance of investments over time. This allows FIs to evaluate progress, demonstrate accountability, and make informed adjustments to their portfolios. Finally, robust biodiversity metrics help FIs integrate environmental considerations into their investment processes.

They support the comparison of projects, prioritisation of sustainable investments, and enhance overall risk management.

Some examples of metrics used by the industry include:

AREA OF LAND DEFORESTED (PI1489)[56]: This metric measures the total area of land deforested by the organisation during a reporting period (infrastructure development period).

AREA OF FRESHWATER BODIES PRESENT (PI7170)[57]: This metric tracks the surface area of freshwater bodies present during the reporting period on protected or sustainably managed land.

HABITAT AREA PRESERVED OR RESTORED (KM²): This metric measures the total area of habitats preserved or restored due to the institution's investment activities. It's crucial for projects involving land development or natural resource extraction to

NUMBER OF PROTECTED OR KBAS AFFECTED[58]: This metric tracks the number of internationally recognised protected areas or KBAs impacted by the institution's investments. This helps assess the direct impact on areas of high conservation value.

CONNECTIVITY OF ECOSYSTEMS (KM OF CONNECTED HABITATS): This metric measures the extent to which habitats are ecologically connected, maintaining ecological networks essential for species migration and genetic exchange.

56 IRIS+ System | Standards. Undated. IRIS Catalog of Metrics. Available here.

57 Ibid.

58 Protected Planet. 2024. Discover The World's Protected and Conserved Areas. Available here.

INCIDENCE OF INVASIVE SPECIES[59]: This metric quantifies the presence and spread of invasive species within an area impacted by an investment, which can significantly alter local biodiversity and ecosystem function.

CHANGES IN SPECIES POPULATIONS[60]: This metric monitors trends in the populations of specific species within the area of an investment, focusing on those classified as vulnerable or endangered. Data of vulnerable species can be found in the IUCN Red List of Threatened Species.

TOOLS FOR ASSESSING BIODIVERSITY RISKS IN LI INVESTMENTS

FIs looking for tools able to generate useful metrics to address biodiversity-related risks can consider a plethora of options as described below and in the Annex These data sources and tools equip investors with the means to effectively identify biodiversity impacts and assess risk exposures. FIs can evaluate the proximity of investment assets to crucial ecosystems and create detailed heatmaps to visualise potential nature impacts and dependencies. This enhanced visibility supports more informed decision-making in investment strategies and risk management.

Sector/location screening tools: These tools provide high-level insights into where biodiversity risks may be concentrated based on industry sectors and geographic locations:

ENCORE (EXPLORING NATURAL CAPITAL OPPORTUNITIES, RISKS AND EXPOSURE)[61], a web-based tool developed by the Natural Capital Finance Alliance (NCFA) and the UN Environment World Conservation Monitoring Centre. It enables FIs to analyse and understand how their investment portfolios are linked to natural capital and the risks they face due to environmental change. By visualising these natural capital risks across sectors, ENCORE supports FIs in making informed decisions that contribute to portfolio diversification, effective sector engagement, and increased investment resilience. Specifically, ENCORE helps FIs answer these critical questions:

- **Dependency:** How reliant are portfolio businesses on natural resources and ecosystem services for their operations and to what extent are these dependencies financially material?
- **Impact:** How might environmental changes, like pollution or climate change, disrupt nature's ability to provide essential services that businesses depend on?
- **Drivers:** What specific environmental factors pose the greatest risk to businesses within the portfolio?

IBAT offers critical conservation data, providing information on KBAs, protected areas, and globally important agricultural heritage systems. FIs can use IBAT to screen potential investments for E&S risks, ensuring compliance with international standards for biodiversity conservation. This helps in avoiding investments in projects that may harm critical habitats or endangered species.

59 ISSG. Undated. Global Invasive Species Database. Available here.

60 IUCN. Undated. IUCN Red List of Threatened Species. Available here.

61 ENCORE. Undated. Exploring Natural Capital Opportunities, Risks and Exposure. Available here.

GLOBAL FOREST WATCH: This tool provides data and tools to monitor forests globally, offering insights into deforestation rates, forest usage, and changes over time. FIs can monitor the impact of their investments on forests, ensuring that their funding does not contribute to deforestation. It also helps in engaging companies within the investment portfolio to adopt sustainable forest management practices.

FRESHWATER ECOSYSTEMS EXPLORER: This tool provides detailed information on the health and threats to freshwater ecosystems. FIs can utilise this tool to understand the specific risks associated with investments in regions dependent on freshwater ecosystems. It helps in assessing water-related risks that might impact investments and supports sustainable water resource management in investment planning.

Additional tools

WDPA: WDPA provides comprehensive information on its database detailingprotected areas globally. FIs can use this information to evaluate the environmental sensitivity of investment locations.

GBIF: The GBIF offers an extensive database of information on all types of life on Earth. FIs may be able to use the database to aid in biodiversity risk assessments.

UK DEPARTMENT FOR ENVIRONMENT, FOOD & RURAL AFFAIRS (DEFRA) BIODIVERSITY METRIC 4.0[62]: A standardised tool designed to measure changes in biodiversity, focusing primarily on habitats. It evaluates habitats based on factors such as type, condition, connectivity, and ecological significance. Each habitat is assigned a "unit value" reflecting its importance for biodiversity, which helps to calculate an overall biodiversity score. This metric is useful for assessing the impact of development projects or conservation efforts, allowing for quantifiable measurement of biodiversity gains or losses. FIs can use this to achieve BNG.

UNDERSTANDING HABITAT CLASSIFICATION FOR INFRASTRUCTURE PROJECT IMPACT ASSESSMENT

FIs involved in infrastructure project financing need robust frameworks to assess biodiversity risks. Classifying habitats based on their ecological characteristics is a vital tool. This classification considers habitat sensitivity and the potential impact from project construction and operation.

FIs can use this framework to evaluate the ecological risks associated with infrastructure projects, ensuring that environmental considerations are integrated into project planning and decision-making. It allows for a detailed assessment of direct, indirect, and cumulative impacts on habitats, facilitating the development of mitigation strategies to minimise ecological disruption.

Typical habitat categories:

MODIFIED HABITATS: Areas significantly altered by human activities. These may have lower biodiversity value but still warrant consideration.

NATURAL HABITATS: Areas that largely retain their original ecological characteristics. These are likely to be of higher conservation concern.

62 Tunley Environmental. 2023. Understanding the Biodiversity 4.0 Tool Assessing and Enhancing. Available here.

CRITICAL HABITATS: Areas with exceptional ecological value or sensitivity, including:

- Protected areas: Designated for their biodiversity importance.
- Habitats of endangered or endemic species: Supporting species at risk of extinction.
- Key ecosystems providing vital services: Essential for processes like water purification or carbon storage.

Some existing resources that FIs can use to help them understand habitat classification for LI project impact assessment include:

PHASE 1 HANDBOOK[63]: A UK-based approach which presents a standardised system for classifying and mapping wildlife habitats in all parts of Great Britain, including urban areas. Each habitat type/feature is defined by way of a brief description and is allocated a specific name, an alpha-numeric code, and unique mapping colour. It involves mapping habitats and assessing their nature conservation value to guide planning and development processes. Accompanying the handbook is a spreadsheet, containing details of the Phase 1 habitat names and codes and a zip file, containing an ARC Geographical Information System (ArcGIS) version of the Phase 1 colour mapping palette, which can be extracted and applied to ArcGIS shapefiles using ArcGIS version 8 or later.

IUCN HABITATS CLASSIFICATION SCHEME[64]: A comprehensive tool designed to categorise and describe various habitat types based on their ecological characteristics. It includes detailed classifications that range from broad habitat categories like forests, grasslands, and wetlands to more specific subcategories that describe particular features of these habitats, such as subtropical/tropical high-altitude grasslands or permanent freshwater lakes.

THE EUROPEAN NATURE INFORMATION SYSTEM (EUNIS) HABITAT CLASSIFICATION[65]: A comprehensive system covering the terrestrial and marine habitat types of the European land mass and its surrounding seas. It is hierarchical in structure and includes a key with criteria for the identification of habitats at the first three levels.

JOINT NATURE CONSERVATION COMMITTEE (JNCC) HANDBOOK FOR PHASE 1 HABITAT SURVEY[66]: The information provided by the Phase 1 survey provides an objective basis for determining which sites warrant Phase 2 surveys and which sites deserve consideration for protection as Sites of Special Scientific Interest (SSSIs), Local Nature Reserves, local trust wildlife sites. The handbook details various habitat types using a combination of descriptions and colour-coded maps.

63 JNCC. 2016. Handbook for Phase 1 habitat survey – a technique for environmental audit. Available here.

64 IUCN Red List of Threatened Species. Undated. Habitats Classification Scheme Version 3.1. Available here.

65 European Topic Centre on Biological Diversity. 2008. EUNIS habitat classification - a guide for users. Available here.

66 JNCC. 2016. Handbook for Phase 1 habitat survey – a technique for environmental audit. Available here.

PILLAR 4: PEOPLE

TRAINING AND ACCOUNTABILITY ON NATURE-RELATED RISKS AND OPPORTUNITIES

OVERVIEW

For effective integration of nature-related concerns in LI, banks must cultivate a strong internal culture of environmental awareness and responsibility. This requires senior oversight and specialised teams, empowerment of staff through training and the building of expertise and client engagement.

OVERSIGHT AND SPECIALISED TEAMS FOR NATURE-RELATED ISSUES

BOARD-LEVEL RESPONSIBILITY

To effectively address the multifaceted nature-related risks and opportunities faced by FIs, a combination of robust oversight and dedicated specialisation is vital. Board-level leadership plays a crucial role in this endeavour. The board of directors and senior management must embrace a clear sense of ownership when it comes to understanding and managing nature-related financial risks and dependencies. This commitment needs to extend beyond acknowledgement; a concrete integration of these issues into the FI's overarching business strategy becomes essential. KPIs tightly focused on biodiversity protection, ecosystem health, and impact mitigation should permeate executive and board-level decision-making processes, including compensation structures.

In addition to top-down oversight, the formation of a specialised team or unit with deep expertise in biodiversity, ecosystem services, and natural capital accounting will prove transformative. This dedicated unit will be pivotal in developing comprehensive nature-related risk assessment frameworks and fostering crucial collaboration throughout the organisation. Strategic partnerships and collaborations with external entities, such as scientific institutions, conservation organisations, and specialised consultancies, can further augment in-house knowledge and capabilities. By establishing both strong board-level commitment and specialised teams, FIs can position themselves to not only meaningfully address the financial implications of nature loss, but also become active contributors in building a more sustainable and resilient financial system.

BOX 11

ING'S BOARD COMMITTEES: ESG COMMITTEE

The supervisory board of the ING bank consists of 5 committees, one of which is the ESG committee. They are tasked with the development of ESG integration of the company, monitoring and advising on relevant ESG developments.With a specialised team and with senior management having a stake in the issue, the ING is able to hold themselves accountable for the integration of nature and climate related concerns.

HAVING A DEDICATED ESG TEAM

FIs committed to driving positive change require a dedicated ESG team, sufficiently empowered with resources and authority to serve as a catalyst. This specialised team should operate as the central hub for all initiatives related to ESG factors. They become the drivers of collaboration across departments, fostering a cohesive approach to ESG in the organisation, and crucially, leading engagement with clients on these important matters.

This team shoulders the vital responsibility of designing and delivering comprehensive training programs. These programs should educate staff at every level on ESG principles, industry best practices, and the ever-evolving regulatory landscape surrounding ESG. By emphasising ongoing learning and open knowledge sharing, they cultivate an organisational culture with ESG embedded in its core. Furthermore, a comprehensive ESG policy, developed and championed by this team, solidifies the FI's unwavering commitment to sustainable practices. To ensure accountability, this team should establish clear metrics and transparent reporting procedures to track and communicate progress on ESG goals,

Lastly, the value of external engagement cannot be understated. Collaboration with ESG experts and industry peers opens doors to invaluable insights, best practices, and knowledge of emerging trends, allowing the FI's ESG team to stay ahead of the curve. By establishing a well-resourced and empowered ESG team, FIs can accelerate the effective integration of ESG considerations throughout their operations, ultimately contributing to a more sustainable and equitable financial system.

67 ING. Undated. Committees Supervisory Board. Available here.

BOX 12

ESG SOLUTIONS TEAM IN HONG KONG AND SHANGHAI BANKING CORPORATE LIMITED

Hong Kong and Shanghai banking corporate limited (HSBC) has launched their ESG Solutions Team to provide advice, expertise and financing ideas to clients globally, which includes governments, development banks and asset managers. This unit will form part of their new Strategic Solutions Group within the bank's Capital Financing & Investment Banking Coverage Institution. It aims to expand eventually to meet financing requirements of their clients who aim to reach net zero carbon.

HSBC has earned recognition for their leading role in ESG finance by being crowned the Best Bank for Sustainable Finance in Asia, the Middle East and Western Europe in during the Euromoney's 2020 regional awards.

EMPOWERING STAFF THROUGH ESG TRAINING

To truly empower staff in addressing the complexities of nature-related financial risks, a robust and multifaceted ESG training program is essential within FIs. Frequent and deeply informative sessions, conducted at regular intervals (such as every 6 months), should become the cornerstone of this initiative. These trainings need to equip staff at all levels with knowledge covering critical areas including:

- **Terminology:** Disseminate clear definitions and explanations of fundamental concepts such as "nature-positive" and "NNL/BNG." This foundation of shared language promotes accurate understanding across the organisation while supporting effective impact measurement efforts.
- **Regulatory requirements:** Equip staff with a comprehensive understanding of both existing local biodiversity protection laws and the evolving landscape of international policies and frameworks (such as the TNFD). This knowledge empowers them to ensure compliance and make proactive decisions.
- **Sector-specific Impacts:** Deepen awareness by exploring how different industry sectors contribute to biodiversity risks. Examine best practices and innovative mitigation strategies, ideally tailored to those sectors the FI engages with, and consider aligning training with the TNFD Locate, Evaluate, Assess, Prepare (LEAP) approach for maximum relevance.
- **Biodiversity footprinting:** Provide staff with an introduction to the tools and methodologies available for quantifying a project's or the FI's overall biodiversity impact. Practical knowledge in this area encourages quantifiable action and supports data-driven decision-making.

By prioritising knowledge sharing, FIs create a workforce capable of making informed choices in their daily responsibilities, minimising negative impacts on biodiversity while actively seeking to foster a nature-positive future. This investment in staff empowerment is not only vital for the health of our planet, but also positions FIs as leaders in the transition towards a more sustainable financial system.

68 HSBC. 2020. HSBC launches ESG Solutions team. Available here.

BOX 13

SUSTAINABILITY WORKSHOPS FOR EMPLOYEES AT ING

As the ING believes that their staff are their greatest asset, they regularly host sustainability learning and upskilling workshops to educate their employees on climate action and risk management to factor sustainability efforts into their daily work.[70] The "ING Climate School" aims to prepare employees to understand and reduce carbon footprints to show that they all have a crucial role in the sustainable transition strategy.

Furthermore, the ING launched collaborative workshops with "The Climate Fresk" (which is a non-profit organisation that aims to raise awareness on issues regarding climate change) to encourage employees to actively participate in sustainability efforts in business.

When in-house sustainability training isn't feasible, FIs can benefit from outsourcing expertise to NGOs and CSOs with deep knowledge in this area.

69 ING. 2022. ING, partner in Vlerick's Sustainability Management Programme. Available here.

BOX 14

WWF'S ASIAN SUSTAINABLE FINANCE INITIATIVE ACADEMY

WWF-Singapore's ASFI Academy offers novel courses covering a wide variety of sustainable finance topics, ranging from introductory to sector-specific courses distributed via e-learning portals[71]. These courses have been accredited under the IBF Standard Training Scheme and are in collaboration with the Association of Banks in Singapore (ABS) and the Investment Management Association of Singapore (IMAS). Thus, this alternative of outsourcing training of staff on sustainability practices is convenient and aims to keep learners well-informed on the latest sustainable finance topics.

One such course for FIs provided by the ASFI Academy includes the 'Safeguards Course on Nature-Based LI'. This course aims to increase the capacity of stakeholders to contribute to improved conservation and better management of natural resources by implementing high-quality natural resources safeguards for LI and promoting and applying sustainable development options. It endeavours to answer some key questions such as:

- What is driving the growth in LI in Asia, and what are the implications for nature and biodiversity?
- What role can FIs play in maximising overall sustainable development through LI projects whilst protecting and conserving biodiversity and natural resources?
- What are the financial risks for FIs from participating and investing in LI projects, and how can such risks be addressed?
- What policies and practices do FIs need to develop, adopt, and strengthen to align with international norms and standards for natural resource safeguards?

Furthermore, the **World Bank** offers resources on tool kits that can be implemented. For example, there exists a climate toolkit for infrastructure Public Private Partnerships (PPPs) which covers measures topics on roads, hydropower, renewables and Information Communication Technology[72]. These toolkits aim to identify climate related risks and opportunities to facilitate resilient infrastructure projects for developing economies.

For example, the climate toolkit for the renewable sector consists of 4 modules which comprise of the following:

- Assessing climate risks
- Preliminary evaluation of GHG emissions reduction
- Climate consideration in assessing projects economics and finances, and
- KPIs for climate resilient and sustainable solar and wind energy[73].

With a plethora of external tools available, FIs are able to effectively outsource training to provide their staff with the necessary industry knowledge on the importance of integrating sustainability efforts into their work. The supply of these courses to train employees are indeed growing as displayed by various course providers, making it likely that such training sessions have the capability of meeting the demand of firms that would prefer to outsource their sustainability training workshops for employees.

PERFORMANCE INCENTIVES

FIs can achieve powerful alignment between an individual's goals and the organisation's commitment to sustainability by directly weaving sustainability and biodiversity performance metrics into staff appraisals. This strategic shift transforms performance evaluation from a purely financial exercise into one that actively rewards positive environmental and social impact. To ensure meaningful results, there are a few considerations when integrating these metrics:

- **Tailored Approach:** Metrics should be relevant to an employee's role and responsibilities. For example, loan officers might be assessed on the percentage of their portfolio aligned with nature-positive projects, while investment analysts might be evaluated on the integration of biodiversity risk assessments into their reports.
- **Measurability:** Clearly defined and quantifiable metrics are essential for objective evaluation. Collaborate with ESG teams to establish relevant indicators and targets.
- **Balanced Approach:** Avoid making sustainability the sole focus of appraisals. Integrate these metrics alongside traditional financial performance goals for a holistic evaluation.
- **Incentivisation: L**ink positive performance on sustainability and biodiversity metrics to both financial bonuses and opportunities for recognition and advancement. This reinforces the message that positive environmental impact is both valued and integral to success within the organisation.

By embedding tangible incentives into the performance appraisal process, FIs foster a culture where sustainability and biodiversity considerations are not merely discussed but actively drive behaviour and decision-making at all levels. This alignment is a potent catalyst for accelerating the transition towards a more sustainable financial system, driven from within.

70 WWF. Undated. Asian Sustainable Finance Initiative (ASFI) Academy. Available here.

71 The World Bank. Undated. Climate Toolkits for Infrastructure PPPs. Available here.

72 The World Bank. 2023. Climate Toolkits for Infrastructure PPs - Renewables Sector. Available here.

BOX 15

LINKING ACHIEVEMENT OF ESG GOALS INTO STAFF REMUNERATION AT MASTERCARD

Publicly traded companies have increasingly adopted ESG performance into the remuneration packages for their executives in an effort to increase transparency on their accountability to sustainable projects and investments. It has been found that almost three out of four (73%) Standard & Poor's (S&P) companies factor ESG performance into executive compensation in 2021, which was an increase from 66% in 2020[74]. One such company is Mastercard which has applied their ESG performance incentives into the compensation model for executives in 2021. To further improve this initiative, Mastercard has factored the achieving of ESG goals into bonus calculations of **all** employees from 2022[75]. This demonstrates the importance of prioritising and recognising the importance of sustainability efforts by Mastercard, upon rewarding all their employees accordingly for their contribution to ESG performance.

BUILDING EXPERTISE AND CLIENT ENGAGEMENT

FIs serious about addressing nature-related risks need to invest in building deep internal expertise. This means nurturing in-house specialists who possess a thorough understanding of the science behind biodiversity, the latest data tools, and methodologies for accurate impact assessment. These experts will not only be invaluable for conducting rigorous internal risk analyses, but also serve as trusted advisors, enabling the FI to have meaningful and impactful consultations with clients.

Client education and engagement are equally crucial. FIs should proactively initiate outreach programs designed for both clients and project managers. The goal of these programs is two-fold: to build a shared understanding of the complex nature-related risks and to promote best practices for mitigating those risks. Established frameworks, like those provided by the TNFD, should serve as the foundation for these educational efforts. These initiatives demonstrate commitment and solidify the FI's position as a thought leader in this emerging space.

BOX 16

ADVISING CLIENTS ON SUSTAINABILITY AT ING

The ING continues to develop climate-focused product offers and advice[76] for their clients, essentially paving the way for financing sustainable projects. This allows ING to lead by example in the industry to support clients in their environmental transformation and advise clients on sustainability efforts in their business.

By prioritising board-level oversight, dedicated ESG teams, comprehensive staff training, and proactive client engagement, banks and DFIs can transform their infrastructure projects into drivers of positive nature outcomes. This strategic focus unlocks opportunities to mitigate risks, increase resilience, and contribute to a more sustainable financial system.

73 Harvard Law School Forum on Corporate Governance. 2022. Linking Executive Compensation to ESG Performance. Available here.

74 Mastercard. 2022. Sharing accountability and success: Why we're linking employee compensation to ESG goals. Available here.

75 ING. Undated. ESG Strategy for years 2022-2024. Available here.

PILLAR 5: PRODUCTS

NATURE- INTEGRATION IN PRODUCTS AND SERVICES

OVERVIEW

FIs hold the potential to drive positive environmental outcomes in infrastructure projects by strategically embedding nature considerations into their product offerings. This proactive approach goes beyond risk mitigation, unlocking business opportunities aligned with sustainability and regeneration. By developing innovative financial products that explicitly focus on nature, FIs can accelerate a transformation in their infrastructure lending practices. This transformation prioritises projects that restore degraded ecosystems, protect biodiversity, and actively contribute to global sustainability goals. These targeted and specific strategies can be observed below:

GREEN FINANCING MECHANISMS

FIs should champion products like green bonds, green loans, SLLs, carbon/biodiversity credits, stormwater credits, tax increment financing (TIF), blended public funds, technical assistance (TA) and guarantees. These instruments mobilise targeted capital for projects that enhance ecological health and resilience. The successful use of green bonds to finance sustainable transport corridors, reducing emissions while protecting vital habitats, is a prime example.

GREEN BONDS

Green bonds function as a powerful financial tool, directing investments into projects that promote a sustainable future. These fixed-income securities operate like traditional bonds, with one key difference: the funds raised are designated exclusively for initiatives with clear environmental benefits. Projects like renewable energy development, clean transportation infrastructure, and sustainable resource management often fall within the scope of green bond financing.

To ensure that green bonds deliver on their environmental promises, certification from established organisations like the Climate Bonds Initiative (CBI), International Capital Markets Association (ICMA) Green Bond Principles, and the Association of Southeast Asian Nations (ASEAN) Green Bond Standards[76] becomes crucial. CBI's globally recognised standards provide a rigorous framework for evaluating the eligibility of projects, ensuring ongoing monitoring, and promoting transparency. Issuers of CBI-certified green bonds gain significant advantages. Independent verification boosts credibility, reassuring investors of a genuine commitment to environmental impact. This opens up a wider pool of environmentally conscious investors and can potentially lower borrowing costs. Moreover, in a growing green bond market, certification offers differentiation, allowing issuers to stand out.

76 ADB. 2020. Green, Social and Sustainability Bond for Asia and the Pacific. Available here.

Investors also reap the benefits of CBI-certified green bonds. The rigorous standards offer transparency and peace of mind that invested funds will drive positive environmental change. The certification process minimises the risk of "greenwashing" – the false marketing of investments as environmentally friendly. CBI-certified green bonds are an attractive tool for investors looking to align their portfolios with measurable sustainability goals.

SUSTAINABILITY-LINKED LOANS

Sustainability-linked loans (SLLs) are a flexible type of financing where the loan's interest rate is directly connected to the borrower's performance against predetermined sustainability targets. These targets, known as Sustainability Performance Targets (SPTs), encompass a wide range of ESG factors. To ensure accountability, independent ESG verification parties or rating agencies are responsible for validating whether the borrower is meeting the agreed-upon targets.

BOX 17

PT SARANA MULTI INFRASTRUKTUR'S GREEN BOND-FUNDED PROJECTS

The PT Sarana Multi Infrastruktur (PT SMI)[78] Bank is the first and leading DFI in Indonesia to issue green bonds for sustainable infrastructure financing. The funds raised from the green bond are used to promote and finance development projects in various sectors, such as energy efficiency, renewable energy, water resource management, waste management, green transportation, and clean water management. PT SMI's Green Bond aims to finance projects that will protect, conserve, and improve the quality and function of the environment, under their Green Bond Framework created alongside the World Bank Group.

From its issuance in 2018, the proceeds of the green bond have been allocated to three infrastructure projects[79]: The Tunggang Bengkulu Mini-hydro power plant, The Lubuk Gadang Mini-hydro power plant and Light Rail Transit Jabodebek Project. These projects were selected on the basis of financial viability and E&S risks according to PT SMI's Environment and Social Safeguard Policies.

Figure 11. The Tunggang Bengkulu Mini-hydro power plant. Source: PT SMI, 2023[80]

The Tunggang Bengkulu Mini-hydro power plant and Lubuk Gadang Mini-hydro power plant harness potential energy of the Ketahun River and Batang Sangir River respectively to generate electricity. These two renewable energy projects have been able to avoid an annual amount of 121 tonnes of carbon dioxide being released into the atmosphere and contribute to the national targets of achieving SDG 7 (affordable, reliable, sustainable and modern energy for all) and SDG13 (combating climate change and its impacts).

The Light Rail Transit Jabodebek, as seen in the figure below, is a transportation project that aims to have a single-track train system to connect the capital of Indonesia, Jakarta, to surrounding cities. It plans to be integrated with existing transportation modes. Similar to the other infrastructure projects mentioned above, the Light Rail Transit Jabodebek has avoided an estimated annual amount of 72.8 tonnes of carbon dioxide released into the atmosphere.

Figure 12. The Light Rail Transit Jabodebek. Source: PT SMI, 2023[81]

77 PT SMI. 2018. Sustainability Commitment To Create Environmentally Friendly Innovations. Available here.

78 PT SMI. 2023. Green Bonds Report 2023. Available here.

79 Ibid.

80 PT SMI. 2023. Green Bonds Report 2023. Available here.

The key difference between SLLs and green loans lies in their focus. While green loans specifically finance environmentally beneficial projects, SLLs incentivise continuous improvement across an organisation's overall sustainability performance. This flexibility allows SLLs to appeal to a larger pool of borrowers across diverse industries. The interest rate mechanism embedded in SLLs serves as a powerful motivator for borrowers to prioritise and achieve their sustainability goals.

BOX 18

CAPITALAND'S SLL FROM UNITED OVERSEAS BANK, CITY DEVELOPMENT LIMITED'S SLL FROM DBS BANK

CapitaLand, one of Asia's largest diversified real estate groups, had achieved a $500 million SLL in 2020 from the United Overseas Bank (UOB), which marked the largest SLL in Singapore's real estate sector[82]. This SLL from UOB is linked to CapitaLand's achievements in the Global Real Estate Sustainability Benchmark (GRESB) for infrastructure and real estate investment globally. The ESG performance of CapitaLand is explicitly tied to this SLL, providing CapitaLand with the flexibility to use the proceeds from the loans to finance general corporate activities, unlike that of green loans. CapitaLand has announced that this SLL has been significantly advantageous to them since they achieve interest savings whilst maintaining or improving their rating on the GRESB.

Furthermore, City Developments Limited (CDL), the first real estate developer in Singapore to sign the World Green Building Council net zero carbon buildings commitment in 2021, has secured a $400 million SLL from DBS Bank, with nature conservation targets aligned with TNFD recommendations[83]. CDL became the first company in Singapore to publish TNFD-aligned disclosures, making this SLL unique by incorporating specific performance targets related to biodiversity conservation, waste management and water efficiency. CDL has also incorporated TNFD disclosures aligned with targets set in the Kunming-Montreal GBF in their latest sustainability reports. The proceeds from this SLL will be used for general corporate funding and working capital purposes, including the redevelopment of CDL's existing assets.

CARBON CREDITS

Carbon credits refer to permits that allow firms/nations to emit a certain amount of greenhouse gases, which are primarily carbon dioxide, into the atmosphere. The carbon credits system is sometimes referred to as a cap-and-trade program. Firms that pollute the atmosphere with greenhouse gases are awarded with credits that limit their pollution, and this limit is reduced occasionally. These firms can sell any unused carbon credits to other companies that require them. This system aims to incentivise the private sector to reduce their greenhouse gas emissions since they must spend more to gain carbon credits or could sell their carbon credits in the event that it is unnecessary.

81 CapitaLand. 2020. CapitaLand obtains S$500 million Sustainability-linked Bilateral Loan - the largest in Singapore's real estate sector. Available here.

82 Ho, J. 2024. CDL secures $400 mil sustainability-linked loan from DBS with TNFD-aligned targets, the first of its kind. Available here.

BOX 19

ADB'S CLIMATE ACTION CATALYST FUND

The ADB has started their Climate Action Catalyst Fund (CACF) in 2024, which is the first type of carbon fund under the Paris Agreement[84]. This fund aims to mobilise innovative carbon finance via the purchase of carbon credits to catalyse investments in transformative mitigation actions in ADB's developing member countries. This fund aims to finance high impact climate mitigation projects up-front for the future delivery of carbon credits for long-term transactions.

STORMWATER CREDITS

Stormwater credits reflect opportunities and incentives to reduce stormwater fees by encouraging property owners to implement stormwater management strategies to reduce water pollution. Stormwater credits are usually granted for best management practices that reduce stormwater runoff and reduce impermeable surface area. In order to earn a stormwater fee credit, property owners need to meet the criteria defined in their municipality's credit policy[84].

BOX 20

STORMWATER CREDITS IN WASHINGTON, DC

One such example is displayed by the way Washington, DC performs innovative financing for urban stormwater management. The DC Water Environmental Impact Bond provides funding to manage stormwater runoff and improve local water quality through green infrastructure. To complement this is Washington's stormwater retention credits which are available to most landowners where land they own could integrate green infrastructure, in an effort to improve the retaining of stormwater[86]. These stormwater stipulations drive landowners to take up credits due to their Clean Water Act, attracting private sector investment since they anticipate increased trading volume and activity and related profits.

TAX INCREMENT FINANCING

Tax increment financing (TIF) is a specialised tool designed to promote economic development in areas where it might not naturally occur. It works on the principle of value capture, meaning it utilises the anticipated increase in property tax revenues within a specific zone to fund new infrastructure improvements. To implement TIF, a geographic area is designated as a TIF district, and the existing property values are assessed to create a baseline. Public funds are then invested in infrastructure improvements within the district, such as roads, public spaces, or utility upgrades.

83 ADB. 2023. ADB announces start of Climate Action Catalyst Fund. Available here.

84 Penn State Extension. 2022. What is a Stormwater Credit? Available here.

85 ADB. 2020. Financing Disaster Risk Reduction in Asia and the Pacific. A Guide for Policy Makers. Available here.

The goal of these improvements is to attract new investments and development, leading to increased property values over time. This increase in property values generates additional tax revenue. The difference between the baseline tax revenue and the higher revenue collected after the improvements represents the "tax increment." This increment is captured and used specifically to pay off the debt incurred from the initial infrastructure investments.

BOX 21

UTILISATION OF TIF IN PROJECTS FOR US MIDWEST CITIES

Midwest cities in the United States have increasingly been utilising TIF agreements as a tool to incentivise their sustainability and climate goals. For example, Des Moines City officials have integrated sustainability requirements into TIF agreements, with this approach becoming more prevalent from 2016[87]. Since then, it has become a standard procedure for the mayor and city council to vote on each individual agreement.

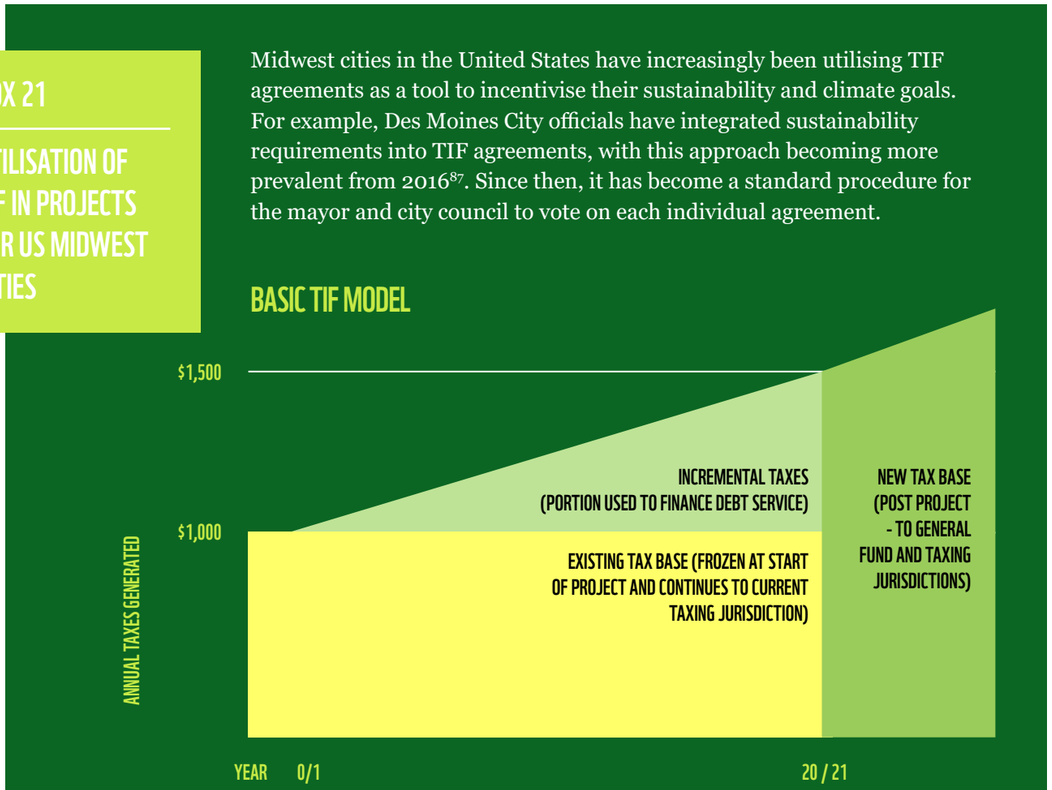


Figure 13. Graphical Representation of the implementation of the TIF Model . Source: Rise Up Midwest, 2020[88].

BLENDED FINANCE

Blended finance is the use of public sources of capital to attract investment from private sectors for developing countries. It aims to attract capital towards projects that contribute to sustainable development, whilst simultaneously generating financial returns to investors. Public funds are typically offered on concessional terms, and are used to de-risk investment projects to mobilise additional private capital. There are different types of instruments that can be used in blended finance transactions.

One such instrument is debt mechanisms. Concessional senior debt (e.g. loans at conditions more attractive than market terms but are prioritised for repayment compared to junior debt) was the most commonly used instrument used for blended finance transactions in 2020 by members of the DFI working group[88].

The IFC, which co-chairs the DFI working group on blended finance, has noted a trend across institutions of increased government systems and rigour to support the utilisation of blended finance projects. Among DFIs, there exists a consensus that greater harmonisation amongst DFIs and institutions is necessary to implement blended finance[89].

BOX 22

BLENDED FINANCE APPROACH AT ADB

The ADB utilises blended finance to de-risk private sector projects in emerging markets and economies in Asia and the Pacific[91]. The ADB blends small amounts of concessional capital, from dedicated funds under its management, with its own ordinary capital. Concessionary capital deploys a variety of instruments to absorb the share of a project's perceived or actual risk, which mobilises additional investment. This serves to quicken the process during which private capital source for the need to fill a gap in the market. Thus, blended finance is advantageous as it accelerates green growth in order to contribute to the region's transition towards a more sustainable future.

TECHNICAL ASSISTANCE

Technical assistance (TA) plays a crucial role in aligning infrastructure finance with nature-positive goals. Typically provided by DFIs, TA encompasses support for the design, financing, and implementation of development projects. To promote sustainable development, DFIs should offer expert guidance to banks on integrating biodiversity considerations into their product design. This guidance should emphasise location-based assessments to identify opportunities that maximise positive impacts on biodiversity, helping to align financial choices with global conservation initiatives.

86 Rise Up Midwest. 2021. Midwest Cities Increasingly Linking Tax-Increment Financing to Sustainability Requirements. Available here.

87 Ibid.

88 London School of Economics. 2022. How can 'blended finance' help fund climate action and development goals? Available here.

89 IFC. Undated. How Blended Finance Works. Available here.

90 ADB. Undated. Private Sector Financing. Financial Products. Available here.

BOX 23

ADB'S PROVISION OF TA

The ADB provides TA to public and private sector operations in two such ways[92]. Firstly, the Transactions TA (TRTA) which directly benefits projects or is financed by the ADB. TRTA also provides partnerships between private and public companies as part of their transaction advisory services. Secondly, the Knowledge and Support TA (KSTA) includes all remaining TAs other than TRTA to aid in policy advice, research and capacity building.

For instance, the 'TA for Mainstreaming Nature-Positive Investments for Green, Resilient and Inclusive Recovery' aims to enable and accelerate the action for biodiversity and climate change, which has been proposed by the ADB[93]. This TA will continue to strengthen the environment sustainability operations of DFIs like the ADB and will promote innovative knowledgeable solutions to integrate nature into strategic planning and investment decision-making. The alignment of technical advice to the goals of DFIs foster greater opportunities for a greener recovery, via national biodiversity conservation.

GUARANTEES

Guarantees play a critical role in improving the accessibility of financing for infrastructure projects. Essentially, a guarantee is a promise by a third party (often a government or DFI) to repay a lender if the borrower defaults on a loan. This risk transfer mechanism reassures lenders, enabling them to fund larger, potentially riskier projects that might otherwise be unviable. By reducing the risk for financiers, guarantees unlock capital for essential infrastructure, supporting economic development and potentially aligning with nature-positive goals when paired with robust environmental safeguards.

BOX 24

ADB'S GUARANTEE TO FIRMS

The ADB extends guarantees for all their eligible projects which enables the transfer of risks that cannot be easily absorbed by individual business to the ADB[94]. These guarantees are provided when the ADB either has a direct or indirect involvement in the project through loans, equity investments or TA. ADB offers Partial Credit Guarantees (PCGs) which provides lenders and investors with comprehensive credit cover on a portion of a loan or credit guaranteed by the ADB. Furthermore, the ADB provides Partial Risk Guarantees (PRGs) which covers lenders against nonpayment by borrowers caused by unstable political situations and caused by political risk events only.

91 Ibid

92 ADB. 2022. Mainstreaming Nature-Positive Investments for Green, Resilient and Inclusive Recovery. Available here.

93 ADB. Undated. Private Sector Financing. Financial Products. Available here.

INTEGRATING NATURE-BASED SOLUTIONS INTO LI FINANCE

FIs hold the key to unlocking the potential of NbS for sustainable LI development. The IFC's Biodiversity Finance Reference Guide provides a framework for aligning investments with the Kunming-Montreal GBF, encouraging a shift away from purely technical solutions towards nature-positive infrastructure. NbS like green corridors, wildlife crossings, and restored wetlands along roads, railways, and transmission lines can mitigate negative biodiversity impacts while enhancing ecosystem services and resilience.

NbS offer significant benefits throughout the entire lifecycle of a LI project. By integrating NbS considerations from the outset, developers can optimise routing decisions to avoid sensitive ecosystems and enhance the overall environmental performance of the project. During construction, NbS help mitigate impacts such as habitat fragmentation, erosion, and loss of ecological connectivity. Furthermore, well-designed NbS solutions provide ongoing benefits during the operational phase of the infrastructure asset, including slope stabilisation, improved water management, and increased resilience to climate-related risks. This holistic approach ensures long-term functionality of the infrastructure while contributing to biodiversity conservation and the well-being of surrounding communities.

Initiatives like the ADB's Nature Solutions Finance Hub (NSFH)[94] play a crucial role in mobilising private investment and technical expertise for NbS within infrastructure projects. By prioritising NbS, FIs can contribute to biodiversity conservation, strengthen climate resilience, and create lasting positive impacts for communities dependent on healthy ecosystems.

94 ADB. 2023. ADB and Partners launch Nature Financing Initiatives for Asia and the Pacific. Available here.

PILLAR 6: PORTFOLIO

NATURE RISK ASSESSMENT AND MITIGATION AT PORTFOLIO LEVEL. DISCLOSURE OF NATURE IMPACTS AND DEPENDENCIES AND TRANSITION PLANNING

This pillar serves as the practical application of the previous five pillars. It focuses on the assessment, mitigation, and disclosure of nature-related risks and impacts within an FI's investment portfolio, and the development of transition plans to align the portfolio with nature-positive goals.

NATURE RISK ASSESSMENT AND MITIGATION

A robust nature risk assessment process is essential for identifying and understanding the potential risks and impacts that an FI's infrastructure portfolio may have on biodiversity and ecosystems. This comprehensive assessment process may involve several key steps:

IDENTIFYING NATURE-RELATED RISKS: This involves recognising the specific risks posed to biodiversity by different types of infrastructure projects within the portfolio. These risks can vary depending on the nature of the project, its geographic location, and its scale. Common nature-related risks include habitat loss, fragmentation, and degradation, pollution of air, water, and soil, disruption of ecosystem services, water scarcity and overexploitation, and increased vulnerability to climate change impacts.

ASSESSING RISK EXPOSURE: Once the nature-related risks are identified, it's crucial to quantify the extent to which the portfolio is exposed to these risks. This requires a thorough analysis of each project's potential impact on biodiversity and ecosystems, taking into account its specific characteristics and the environmental context in which it operates. This assessment should also consider the cumulative impact of multiple projects within the portfolio.

PRIORITISING RISKS: Not all nature-related risks are equal in terms of their potential impact and likelihood of occurrence. Therefore, it's important to prioritise risks based on their materiality to the portfolio. This involves identifying the risks that pose the most significant threat to biodiversity and ecosystems and that are most likely to occur.

DEVELOPING MITIGATION STRATEGIES: Once the most material risks have been identified, the next step is to develop effective mitigation strategies. This involves implementing measures to reduce, avoid, or offset the identified risks. Mitigation strategies can vary depending on the nature of the risk and the specific context of the project. They may include project redesign, the use of NbS, engagement with local communities, biodiversity offsets, and other innovative approaches.

MONITORING AND REVIEW: Nature risk assessment is not a one-time event; it's an ongoing process. It's crucial to continuously monitor and review the effectiveness of mitigation strategies and adapt them as necessary to ensure ongoing risk management. This involves tracking changes in environmental conditions, monitoring project implementation, and regularly reviewing and updating risk assessments.

DISCLOSURE OF NATURE IMPACTS AND DEPENDENCIES

Transparent disclosure of nature-related impacts and dependencies is crucial for building trust with stakeholders and demonstrating accountability. Therefore, FIs must prioritise the disclosure of risk exposure indicators and establish portfolio-level targets to facilitate comprehensive assessments of their progress in managing material nature risks and transitioning their business models. These indicators should encompass factors such as biodiversity loss, habitat degradation, and ecosystem service depletion, providing stakeholders with valuable insights into the nature-related risks embedded within their portfolios.

Ultimately, robust disclosure practices empower FIs to integrate nature considerations into their decision-making processes, drive positive environmental outcomes, and contribute to the collective effort to safeguard biodiversity for future generations. Adopting frameworks such as the TNFD and leveraging tools like the LEAP assessment framework can significantly enhance banks' ability to navigate environmental challenges and capitalise on sustainable opportunities. It offers a systematic framework for FIs to assess the nature-related impacts and dependencies of their portfolios. This information is crucial for establishing robust E&S guidelines and setting meaningful nature-based targets.

TASK FORCE ON NATURE-RELATED FINANCIAL DISCLOSURES' LEAP APPROACH FRAMEWORK

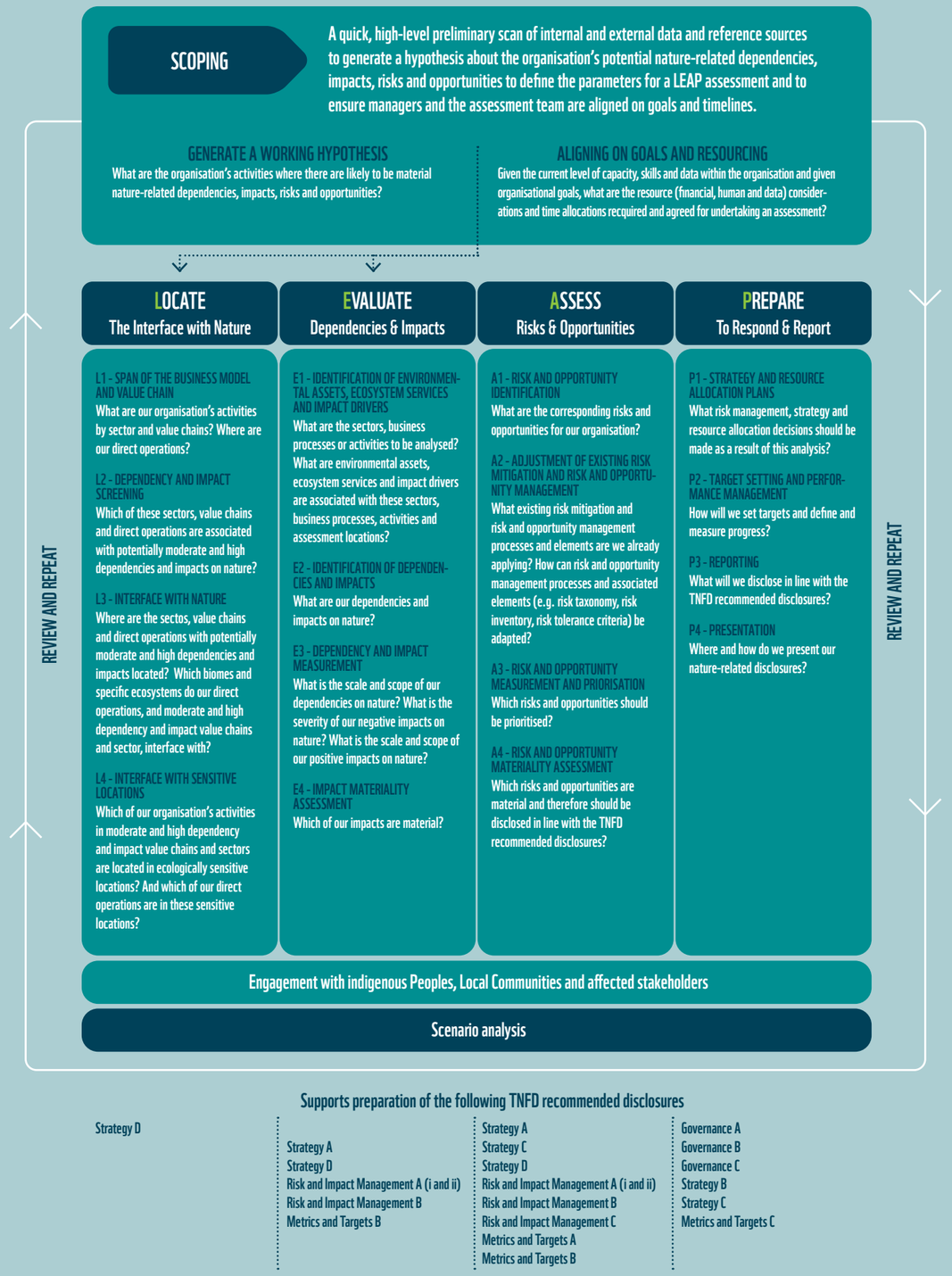


Figure 14. Comprehensive overview of TNFD's LEAP approach. Source: TNFD, 2023[95].

95 TNFD. 2023. Draft Sector Guidance. Electric utilities and power generators. Available here.

To align their practices with the growing imperative for nature protection, FIs must first understand their connection to the natural world. This initial phase, known as "Locate" in the TNFD framework, involves a comprehensive mapping of clients' activities across their value chains[96]. This mapping exercise aims to identify and pinpoint potential dependencies on natural resources, such as water, land, and biodiversity, as well as the impacts, risks, and opportunities that arise from these interactions.

In the "Locate" phase, FIs need to ask critical questions about their clients' operations. For instance, they need to determine the amount of water a textile manufacturing client extracts from local rivers and the ecological consequences of this withdrawal. In the context of infrastructure, this could involve assessing the water usage of a client involved in constructing a large dam or irrigation project. They must also investigate the broader environmental impacts of their clients' activities, including both direct effects like pollution and indirect effects like deforestation within their supply chains. A pertinent example would be examining if a client's infrastructure project, such as a highway or mining operation, fragments habitats or disrupts ecosystems. By prioritising sectors, value chain segments, and geographic locations based on their potential for significant nature-related effects, FIs can strategically focus their efforts. This might involve prioritising infrastructure projects in areas with high biodiversity or those with significant water scarcity concerns.

GUIDING QUESTIONS

DEPENDENCIES:

» What are FIs clients' key dependencies on natural resources (water, land, biodiversity) across their operations and supply chains?
» Example: How much water does a hydroelectric dam project withdraw from a river, and how does this impact downstream ecosystems and communities?

IMPACTS:

» What are the most significant environmental impacts of an FIs clients' activities? Consider both direct (e.g., pollution) and indirect (e.g., habitat destruction) impacts.
» Example: Does a transportation infrastructure project, such as a new highway, fragment habitats and disrupt wildlife migration corridors?

PRIORITISATION:

» Which sectors, geographies, or activities pose the highest nature-related risks and opportunities for their portfolio?
» Example: Are clients form FIs involved in infrastructure projects in areas prone to natural disasters like floods or landslides, and how could these events impact project viability?

Following the initial "Locate" phase, banks transition into the "Evaluate" phase. This stage necessitates a more in-depth analysis to grasp the extent of clients' reliance on natural resources and the ramifications of their actions on the environment. To quantify this reliance, FIs can assess a client's dependence on ecosystem services like water purification for industrial processes. For example, they might estimate the potential cost increase for

96 Ibid.

a manufacturing facility if it had to invest in additional water treatment due to pollution caused by an upstream infrastructure project. Robust evidence collection is crucial in this phase, involving the utilisation of data sources such as scientific studies and EIAs to gauge the impact of clients' activities on biodiversity. For instance, an FI might examine studies on the impact of a port expansion project on marine life and coastal ecosystems.

GUIDING QUESTIONS

IN-DEPTH ANALYSIS:

» Can FIs quantify the extent of their clients' reliance on ecosystem services (e.g., water purification for industrial use)?
» Example: How much would a manufacturing plant's costs increase if it had to install additional water purification systems due to pollution from an upstream infrastructure project?

ROBUST EVIDENCE:

» What data sources (e.g., scientific studies, EIAs) can FIs leverage to assess the impact of clients' activities on biodiversity?
» Example: Are there studies available on the impact of a large-scale mining operation on local water resources and biodiversity?

The next stage, "Assess," involves quantifying nature-related risks and opportunities. FIs employ exposure metrics to gauge clients' sensitivity to these risks and dependencies. An example of this would be determining the percentage of a construction company's projects located in areas with high water stress. Additionally, magnitude metrics are utilised to estimate the potential financial implications of these risks and opportunities. For instance, FIs might analyse how climate change-induced sea-level rise could impact the value of coastal infrastructure investments.

GUIDING QUESTIONS

EXPOSURE METRICS:

» How can FIs measure a clients' exposure to nature-related risks, such as physical risks from climate change or transition risks from changing environmental regulations?
» Example: What percentage of a construction company's projects are located in areas with high water stress or prone to extreme weather events?

MAGNITUDE METRICS:

» What are the potential financial consequences of these risks? How could these risks affect a clients' revenue, costs, or asset values?
» Example: If stricter regulations on waste disposal from construction sites are introduced, how would this impact the operational costs of infrastructure projects?

Finally, in the "Prepare" phase, FIs develop strategies to address nature-related risks and opportunities while ensuring transparent reporting. This involves creating tailored E&S guidelines to assist clients in managing and mitigating risks. For example, an FI might provide guidance to a construction company on incorporating sustainable building materials and practices into their projects. Furthermore, FIs collaborate with clients to establish ambitious nature-based targets that foster positive environmental outcomes, such as working with infrastructure developers to incorporate green spaces and biodiversity corridors into their projects. Reporting on nature-related issues aligns with TNFD recommendations and standards set by organisations like the International Sustainability Standards Board (ISSB) and the GRI, ensuring transparency and accountability.

GUIDING QUESTIONS

E&S GUIDELINES:

» How can FIs develop tailored guidelines to help clients manage and mitigate their nature-related risks and seize opportunities?
» Example: Can FIs provide guidance to infrastructure developers on how to minimise habitat destruction and incorporate biodiversity-friendly designs into their projects?

SCIENCE- AND/OR NATURE-BASED TARGETS:

» What ambitious goals can FIs set with their clients to contribute to positive environmental outcomes?
» Example: Could FIs work with a port operator to set targets for reducing water pollution and restoring coastal habitats?

REPORTING:

» How can FIs ensure their disclosures on nature-related risks and opportunities align with emerging frameworks like the TNFD and ISSB standards?
» Example: Is the FI prepared to report on the environmental and social impacts of the infrastructure projects we finance in a standardised and transparent way?

By systematically addressing these questions and incorporating nature-related considerations into their decision-making processes, FIs can play a crucial role in promoting sustainable infrastructure development and mitigating the negative impacts of human activities on the natural world.

KEY CONSIDERATIONS FOR LARGE PORTFOLIOS: PRIORITISING ACTION IN THE LEAP FRAMEWORK

For FIs managing extensive portfolios, the initial "Locate" phase of the LEAP approach necessitates a strategic focus. It's impractical to conduct a granular assessment of every asset simultaneously. Therefore, a pragmatic starting point is to identify and target key companies or activities within priority sectors that have been identified as having high nature-related risks or dependencies. These could include sectors like agriculture, extractives, infrastructure, and those heavily reliant on natural resources like water or forests. Additionally, companies operating in or near ecologically sensitive locations, such as protected areas or regions with endangered species, should be prioritised for assessment. This targeted approach allows for efficient resource allocation and ensures that efforts are concentrated where they can have the most significant impact.

BENEFITS OF INTEGRATING THE LEAP APPROACH

The integration of the LEAP approach with the TNFD framework offers a multitude of benefits for FIs such as:

ENHANCED DECISION-MAKING: By understanding their exposure to nature-related risks and opportunities, FIs can make more informed decisions about capital allocation, investment strategies, and client engagement. This empowers them to direct resources towards infrastructure projects and companies that align with nature-positive outcomes.

MITIGATED RISK: Proactive identification and management of nature-related issues enable FIs to mitigate potential financial losses stemming from environmental damage, regulatory changes, or reputational risks. This risk reduction strategy contributes to long-term financial stability.

INCREASED RESILIENCE: Embracing a nature-positive approach strengthens an institution's ability to adapt to the evolving landscape of environmental regulations, consumer preferences, and market dynamics. This resilience is crucial for navigating the transition to a sustainable economy.

IMPROVED REPUTATION: Demonstrating a commitment to environmental and social responsibility through robust nature-related risk assessment and disclosure enhances an institution's reputation among investors, clients, and stakeholders. This can lead to increased trust and loyalty, attracting socially conscious investors and customers.

By embracing the LEAP framework and aligning with the TNFD recommendations, FIs can not only safeguard their infrastructure portfolios from nature-related risks but also position themselves as leaders in the transition towards a more sustainable and nature-positive economy. The LEAP framework has been tested out by six organisations during the TNFD pilot program carried out in 2023. These organisations include: AECOM, Grupo SURA, IndusInd Bank, JGP Asset Management, the Private Infrastructure Development Group (PIDG) and Tesco[97]. Specifically on infrastructure, the box below highlights the methodology and takeaways from the PIDG.

BOX 25

PIDG'S TNFD LEAP APPROACH PILOT PROGRAM

PIDG serves as an infrastructure investor and developer which mobilises private investment in climate resilient, sustainable and inclusive infrastructure throughout Africa and in South and Southeast Asia[98]. PIDG's pilot program focused on applying the TNFD LEAP approach to PIDG's infrastructure portfolio, comprising infrastructure projects financed through equity, debt and guarantees to banks and bond investors to support infrastructure project development. Specifically, the pilot sought to identify: challenges and opportunities regarding the data sources, tools and platforms available to support nature-related assessments; the potential use and limitations of existing available data to inform the Locate, Evaluate, and Assess phases of the LEAP approach; and synergies between the LEAP approach and PIDG's impact management framework and process. An assessment of interface with nature at transaction level and an assessment of dependencies and impacts at sector level were conducted, followed by a qualitative physical and transition risk assessment that was later integrated with PIDG's existing impact management framework.

ENCORE is among the tools that PIDG uses to identify the nature-related dependencies, relevant environmental assets and ecosystem services to which its infrastructure portfolio is exposed. This pilot allowed PIDG to understand challenges and opportunities related to the available datasets and tools to perform a qualitative assessment to inform the first three steps of the LEAP approach.

97 TNFD. Undated. Assessing nature-related risks and opportunities: case studies from Global Canopy's 2023 TNFD piloting programme. Available here.

98 Global Canopy. 2024. Experience and reflections from piloting the TNFD's LEAP approach on an infrastructure development and finance organisation's portfolio. Available here.

SCIENCE-BASED TARGETS FOR NATURE

Once a FI has understood the impact and importance of implementing the TNFD framework, the next logical step is for the FI to set nature targets. Setting targets at the portfolio level enables FIs to effectively monitor and evaluate their performance in addressing nature-related risks and advancing their business model transition towards sustainability. These targets should be ambitious yet achievable, reflecting the institution's commitment to biodiversity conservation and ecosystem resilience.

The SBTN offers a rigorous, scientifically grounded framework to guide businesses and FIs in setting impactful nature-positive goals[99]. Integrating SBTN principles is essential for creating a future where nature thrives alongside economic activities.

Adopting the SBTN framework at the portfolio level offers significant benefits for investors and FIs. Firstly, it provides a structured approach to managing nature-related risks, reducing exposure to financial losses and reputational damage associated with environmental degradation. By proactively identifying and addressing these risks, investors can safeguard their portfolios. Additionally, the SBTN aligns with the growing demand for nature-positive investments, opening new opportunities for innovation and growth. Aligning with the SBTN demonstrates a commitment to environmental sustainability, contributing to the SDGs. Ultimately, adopting the SBTN framework future-proofs portfolios, ensuring long-term success in a world where investors and stakeholders increasingly prioritise sustainable and nature-positive business practices.

A framework for portfolio-level implementation of SBTN may include the following steps:

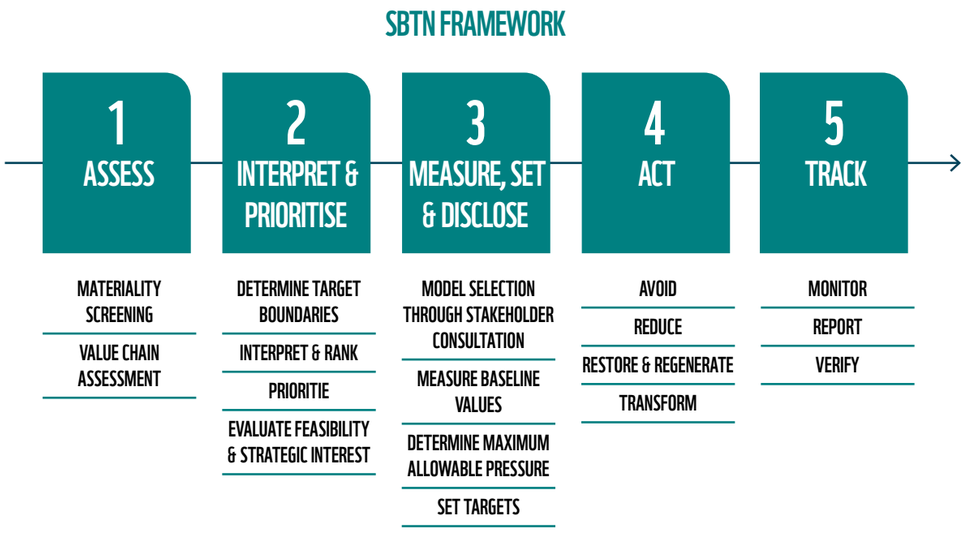


Figure 15. Outlined steps of the SBTN Framework. Source: SBTN, undated[100].

99 SBTN. Undated. Why Set SBTs? Credible action for nature: Transforming risk into resilience for companies. Available here.

100 SBTN. Undated. Frequently asked questions on SBTN. Setting corporate science-based targets for nature. Available here.

In Step 1 of the five-step SBTN methodology known as 'Assess', companies first screen their portfolio of economic activities for materiality (**Materiality Screening**), and then estimate their contributions toward key issues through an assessment of pressures and impacts associated with each category of activity (**Value Chain Assessment**).

Screening for material pressures enables companies to identify which pressure areas they will likely need to set targets on[101]. This information can be used to set corporate expectations about the level of effort needed to address key environmental pressures and to be compliant with SBTN validation requirements. During materiality screening, companies set out to complete the following:

- Define scope for materiality screening
- Prepare data for screening
- Select an approach to screen for material pressures
- Screen for materiality based on these pressures
- Refine sector-level estimates
- Interpret materiality screening outputs

As part of the value chain assessment, companies estimate the pressures on nature that they generate and identify the geographic areas in which these pressures are particularly harmful to the state of nature.

Step 2 of the SBTN framework known as 'Interpret and Prioritise' enables companies to identify the locations where action is needed most urgently for nature and people. Once companies have defined their **target boundaries**, they will have the basic knowledge of where specific targets need to be set[102]. Though companies must eventually set place-based targets throughout their target boundaries, they might not be able to act on all material pressures, in all locations, at once. For this reason, the Step 2 methodology provides a ranking approach to inform companies' target setting strategy. Thus, SBTN methods help companies to **interpret and rank** their targets by creating a roadmap to start target-setting in the places that need it most, and expand ambition over time. As companies develop their target setting strategies, companies may want to select and **prioritise** locations where they can accomplish multiple objectives at once. To ensure targets are set in alignment with companies' existing objectives, local stakeholder needs, and are also set in consideration of emerging risks and opportunities, companies are strongly recommended to apply the evaluation criteria before moving to Step 3, in order to evaluate their **feasibility and strategic interest**.

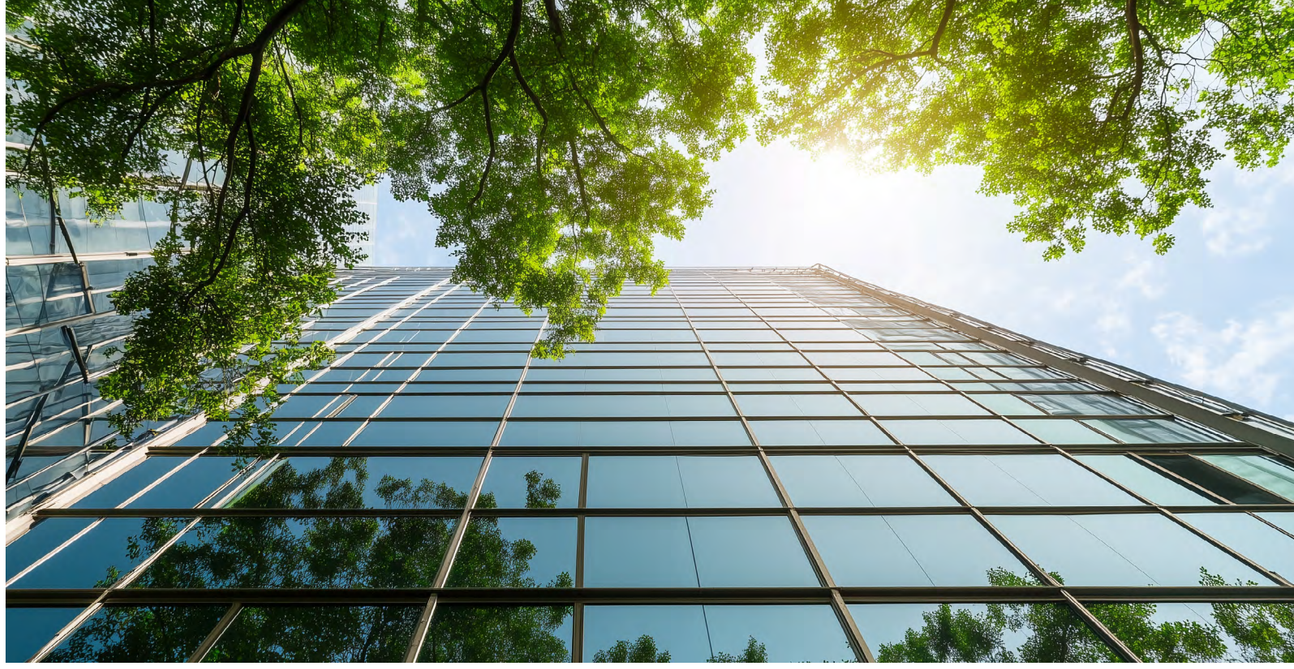
The third step of the SBTN framework is "Measure, set and disclose" where companies can begin measuring their **baseline impacts** and **setting targets** for the issue areas and associated locations on their first SBT shortlist.

The following three-step process should take place at the beginning of step 3 to determine if local models and locally based thresholds are available. It is useful to note that **stakeholder consultation** in this section aims to support a company in its modelling approach selection decision as this model will predict the **maximum allowable pressure** to maintain a desired state of nature.

1. **PARTICIPANTS:** Identify relevant local stakeholders.
2. **PROCESS:** Consult with the identified relevant local stakeholders.
3. **OUTCOMES:** Select Locally or Globally Developed modelling approach.

101 SBTN. 2021. Technical Assistance. Step 1: Assess. Available here.

102 SBTN. 2023. Technical Assistance. Step 2: Prioritise. Available here.



Step 4 of the SBTN framework referred to as 'Act' provides guidance on relevant actions companies can take for nature, using the following steps: avoid, reduce, regenerate, restore, and transform[103].

AVOID: Prevent impact from happening in the first place; eliminate the impact entirely.

REDUCE: Minimise impacts, but without necessarily eliminating them.

RESTORE & REGENERATE: Initiate or accelerate the recovery of an ecosystem with respect to its health, integrity, and sustainability, with a focus on permanent changes in state. Next, take action designed within existing land uses to increase the biophysical function and/ or ecological productivity of an ecosystem or its components, often with a focus on a few specific nature's contributions to people (e.g., regenerative agriculture often focuses on carbon sequestration, food production, and nitrogen and phosphorus retention)

TRANSFORM: Perform actions which contribute to system-wide change, notably to alter the drivers of nature loss, e.g. through technological, economic, institutional, and social factors and changes in underlying values and behaviours.

The final step of the SBTN framework is 'Track'. To set SBTs, companies need practical and appropriate indicators and their alignment to Earth's limits and societal sustainability goals. Concurrently, their internal and external stakeholders need to understand the companies' targets, the actions taken to achieve them, and progress toward meeting them. This is the role of monitoring, reporting, and verification.

MONITORING: Routinely tracking progress towards targets.

REPORTING: Preparing of formal documentation typically connected to desired objectives, outcomes or outputs, such as those connected to targets and goals.

VERIFICATION: An independent third-party confirmation of either or both: a) baseline values of a target indicator (e.g. a company's water or GHG inventory) and b) progress made toward achieving the target.

103 SBTN. 2023. Initial Guidance for Businesses. Available here.

The table below compiles the various objectives and outputs of each step from the SBTN framework.

STEP	DESCRIPTION	OBJECTIVE	OUTPUT
ASSESS	**Materiality Screening**	Determine the material pressures most likely to require target setting by a corporate, based on sector-level information.	Ratings of impact materiality per sector/ activity.
	Value chain assessment	Estimate a company's contributions to key environmental pressures across its operations and value chains and screen the state of nature to inform decisions about what to set targets on, for which parts of the business, and where in the value chain.	Estimates of pressures and state of nature scores associated with each directly owned or operated site, location, and the activity, product or commodity involved.
INTERPRET AND PRIORITISE	**Target Boundary**	Define corporate scope of target setting strategy.	List of locations associated with each pressure.
	Rank	Establish significance values for each location within target boundaries, based on environmental indicators.	Ranked locations within each target boundary.
	Prioritise	Optionally, use a co-benefits approach or the prioritisation rules from the Step 3 methods to identify locations to begin setting targets.	List of prioritised activity/commodity and location pairs.
	Evaluate feasibility and strategic interest	Create a target setting strategy based on prioritisation, a feasibility screening and considerations of stakeholder needs.	List of prioritised activity/commodity and location pairs.
MEASURE, SET & DISCLOSE	**Model selection through stakeholder consultation** **Measure baseline values** **Determine maximum allowable pressure** **Set targets**	Set science-based targets to manage land, climate and freshwater pressures	Baseline and target description, a timeline for achieving targets and a time-bound program for action for land targets.
ACT	**Avoid** **Reduce** **Restore & regenerate** **Transform**	Develop and implement strategy to meet targets.	Company action plans to achieve targets.
TRACK	**Monitor** **Report** **Verify**	Report progress against corporate targets to provide accountability and gather data needed to adjust corporate strategy to meet targets (if necessary).	Progress reports and public disclosure on targets in line with SBTN monitoring, reporting and verification guidance

Table 4: Objectives and outputs of each step in the SBTN framework.

The steps of the SBTN framework, as observed from the table above, have been implemented during the SBTN pilot program. Further information regarding an organisation involved in the infrastructure industry piloting the SBTN framework can be found in the box below.

BOX 26

HOLCIM SELECTED TO PILOT SBTN

Holcim is a multinational corporation that manufactures building materials, with a specific focus to lead the transition to sustainable building[104].

Holcim was one of 17 companies selected to work with SBTN to submit nature targets for validation in 2023, as part of a global initiative to set the world's first standards for ambitious and measurable corporate action for nature[105]. Holcim's biodiversity targets are based on its Biodiversity Indicator and Reporting System developed in partnership with IUCN to ensure a measurable and positive impact on biodiversity, as well as ambitious freshwater reduction and replenishment commitments. This work builds on Holcim's 1.5°C-aligned climate targets, validated by the science based targets initiative (SBTi), a corporate climate action organisation that enables companies and FIs worldwide to play their part in combating the climate crisis with partners consisting of: the Carbon Disclosure Project (CDP), the UN Global Compact, the We Mean Business Coalition (WMBC), the World Resources Institute (WRI), and the WWF.

With the launch of the new science-based targets for nature, SBTN is providing guidance for companies to holistically assess and prioritise their environmental impacts and to prepare to set science-based targets.

INTEGRATION OF SBTN AND TNFD

Working alongside SBTN, is the TNFD framework due to its common outputs for target setting. SBTN target setting methods generate data and analytical outputs (e.g. baseline and target descriptions, timelines for achieving targets and time-bound programmes for action for freshwater targets[106]) that can help businesses apply parts of the TNFD LEAP approach for the assessment of nature-related issues and to disclose in line with the TNFD recommendations. Equally, applying the TNFD LEAP approach can help businesses generate the data needed to set SBTN.

There are 8 common fundamental areas of alignment on target setting observed between the SBTN framework and the TNFD LEAP approach[107]:

1. Spatialisation of corporate activities and interface with nature defined.
2. Estimated environmental footprint based on nature-related dependencies and impact. Issues and locations that require management targets are identified.
3. Based on corporate impact and state of nature, a Prioritised list of locations for action is generated.
4. Risks and opportunities are identified to inform enterprise risk management and financial impact assessment.
5. Baseline measurement for targets are implemented.
6. Target ambition levels are determined and disclosed.
7. Action plans have been curated to meet and report targets.
8. Executing action plans and working towards targets which were set and disclosed.

These fundamental areas that integrate the TNFD LEAP approach and SBTN framework have been illustrated further in the figure below.

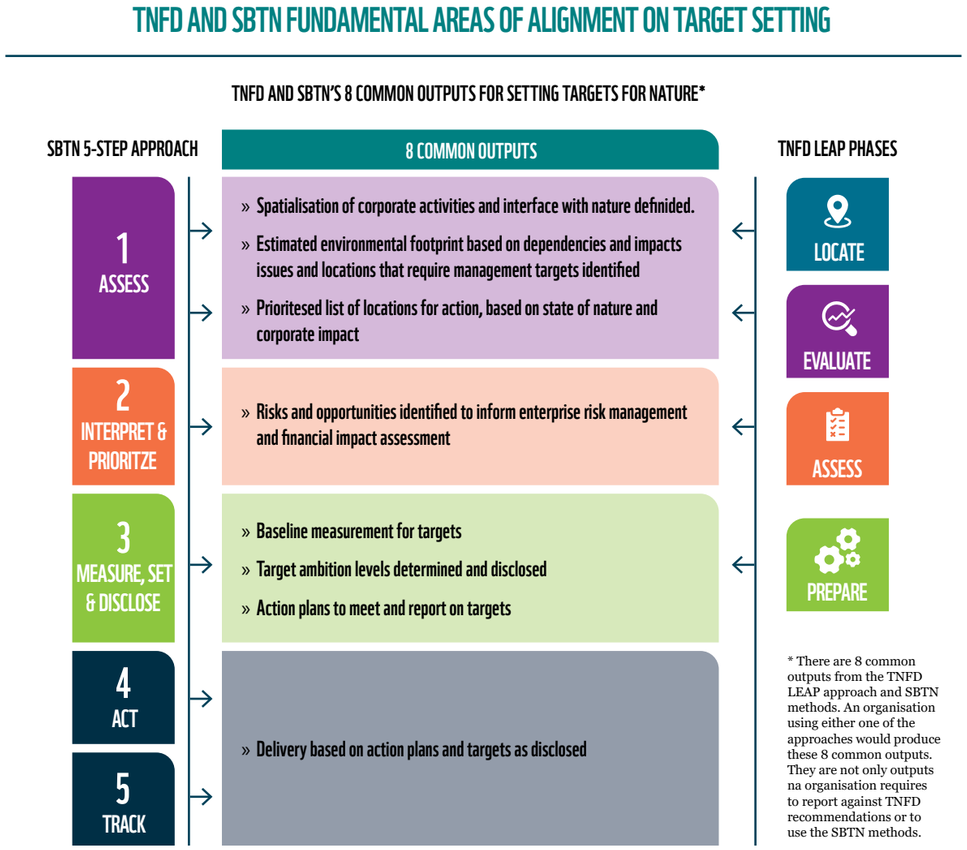


Figure 16. Alignment of SBTN's framework and TNFD's LEAP Approach. Source: BRC, 2024[108]

104 Holcim. Undated. About Us. Available here.

105 Holcim. 2023. Holcim selected to pilot the world's first Science-Based Targets for Nature. Available here.

106 TNFD & SBTN. 2023. Guidance for corporates on science-based targets for nature. Available here.

107 BRC. 2024. Science-Based Targets for Nature - And What They Mean For Your Business. Available here.

108 Ibid.

TOOLS FOR ASSESSING FINANCIAL PORTFOLIOS

Numerous tools are available to assess sustainability risk to financial portfolios, as well as the relative sustainability performance of these portfolios. However, when it comes to assessing absolute sustainability performance concerning science-based sustainability targets, existing tools remain very limited. A lack of fit-for-purpose targets and assessment methodologies hinders the present ability to systematically monitor and direct capital to measurably comply with sustainability frameworks.

Based on research and analysis of 20 methodologies, most tools focus on risk and relative assessment to assess contributions or reductions, rather than absolute performance to physical limits or targets. Climate change appears to be the environmental topic for which the most comprehensive financial portfolio assessment methodologies currently exist. Only partial assessments are available for other goals such as forestry or freshwater.

	RISK PERFORMANCE **Measuring potential impact on the asset/ company/portfolio**	RELATIVE PERFORMANCE **Measuring impact on the planet, in comparison with peers, at sector level**	ABSOLUTE PERFORMANCE **Measuring impact on the planet, with respect to its physical limits**
ENVIRONMENTAL ISSUES (UNIT)	**Methodologies**	**Methodologies**	**Methodologies**
CLIMATE CHANGE (KGCO2-EQ)	Shades of Climate Risk Centre for International Climate Research (CICERO) A C Climate Value-at-Risk (Carbon Delta) A C Climetrics: CDP, Institutional Shareholder Services (ISS) C P	Carbon Impact Analytics (Mirova, C4) A C P Energy transition alignment (TRUCOST) C P NEC** (Sycomore AM, Icare, Quantis) A C P Climetrics (CDP, ISS) C P	Paris Agreement of Capital Transition Assessment (PACTA) (2°C Investing Initiative) A C Science-Based Targets for FIs +++ C ISO 14097 reporting standard ++++ P
WATER USE (KM3 WITHDRAWN)	Water Risk Filter (WWF) A C P Water Risk Monetizer (TRUCOST) A C Water Risk Valuation Tool : (NCFA) A	NEC** (Sycomore AM, Icare,Quantis) A C P	No absolute target or assessment tool identified
LAND USE (KM2 OF CONVERTED LAND)	Global Forest Watch: WRI A C P	SCRIPT (Global Canopy) A C	No absolute target or assessment tool identified
TERRESTRIAL BIODIVERSITY (MSA)+	Biodiversity Risk Filter (WWF) A C P ENCORE (NCFA) (Sector-level)	Global Biodiversity Score (CDC) A C	No absolute target or assessment tool identified
AQUATIC BIODIVERSITY (MSA)+		Planet Tracker, Fish Tracker (Inv. Watch) Global C Biodiversity Score (CDC) A C	No absolute target or assessment tool identified

LEGEND

Level of assessment
- A Asset-level
- C Corporate-level
- P Portfolio-level

- + MSA: Mean Species Abundance of original species
- ++ NEC: Net Environmental Contribution
- +++ Science-Based Targets planned for 2020
- ++++ ISO 14097 standard will be available from 2021

Table 6: Tools for evaluating portfolio performance, focused on tackling specific environmental issues.

WWF RISK FILTER SUITE

One such emerging tool which complements the TNFD's LEAP framework is the WWF Risk Filter Suite, an online platform comprising two risk assessment tools: the Biodiversity Risk Filter (BRF) and Water Risk Filter (WRF)[109]. WWF has combined the BRF and the Biodiversity Risk Method for Investors (BRMI) for companies and FIs to input their institutional data. Following which, the biodiversity risk is assessed via the BRF and WRF depending on the scope of the project. It is crucial to note that the results are aggregated and tailored to the institution for strategies to implement. The BRF is used to identify biodiversity risks (via informing, exploring, assessing and responding to these risks) and to encourage corporate action on biodiversity while the WRF focuses on water risks and corporate action on water[110].

The WWF Risk Filter Suite directly supports the TNFD's objectives in a plethora of ways[111].

1 With over 80 global datasets on water and biodiversity , the WWF Risk Filter tools effectively assess nature-related risks worldwide, enabling companies and FIs to understand their dependencies and impacts on nature.

2 The WWF Risk Filter Suite is designed to align with the four phases of the TNFD LEAP approach: Locate, Evaluate, Assess, and Prepare.

3 WWF has published an Excel document containing detailed information on the datasets within the WWF Risk Filter Suite to help companies and FIs with TNFD's recommended disclosure metrics, to align economies and finance systems towards a more nature-positive future.

Additionally, both these tools are aligned with frameworks like the TCFD, SBTN, Alliance for Water Stewardship (AWS), CDP, GRI and European Sustainability Reporting Standards (ESRS) to support global initiatives for sustainable development while serving as corporate and portfolio-level screening tools. Thus, the central platform of the WWF Risk Filter Suite aims to automatically assess risks in both tools simultaneously for greater convenience for FIs who undertake this tool.

Further information regarding the assessment of biodiversity risks via the BRF can be found in the box below

BOX 27

WWF'S BRF TOOL ASSESSMENT OF BIODIVERSITY RISKS

Currently, the WWF BRF tool assesses two types of biodiversity-related business risk: Physical and Reputational risks, with the incorporation of Regulatory risks to be included in the future. These risks are material from an environmental, social or financial perspective (e.g., operational cost increase, loss in revenue and brand value), which can ultimately negatively impact financial investments from investors.

Physical risk: A company's operations and value chain may face physical risk if those operations located in land that experience a decline in ecosystem services and the firm remains heavily dependent upon these ecosystem services or increase pressures on biodiversity with their activities. These aggravations to the ecosystem services, give rise to possibilities of physical risk.

Reputational risk: A company may face reputational risk if stakeholders and local communities perceive business to be conducted unsustainably or irresponsibly, with respect to biodiversity. This risk is linked to its operational performance and certain pre-conditions in the land that can make reputational risk more likely to manifest (e.g., media scrutiny, conflict, protected areas).

Regulatory risk: A company's operations and value chain may face regulatory risk if they operate in an unstable, ineffective and poorly implemented regulatory environment and are unprepared for regulatory changes or experiencing restrictions and fines due to non-compliance with these existing regulations.

109 WWF. Undated. Biodiversity Risk Filter Suite. Available here.

110 WWF. Undated. Biodiversity Risk Filter. Available here.

111 WWF. 2024. How the WWF Risk Filter Suite can support TNFD to drive action towards a nature-positive future. Available here.

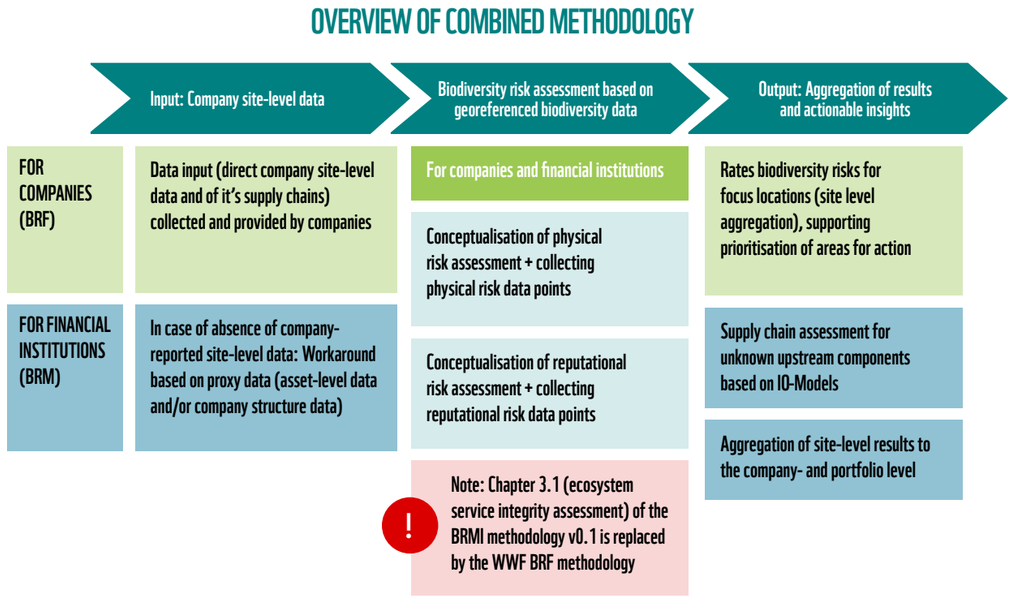


Figure 17. Combined Methodology of WWF's BRF and BRMI to be utilised for companies and FIs. Source: WWF, 2023[112].

BOX 28

GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED UTILISATION OF BRF TOOL

The BRF serves to be incredibly useful for infrastructure portfolios, exemplified by the Global Power Synergy Public Company Limited (GPSC).

GPSC aspires to be among the top three power companies in Southeast Asia, with more than half of their energy production arising from green portfolios[113].

Currently, GPSC implements 3 out of 4 modules of the BRF, including inform, explore, and assess, that enable the organisation to gather information and assess potential impacts[114]. The fourth module, focused on response strategies, is currently under development, reflecting an ongoing and comprehensive approach to sustainability at GPSC.

According to the identified risks affecting GPSC based on the BRF tool, biodiversity-related risks were also considered and integrated into the risk management process as a significant factor[115]. Using this approach, GPSC is enabled to further strengthen their risk management processes by integrating various departments, fostering collaboration, and promoting a risk-aware culture. This enables organisations to proactively identify, mitigate, and adapt to risks effectively. Moreover, the continuous monitoring and improvement are conducted to maintain the effectiveness of the risk management framework.

112 WWF. 2023. Collaboration WWF Biodiversity Risk Filter and WWF Biodiversity Risk Method for Investors. Available here.

113 GPSC. Undated. Vision and Mission. Available here.

114 GPSC. 2022. GPSC Biodiversity Risk Assessment. Available here.

115 Ibid.

The field of nature-related risk assessment is rapidly evolving, with new tools and methodologies emerging to address the complexities of measuring and managing biodiversity impacts. For example, the Partnership for Biodiversity Accounting Financials (PBAF) is developing a standardised framework for measuring and reporting on biodiversity impacts in the financial sector. Additionally, innovative approaches like the Species Threat Abatement and Restoration (STAR) Metric are providing more sophisticated ways to assess the impact of investments on species extinction risk. FIs should stay abreast of these developments and consider incorporating these emerging tools into their portfolio assessment processes.

TRANSITION PLANNING FRAMEWORKS

The adoption of the Kunming-Montreal GBF signifies a pivotal moment in global efforts to halt and reverse biodiversity loss by 2030. As countries translate this ambitious framework into national regulations, FIs investing in infrastructure face a complex landscape of emerging transition risks. These risks encompass evolving regulatory requirements for nature protection in infrastructure projects, which can significantly impact project planning, construction, and operations. Additionally, shifts in economic factors like subsidy structures and land prices, alongside the growing relevance of biodiversity and carbon credits, can influence the financial viability of infrastructure schemes, particularly large-scale projects.

Recognising the parallels between the climate and nature crises, there is a growing imperative to realign financial flows to achieve the GBF's goals. The lessons learned from climate action offer valuable insights for addressing the nature crisis, particularly in developing tools to harmonise the private sector with nature objectives. This includes the strategic use of transition plans to encompass both climate and nature-related considerations.

Transition plans are comprehensive, time-bound action plans outlining how companies and FIs intend to reduce their carbon emissions and mitigate climate risks, while also addressing their nature-related risks. These plans are not merely theoretical constructs; they set out clear, actionable steps for achieving science-based nature targets that are harmonised with climate goals. This integrated approach is essential for identifying and managing potential trade-offs between these interconnected objectives.

While existing frameworks and guidance have primarily focused on climate-related disclosures, the imperative to address nature-related risks is gaining momentum. To align with the goals of the GBF, nature-related disclosures and guiding frameworks must explicitly cover transition planning guidelines. This entails developing robust methodologies for assessing nature-related risks and impacts, establishing science-based nature targets, and creating comprehensive reporting frameworks that encompass both climate and nature-related considerations.

Transition planning is not simply a risk management exercise; it represents a fundamental transformation of the entire institution and its operations. It entails a holistic re-evaluation and redesign of commitments, strategies, policies, processes, products and services, staff, and portfolios to align with nature-positive goals.

WWF's Nature in Transition Planning guide which has been briefly summarised into the table below aims to provide key steps on how a FIs might integrate nature into transition plans to support global goals for climate (Step 1) and nature-positive objectives into transition planning (Step 2)[116].

116 WWF. 2023. Nature in transition plans: Why and How? Available here.

ELEMENTS	STEP 1: INTEGRATE NATURE INTO CLIMATE TRANSITION PLANNING	STEP 2: INTEGRATE NATURE-POSITIVE OBJECTIVES INTO TRANSITION PLANNING
FOUNDATIONS	**Build a knowledge-base and set objectives to safeguard and restore nature to deliver climate goals** Build foundational knowledge of how the transition plan can impact, depend on, or be exposed to risks from nature and any related opportunities. Set short-, medium- and long-term objectives to safeguard nature, mitigate emissions arising from nature's degradation and prevent damage to ecosystems from transition activities, and to invest in NbS that restore carbon sinks.	**Build knowledge-base and set objectives aligned with nature-positive goals** Build knowledge of how the entire business model can impact, depend on, and share risks and opportunities related to nature, beyond the activities of the climate transition plan. Set short-, medium- and long-term objectives in line with global nature-positive goals, including establishing nature safeguards and using NbS for benefits beyond climate mitigation and investing in nature's protection and restoration. This includes eliminating loss of priority ecosystems, protecting land and seas, reducing pollutants and eliminating plastic waste.
IMPLEMENTATION STRATEGY	**Implement objectives to safeguard and restore nature for climate goals** Embed the chosen nature objectives into all business activities, supported by an implementation roadmap.	**Implement objectives for nature-positive** Embed nature-positive objectives into all business activities, supported by an implementation roadmap.
ENGAGEMENT STRATEGY	**Engage stakeholders to safeguard and restore nature for climate goals** Work with stakeholders in the value chain, peers, industry alliances, governments, trade associations and civil society to safeguard and restore nature for climate goals.	**Engage stakeholders to deliver nature-positive** Work with stakeholders in the value chain, peers, industry alliances, governments, trade associations and civil society to take action towards nature-positive goals.
METRICS AND TARGETS	**Define metrics for nature safeguards & restoration for climate goals** Select business and environmental metrics that measure progress against objectives and capture the climate benefits of NbS.	**Define metrics for nature-positive** Select business and environmental metrics that measure progress against nature-positive objectives and capture potential co-benefits of NbS.
GOVERNANCE	**Build capability and accountability to safeguard & restore nature for climate goals** Ensure board oversight, management processes, team capabilities, incentives, and expertise are in place to deliver nature-related objectives in the climate transition plan.	**Build capability and accountability to deliver nature-positive** Ensure board oversight, management processes, team capabilities, incentives, and expertise are in place to deliver broader nature-positive objectives in the transition plan.

Table 5: Procedures FIs can utilise to integrate nature into their transition plans. Source: WWF, 2023[117].

PORTFOLIO METRICS

Portfolio metrics are quantitative measures that provide insights into the environmental performance of an investment portfolio. They are essential tools for FIs to assess and monitor the environmental impacts of their various portfolios. By aggregating these metrics at the portfolio level, institutions gain a comprehensive understanding of their overall environmental footprint, enabling them to identify trends, assess risks, and set targets for improvement. This aggregated data is crucial for strategic decision-making, allowing for the allocation of capital towards projects and companies that have a positive impact on nature, while mitigating risks associated with negative environmental effects. These metrics are typically generated by a combination of sources, including scientific research, data providers, industry associations, and the companies or projects themselves. Alternatively, FIs can also develop their proprietary metrics tailored to their specific investment strategies and priorities.

Portfolio performance measures are pivotal for informed investment decisions. In the context of nature-related risks and opportunities, the TNFD has proposed a set of core global indicators and metrics for disclosure[118].

Core global disclosure metrics refer to metrics to be included in all disclosures following the TNFD disclosure recommendations on a comply or explain basis. These core metrics are split into 'core global metrics' which all organisations should disclose, regardless of sector, and 'core sector metrics' which are specific to the sectors that organisations operate in. An indicator refers to a quantitative or qualitative factor or variable that provides a simple and reliable means to measure performance. Thus, indicators can be measured through one or multiple metrics[119].

These metrics are designed to assess an organisation's dependencies and impacts on nature, focusing on the impact drivers within the ecosystems they operate in or depend on. Aligning with these metrics allows FIs to demonstrate their commitment to international environmental policies, such as the GBF, and other relevant conventions.

117 Ibid.

118 TNFD. 2023. Recommendations of the Taskforce on Nature-related Financial Disclosures. Available here.

119 TNFD. 2023. TNFD Glossary of Key Terms. Available here.

Examples of relevant portfolio metrics for loan and investment portfolios include:

TNFD CORE DISCLOSURE METRICS: These metrics encompass a wide range of nature-related impacts and dependencies, such as land-use change, water consumption, pollution, and greenhouse gas emissions.

STAR METRIC: This metric evaluates a portfolio's contribution to reducing threats to species and promoting their recovery.

MEAN SPECIES ABUNDANCE (MSA): MSA gauges the average abundance of native species within a specific area, reflecting the overall health of ecosystems.

Aligned with the TNFD guidance, project landscapes can be mapped and summarised into multiple nature-related variables (datasets) grouped into eight categories:

- Biodiversity importance
- Ecological integrity
- Ecosystem extent
- Ecosystem change
- Physical risk
- Water stress
- Reputational stress
- Dependencies and impacts on nature

These categories have currently been already utilised in a TNFD LEAP Pilot program in 2023 executed by AECOM, a global infrastructure consulting firm, explained further in the box below.

BOX 29

CASE STUDY ON AECOM'S TNFD LEAP PILOT

AECOM's TNFD LEAP pilot program focused on undertaking screening of infrastructure projects in South Asia (India, Andaman and Nicobar Islands), South-East Asia (Singapore, Thailand, Malaysia, Philippines, Myanmar, Vietnam, Indonesia), and East Asia (Taiwan, Hong Kong)[120]. The infrastructure projects were situated in biomes that span: tropical and subtropical moist broadleaf forests, tropical and subtropical dry broadleaf forests, savannah and shrublands, inland wetlands and mangroves.

This case study outlined a high-level risk screening for a suite of projects on which AECOM consults across Asia. It used multiple geospatial layers to score and rank projects with regards to potential impact, the dependencies of people on nature, physical risks from natural disasters and water-related stress variables, and opportunities for extinction-risk reduction. The analysis is structured around the LEAP phases of the TNFDs LEAP approach. ENCORE is among the tools that AECOM utilised to identify and map supply chain activities associated with infrastructure projects and their associated impacts and dependencies on nature.

The pilot provided an invaluable opportunity for AECOM to understand how existing environmental assessments, such as EIAs, compare and contrast with applying the TNFD recommendations on infrastructure development projects. Moving forward, AECOM hopes to utilise the findings and learnings from this pilot to encourage the adoption of the TNFD recommendations within projects, given the way that TNFD approaches assessments in a more holistic way, covering aspects of environmental assessment that most EIAs do not consider, such as landscape scale issues, long term risks, and value chain impacts.

Applying elements of the TNFD LEAP process highlighted the wider nature-related risks to infrastructure construction, and the sector's critical dependencies on ecosystem services and natural capital assets. This presents many opportunities to the sector including:

- The incorporation of green and blue infrastructure and NbS at project design
- 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
- 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

120 Global Canopy, AECOM, Nature-based Insights. Nature risk screening for infrastructure projects across Asia: Reflections from piloting TNFD's LEAP Approach. Available here.

TNFD METRICS

The TNFD has proposed a set of 10 core global indicators for disclosure, relating to dependencies and impacts on nature (Metrics and Targets B and Strategy A). These core global indicators and metrics are outlined in the table below. They relate to impact drivers within ecosystems on which the organisation has an impact or dependency. To demonstrate their alignment with global policy goals such as the Global Biodiversity Framework (GBF) and other international conventions and international policy commitments, the TNFD strongly encourages organisations to include disclosures against all of the core global indicators of relevance to their business model, sector(s), biome(s) and priority locations[121]. The table below illustrates examples of core TNFD metrics that apply the most to LI.

DRIVER OF NATURE CHANGE	INDICATOR	METRIC
LAND/FRESHWATER/ OCEAN USE CHANGE	Total extent of land/ freshwater/ocean-use change	Extent of land/freshwater/ocean use change (km2), by type of ecosystem (before and after change) and business activity (absolute and change from previous year)
LAND/FRESHWATER/ OCEANUSE CHANGE	Land/freshwater/ocean-use change in prioritised ecosystems	Extent of land/freshwater/ocean use change (km2), by type of ecosystem3 (before and after change) and business activity, for prioritised ecosystems, referring to sector-specific guidance for relevant metrics
POLLUTION/POLLUTION REMOVAL	Volume of wastewater discharged and concentrations of key pollutants in the wastewater discharged	Volume of water discharged (total, freshwater, other) (cubic metre or equivalent) and concentrations of key pollutants in the wastewater discharged by type
RESOURCE USE/ REPLENISHMENT	Quantity of high-risk natural commodities sourced from land/ ocean/ freshwater	Quantity of high-risk natural commodities sourced from land/ocean/ freshwater split into types (absolute (tonnes), and proportion of total, change from previous year)

Table 8: Examples of core disclosure TNFD metrics[122].

121 TNFD. 2023. The TNFD Nature-related Risk and Opportunity Management and Disclosure Framework. Available here.

122 Ibid.

Furthermore, there also exists additional disclosure metrics for dependencies and impacts on nature. Organisations should consider reporting the following additional metrics if relevant to the sector and biome in which they operate. The list of additional metrics includes positive impacts on nature and impact drivers that are widespread but do not affect the majority of sectors, such as light and noise pollution and the introduction of invasive species. It also includes metrics for the state of nature (ecosystem condition and extent) and ecosystem services.

DRIVER OF NATURE CHANGE	ADDITIONAL METRIC
LAND/ FRESHWATER/ OCEAN USE CHANGE	Extent of land/freshwater/ocean use changed that is sustainably managed by ecosystem type and business activity in the relevant time period (proportion of total, change from previous year)
LAND/ FRESHWATER/ OCEAN USE CHANGE	Extent of land/freshwater/ocean voluntarily conserved or restored by ecosystem type in the relevant time period (absolute, change from previous year)
INTRODUCTION OF INVASIVE SPECIES AND OTHER	Number/extent of non-purposefully introduced species, varieties or strains in areas owned, operated, used or financed in priority areas (absolute, presence/absence and/or number removed, change year-on-year)
ECOSYSTEM CONDITION AND EXTENT	Quantitative measurement of change to ecosystem condition and extent in priority locations the organisation depends or impacts on – refer to additional guidance on ecosystem condition
ECOSYSTEM SERVICES	For ecosystem services impacted, measurement on the change in the provision of the service, and For ecosystem services depended on, measurement on the change in the provision of the service

Table 9: Examples of additional core disclosure TNFD metrics[123].

123 TNFD. 2023. The TNFD Nature-related Risk and Opportunity Management and Disclosure Framework. Available here.

Additionally, there also exists sector-specific metrics, which the table below aims to illustrate specifically on infrastructure.

DRIVER OF NATURE CHANGE	INDICATOR	INFRASTRUCTURE SECTOR METRIC
LAND/ FRESHWATER/ OCEAN-USE CHANGE	Change to connectivity	**Home builders; Real estate; Real estate services** Length (km) of LI (e.g. rail, road, fencing) built outside urban areas by type, width (e.g. number of lanes or tracks; metres) and surfacing.
LAND/ FRESHWATER/ OCEAN-USE CHANGE	Change to connectivity	**Home builders; Real estate; Real estate services** Number of fragmentation mitigation measures (e.g. animal crossing points) constructed for LI.
RESOURCE USE/ REPLENISHMENT	Land-use change	**Engineering & construction services, Home builders** Soil erosion on sites (m3), measured as the average change in soil depth, multiplied by the area under management.
POLLUTION/ POLLUTION REMOVAL	Spills of pollutants	**Engineering & construction services, Home builders** Volume of spills of diesel, paints, solvents, and toxic chemicals (m3), by national or company spill classification scheme and by type of ecosystem affected.
POLLUTION/ POLLUTION REMOVAL	Biological alterations	**Engineering & construction services; Home builders; Real estate; Real estate services** Area of land owned, controlled, managed or leased cleared of invasive species during the reporting period (km2).
STATE OF NATURE	Ecosystem extent and condition	**Engineering & construction services; Home builders; Real estate; Real estate service** Potential measures could include: green plot ratio; urban greening factor; area of tree planting (m2); area of a building on which plants are planted. (m2); share of area above threshold for NDVI; and number of areas of sections of planted trees of more than 100m2 created.
DEPENDENCY, IMPACT, RISK AND OPPORTUNITY MANAGEMENT	General	Proportion of materials used that are recycled and reused input materials by significant categories of raw materials, renewable materials and manufactured products (%); or share of total mass of materials, products and components/ systems for the new build/refurbishment/ fit-out that have been reused, repurposed or remanufactured, either from the building undergoing demolition, refurbishment, fit-out or from other buildings, third parties etc. (%).

Table 10: Example of sector-specific infrastructure metrics[124].

124 TNFD. 2023. Discussion paper on Draft sector metrics. Available here.

CALL TO ACTION

The global shift towards a sustainable, nature-positive economy is reshaping how we finance and build infrastructure. The linear model of extraction, production, consumption, and disposal is no longer viable. To meet the challenges of climate change and resource scarcity, we urge FIs to rethink their approach to LI financing. As it can be inferred from the Kunming-Montreal GBF and national regulations reshaping the investment landscape, it is imperative that FIs recognise that sustainable infrastructure investments are not just an option, but a necessity. FIs must realise that traditional LI investments contribute significantly to biodiversity loss, fragment habitats and disrupt ecosystems. In order to combat these adverse effects, FIs should adopt comprehensive transition plans which encapsulate rigorous environmental safeguards. These plans must be actionable, with clear objectives and timelines to reflect commitments to mitigate transition risks and foster biodiversity. By doing so, FIs will align themselves not only with regulatory requirements, but also will position themselves as leaders and pioneers in the transition towards a nature-positive economy.

Collaboration and knowledge-sharing are also paramount in this endeavour. FIs, governments, NGOs, and local communities must work together to develop and implement effective nature-positive solutions. Sharing data, expertise, and best practices will accelerate the transition towards a sustainable infrastructure sector that benefits both people and the planet.

The benefits of sustainable infrastructure investing extend beyond risk mitigation, offering pathways for FIs to enhance their reputation, strengthen stakeholder trust, and create long-lasting positive impacts that contribute to the overall legacy of the institution. Embracing the pillars outlined in this framework enables FIs to acknowledge their commitments by recognising the relationship between their financing activities and environmental conservation, incorporating nature considerations into the policies shaping their investment strategies, and creating specific and measurable targets that intend to reduce nature and biodiversity loss in LI projects, holding FIs accountable and tracking their progress. FIs may then proceed to provide innovative financial products that contribute actively to biodiversity and nature conservation, invest in training programs to equip staff within the organisation with the relevant information to navigate the intricacies of nature-related and transition risks, and lastly, manage investment portfolios effectively by increasing investing activities in projects that contribute to an overall BNG and restore ecosystems, while minimising investing activities that have adverse effects. Thus, it is more urgent than ever before that FIs lead by example, demonstrating their commitment to environmental stewardship, especially in the sustainable LI realm.

ANNEX

The table below summarises these variables grouped according to each of the eight categories and linking to nature-related impacts, dependencies, risks and opportunities[125]. The selected variables reflect the potential risk of having impacts on nature or disrupting key ecosystem services, as well as the external risk posed by the physical environment. Furthermore, the table above has already been utilised in accordance with the TNFD LEAP pilot project (Box 26), conducted by the global infrastructure consulting firm, AECOM.

VARIABLES (DATASETS)	IMPACT	DEPENDENCIES	RISKS	OPPORTUNITIES	DESCRIPTIONS
BIODIVERSITY IMPORTANCE					
Critical natural habitats (CNH)	Yes	-	-	-	CNH in the terrestrial and marine realms following the definitions of the IFC PS6. Includes internationally and nationally recognised important biodiversity areas, the presence of threatened species and rare/unique ecosystems or those associated with key evolutionary processes.
Rarity- weighted species richness	Yes	-	-	-	An aggregate indicator representing an area's species richness and the endemism of its constituent species.
STAR metric	-	-	-	Yes	A spatially explicit data layer highlighting areas where investments in threat mitigation or restoration can reduce extinction risk. Available via subscription to the IBAT (a partnership of IUCN, BirdLife International, Conservation International, and UNEP-WCMC). This layer also represents nature-related opportunities.
ECOLOGICAL INTEGRITY					
Forest landscape integrity index	Yes	Yes	-	-	A composite metric used to look at overall forest integrity.

125 Global Canopy, AECOM, Nature-based Insights. Nature risk screening for infrastructure projects across Asia: Reflections from piloting TNFD's LEAP Approach. Available here.

VARIABLES (DATASETS)	IMPACT	DEPENDENCIES	RISKS	OPPORTUNITIES	DESCRIPTIONS
River fragmentation	Yes	-	-	Yes	Uses Connectivity Status Index to measure the current state of connectivity at a river reach scale considering five pressure factors representing the main human interferences within the four dimensions of fluvial or river connectivity.
Invasive Species	-	-	-	Yes	Datasets published by the Invasive Species Specialist Group and GBIF occurrence data to assess risk in terms of promoting invasive species spread in the project area.
ECOSYSTEM EXTENT					
Terrestrial habitat types	Yes	Yes	-	-	Extent which natural or semi-natural ecosystems affect the probability that a project will impact them. A composite map of terrestrial habitat types to assess the extent forests, grasslands, savannahs, wetlands and shrublands complemented with mangrove extent was utilised for this purpose.
Global mangrove extent	Yes	Yes	-	-	
ECOSYSTEM CHANGE					
Forest Loss Rate	Yes	-	Yes	-	Historical forest loss between 2000 and 2020 using the Global Forest Change dataset.
Changes in MSA	Yes	-	-	-	Historical (1900-2015) and projected (2015-2050) change in MSA using the Global Methodology of Mapping Human Impacts on the Biosphere (GLOBIO) 4 model.
PHYSICAL RISK					
Flood risk (riverine)	-	-	Yes	Yes	Physical risk focuses on natural disasters and uses multiple layers from the WRI's Aqueduct tool (floods and droughts) and the World Bank Data Catalog (wildfires, landslides and cyclones).
Flood risk (coastal)	-	-	Yes	Yes	
Drought risk	-	-	Yes	Yes	
Landslide risk	-	-	Yes	Yes	
Cyclone risk	-	-	Yes	Yes	
Global wildfire hazard	-	-	Yes	Yes	
WATER STRESS					
Baseline water stress	Yes	-	-	Yes	Data layers from WRI's Aqueduct tool 'physical risks - quantity' category reflecting water availability
Baseline water depletion	Yes	-	-	Yes	
Seasonal water availability	-	-	Yes	-	
Interannual water availability	-	-	Yes	-	
REPUTATIONAL RISK					
Reputational Risk	-	-	Yes	-	Overall ESG Reputational Risk from RepRisk data science company assessed through WRI's Aqueduct tool.
DEPENDENCIES AND IMPACTS ON NATURE					
Critical natural assets	-	-	Yes	-	Measures the extent of critical natural assets. These are natural or semi-natural ecosystems that provide one or more of the twelve ecosystem services termed nature's contribution to people.

Table 7: Summary of variables grouped according to the eight categories and linked to nature-related impacts, dependencies, risks and opportunities. These variables are accompanied by a short description of each data set[126].

Detailed indicators and questions that can assist FIs to advance integration of biodiversity considerations at all levels of the organisation.

126 Ibid.

NO	CRITERIA / QUESTIONS
	1. PURPOSE - AWARENESS AND SUSTAINABILITY STRATEGY, STAKEHOLDER ENGAGEMENT AND PARTICIPATION IN SUSTAINABLE FINANCE INITIATIVES
1.1	Does the FI explicitly acknowledge the societal and economic risks and opportunities associated with climate change?
1.2	Does the FI explicitly acknowledge the societal and economic risks associated with biodiversity loss and habitat destruction?
1.3	Has the FI identified that LI has particularly significant impacts on biodiversity, impeding wildlife movement, fragmenting intact natural habitats, and causing widespread land conversion?
1.4	Does the FI engage with the civil society and/or non-governmental organisations to understand the environmental impacts of its lending and investment activities E.g., Does the FI discuss issues such as water risk, deforestation, biodiversity loss, ocean sustainability?
1.5	Does the FI engage with regulators and policy makers on ESG integration and/or sustainable finance topics?
1.6	Does the FI engage with other multilateral financial or non-financial institutions to develop new financial or knowledge products or contribute to building enabling conditions for more robust ESG integration in LI investment and lending?
1.7	Does the FI disseminate knowledge related to E&S risks, opportunities across and outside of the organisation? (incl. outreach events to raise awareness on good E&S practices)
1.8	Does the FI participate in relevant commitment-based sustainable finance initiatives such as Principles for Responsible Banking (PRBs), Net-Zero Banking Alliance (NZBA), Finance for Biodiversity Pledge, Task Force for Nature-related Financial Disclosures?
1.9	Has the FI made or shown willingness to make a commitment to align all financial flows with the post-2020 Global Biodiversity Framework that was adopted at the COP15 of the Convention on Biological Diversity?
	2. POLICIES - PUBLIC STATEMENTS ON SPECIFIC E&S ISSUES AND SECTORS
2.1	Does the FI have a strategy to manage biodiversity risks and opportunities? (e.g., explaining how water risk, deforestation, habitat fragmentation, barrier effect, and biodiversity loss are incorporated into investment decision-making?
2.2	Does the FI have an up-to-date safeguards policy that mitigates biodiversity risks, targets No Net Loss (NNL) in modified habitats, pursues Biodiversity Net Gain (BNG) in critical habitats, and maintains ecological connectivity and integrity?
2.3	Does the FI have a no-deforestation and/or habitat fragmentation policy?

NO	CRITERIA / QUESTIONS
2.4	Does the FI have a policy that requires projects/developers to recognise peoples' rights and needs in planning biodiversity mitigation?
2.5	Do the FI's E&S/safeguard policies include minimum requirements or recommendations based on internationally recognised standards for best E&S practices (e.g. FAST-Infra Label Biodiversity Dimensions, Equator Principles)?
2.6	Does the FI have exclusionary principles/lists that cover high risk sector investments (fossil fuels, nuclear, hydropower, transport)?
2.7	Does the FI have sector policies or sector-specific requirements for environmentally or socially sensitive industries (e.g., energy, oil & gas, mining, transport)?
2.8	Does the FI periodically review and update its E&S/safeguard or sector policies or state that the last date of review was within the past 2 years?
	3. PROCESSES - ASSESSING BIODIVERSITY RISKS AT PROJECT LEVEL
3.1	Does the FI systematically evaluate the true economic and social needs for the LI project while taking into account the value of biodiversity and ecosystem services?
3.2	Does the FI consider (or require clients to consider) biodiversity and landscape- scale risks at the earliest stage of project planning? Does the FI carry out (or require clients to carry out) the right surveys to understand these risks?
3.3	Does the FI carry out screening for biodiversity-related risks and categorise projects according to risk and the associated scope of required environmental assessments? Does the screening process involve best practice tools and datasets such as the IBAT to identify various biodiversity components spatially including protected areas at local, regional, and international scales, key biodiversity areas; and IUCN's Red List of globally threatened species grid limits of distribution?
3.4	Does the FI carry out or require clients to carry out scientifically credible biodiversity baseline assessment (BBA) to identify and quantify the potential project impacts (compared to a biodiversity baseline)?
3.5	Does the FI use a framework for classification of habitats within proposed project areas and the respective limits for habitat degradation associated with projects (e.g., natural and modified habitats)?
3.6	Does the FI require developers to apply the mitigation hierarchy rigorously as a logical framework to address the negative impacts of LI development on biodiversity and ecosystem services, emphasising a focus on avoidance?
3.7	Does the FI pursue (or require clients to pursue) alternative options that altogether avoid high-biodiversity areas where technically feasible and economically viable?

NO	CRITERIA / QUESTIONS
3.8	Does the FI design measures to avoid, minimise, or mitigate adverse impacts, and compensatory measures to achieve no net loss, or even a net gain of biodiversity value?
	4. PEOPLE - ACCOUNTABILITY FOR ESG ISSUES, STAFF E&S TRAINING AND PERFORMANCE EVALUATION
4.1	Is senior management responsible for the implementation of the FI's environmental, ESG or nature strategy?
4.2	Do senior management's responsibilities include the management of biodiversity risks and opportunities relevant to the FI's activities?
4.3	Does the FI describe the roles and responsibilities of the various departments, committees or teams involved in developing and implementing its E&S and biodiversity policies?
4.4	Does the FI have a dedicated ESG team to implement E&S policies and procedures?
4.5	Does the FI provide frequent, relevant and when needed, technical training to staff on E&S issues and implementation processes?
4.6	Are sustainability-related criteria part of the staff appraisal process, remuneration and/or integrated into KPIs for its staff including senior managers?
	5. PRODUCTS - ESG INTEGRATION IN PRODUCTS AND SERVICES
5.1	Does the FI offer green financial products and services (e.g., green bonds, sustainability-linked loans, impact financing) that support the mitigation of E&S issues (e.g., biodiversity loss, climate change, water scarcity and pollution, deforestation)?
5.2	Does the FI offer specific product lines or advisory services that support sustainability improvements in the transport and energy sectors?
5.3	Has the FI published frameworks for its sustainable financial products & services (e.g., a green bond framework, which are aligned with credible international standards)?
5.4	Does the FI prohibit financial products or services dedicated to the exploration and development of new fossil fuel assets as well as expansion of existing ones such as thermal coal ore extraction or processing facilities?
5.5	Does the FI prohibit financial products and services for unconventional oil/gas infrastructure, such as pipelines?
5.6	Does the FI prohibit financial products or services for road infrastructure clients and projects that lead to fragmentation, destruction of natural and critical habitats, deforestation, biodiversity loss, and loss of ecological connectivity?

NO	CRITERIA / QUESTIONS
	6. PORTFOLIO - E&S RISK ASSESSMENT AND MITIGATION AND DISCLOSURE OF E&S RISK EXPOSURE AND TARGETS AT PORTFOLIO LEVEL
6.1	Does the FI periodically assess and review the nature-related dependencies and impacts of its LI portfolios (e.g., using the TNFD LEAP approach)?
6.2	Does the FI set nature-positive or science-based targets for its energy and transport portfolios? Do the targets include information related to: i) area, connectivity, condition, and integrity of ecosystems; ii) percentage of species threatened with extinction; iii) abundance of species?
6.3	Does the FI require investee companies to set science-based targets for nature and follow the SBTN guidance?
6.4	Does the FI disclose nature-related metrics used to assess and monitor the environmental impacts (e.g., biodiversity loss, water risk, deforestation, climate change) of its transport and energy portfolios? E.g. STAR metric or the Species Threat Abatement and Restoration, Mean Species Abundance Metric, TNFD core disclosure metrics for dependencies and impacts on nature
6.5	Does the FI disclose the level of investment that supports biodiversity goals?
6.6	Does the FI disclose the composition of its lending portfolios in the power generation (e.g. fossil fuel vs. renewable energy) and upstream energy exploration and production (e.g. conventional vs. unconventional oil & gas, coal) sectors?

NATURE-FOCUSED INFRASTRUCTURE TOOLKIT

Below is a list of best practice standards, databases, tools, and metrics for effectively measuring nature-related risks and impacts associated with infrastructure investments. To supplement this list, the TNFD has compiled a catalogue of 187 tools which can be used to assess nature-related issues aligned with TNFD's LEAP approach[127].

ITEM	TYPE	DESCRIPTION/APPLICATION
ACT Framework	Framework	Sector-specific framework to evaluate companies' low carbon trajectories against transition plan criteria and establish baselines. It can be utilised in implementation strategies, target setting for metrics, alignment monitoring, and governance across relevant industries.
Beyond Carbon Credits	Tool	WWF's guidance on criteria for high-quality carbon credits.
Biodiversity Heritage Library (BHL)	Database	Digital repository for biodiversity literature and archives, enhancing research methodology by providing free access to biodiversity literature as part of a global community.
Biodiversity Information Sharing Service (BISS)	Database	An open-access journal publishing research articles throughout the research cycle and abstracts on biodiversity standards, methods, guidelines, models, and applications in biodiversity informatics.
Biodiversity Net Gain Tool (UK Gov – BNG Tool)	Tool	Calculates the biodiversity value for BNG in developments, with the user guide providing necessary information to use the statutory biodiversity metric tool.
Blue Dot Network	Certification	Internationally-recognised certification for sustainable quality infrastructure projects.
Carbon Disclosure Project (CDP) Worldwide	Framework	Provides a global disclosure system for investors, firms and nations to manage environmental impacts.
Catalogue of Life (COL)	Database	Global collaboration of taxonomists and informaticians to integrate numerous biodiversity sub-databases to provide consistent, updated listings of all known species.
Climate Disclosure Standards Board (CDSB) Biodiversity Application Guidance	Standard	Biodiversity application guidance to help companies disclose material information about the risks and opportunities of biodiversity loss to an enterprise.
Convention on Biological Diversity (CBD)	Convention	Signed by 150 government leaders worldwide, the CBD is a multilateral treaty promoting sustainable development.
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	Convention	International agreement to protect endangered wildlife from the threat of international trade.
Convention on the Conservation of Migratory Species of Wild Animals	Convention	Global environmental treaty to conserve migratory species and their habitats.
Convention on Wetlands (Ramsar Convention)	Convention	International treaty to encourage recognition of areas that contain rare wetlands crucial for biodiversity.
CSBI: A Cross-Sector Guide for Implementing the Mitigation Hierarchy	Tool	Guidance for the extractive and financial industry to choose and prioritise safeguards on nature.
EU Taxonomy	Classification system	Classification system, establishing environmentally sustainable economic activities that align with do-no-significant harm criteria.
Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE)	Tool	A crucial tool for TNFD's LEAP approach which assists FIs in their journey to understand their dependencies and impacts on nature.
FAST- Infra Sustainable Infrastructure Label Network	Framework	Worldwide label for infrastructure projects depicting positive sustainability performance.
Geospatial Analysis Tools (e.g., QGIS, ArcGIS, UKHab)	Tool	Collects, processes, and visualises geographic information system data and imagery, such as GPS and satellite photos, to explore data and share location-based insights.
Global Biodiversity Framework (GBF)	Framework	With the mission to halt and reverse nature loss, this framework consists of global targets to be achieved to safeguard and sustainably use biodiversity.
Global Biodiversity Information Facility (GBIF)	Database	An international network and data infrastructure funded by the world's governments, aimed at providing open access to information and data about all life on Earth.
Global Methodology of Mapping Human Impacts on the Biosphere (GLOBIO)	Tool	Scientific communication tool for mapping and integrating the likelihood of human impacts on the biosphere, resulting from increasing growth in resource utilisation for a suitable format for policy making.
Global Reporting Initiative (GRI)	Standard	Delegates responsibility to businesses and organisations for sustainable reporting to stakeholders at a regional level.
Global Species Database (GSD)	Database	Offers habitat and endangerment information for life on Earth, whilst serving as a digital catalogue of organisms typically focused on conservation purposes for the species of interest.

127 TNFD. Undated. Tools Catalogue. Available here.

ITEM	TYPE	DESCRIPTION/APPLICATION
IFC Performance Standard	Standard	Integral to its sustainability framework, it provides clients with guidance on risk identification and mitigation to conduct sustainable business practices, emphasising stakeholder engagement and project-level disclosure.
Integrated Biodiversity Assessment Tool (IBAT)	Tool	Provides a one-stop-shop to identify protected and key biodiversity areas to safeguard. Applies to corporates, governments and financed projects.
Integrated Botanical Information System (IBIS)	Database	Delivers the infrastructure, applications, and services that support biodiversity informatics for the Australian National Botanic Gardens and their partners.
Integrated Taxonomic Information System	Database	Provides authoritative taxonomic information on plants, animals, fungi, and microbes globally.
Integrated Valuation of Ecosystem Services and Trade- offs (InVEST)	Modelling Tool	Project-based, freely available, spatially explicit software models to manage trade-offs between natural capital and economic goals.
Inter- American Development Bank Sustainable Infrastructure Framework	Framework	Aids in the planning, design, and funding of infrastructure that maintains economic, financial, social, environmental, and institutional sustainability.
International Plant Protection Convention (IPPC)	Convention	An intergovernmental treaty signed to protect the world's plants, agricultural products and natural resources from plant pests.
International Treaty on Plant Genetic Resources for Food and Agriculture	Convention	Aimed at recognising the contribution of farmers to the diversity of crops, establishing a global system to provide farmers, plant breeders and scientists with access to plant genetic materials and ensuring that recipients share benefits they derive from these genetic materials.
International Whaling Commission (IWC)	Convention	Global body responsible for management of whaling and conservation of whales, sustainable whale watching, ship strikes, ocean noise, pollution, debris, bycatch and entanglement.
Many individual species- specific databases (e.g., BacDive, FishBase)	Database	Compiles comprehensive data about particular species and/or focus on particular species attributes.
MaxEnt (Biodiversity Informatics)	Tool	Software for modelling species niches and distributions by applying a machine-learning technique called maximum entropy modelling from a set of environmental grids and georeferenced occurrence localities.
Natural Capital Protocol	Tool	Part of the Capital Coalition, the Natural Capital Protocol (underpinning the TNFD) provides a framework and toolkit to manage impacts on natural capital.

ITEM	TYPE	DESCRIPTION/APPLICATION
Natural Climate Solutions Alliance for Corporates	Report	Report on how corporations should adopt natural climate solutions and carbon credits into strategies with appropriate safeguards. The Natural Climate Solutions Alliance Guide for C-Suite Executives on Natural Climate Solutions and the Voluntary Carbon Market provides guidance on implementation of high quality climate solutions.
Ocean Biodiversity Information System (OBIS)	Database	A global accessible data and information database on marine biodiversity for science, conservation and sustainable development.
Potentially Disappeared Fraction (PDF)	Tool	Reflects potential extinction of species, within a specific period associated with resource uses or emissions, that are leading to habitat degradation.
S&P Global Sustainable Database	Database	Provides sustainability data, analytics, and opinions from S&P Global's business divisions to meet the distinct needs of their clients via provision of sustainability insights alongside financial and industry perspectives.
SBTi-FLAG Methodology	Tool	Methodology to set targets on land use for high-emission sectors, using productlevel and sectoral pathways 50. It can also be used in Metrics & Targets and progress monitoring.
SBTN draft Technical Guidance	Tool	Draft Technical Guidance to assess and prioritise material nature risks and set targets.
SBTN Materiality Tool and SBTN Interim Targets	Tool	Materiality tool to help identify the key risks and impacts of sectors related to emissions, land use, resource use, pollution and more. Draft Interim Nature Targets can be set already.
Species Abundance (Mean Species, Total Species, Relative Species)	Tool	Measures the biodiversity intactness relative to its abundance of undisturbed ecosystems.
Species Distribution (Range, Endemism, Rarity)	Tool	Describes the proportion of a species that is represented by a single populated grid cell.
Species Diversity (Richness, Evenness, Shannon Index, Simpson Index)	Tool	Quantitative measure that reflects how many different species there are in a community, serving as statistical representations of biodiversity in different aspects (richness, evenness, and dominance).
Species Threat Abatement and Restoration (STAR)	Tool/Metric	Measures the contribution that investments can reduce species extinction risks, to achieve conservation outcomes and contribute to global policy aims.
Sustainability Accounting Standards Board (SASB)	Standard	Enable organisations to disclose sustainability-related risks and opportunities that could potentially affect the entity's cash flows, access to finance or cost of capital.

ITEM	TYPE	DESCRIPTION/APPLICATION
Sustainable Development Goals (SDG)	Framework	Global call to action to protect the planet, end poverty and inequality, and ensure that all people enjoy health, justice and prosperity.
Taskforce on Nature- related Financial Disclosures (TNFD)	Framework	Disclosure recommendations and guidelines to promote businesses to assess, report and act on their nature-related dependencies, impacts, risks and opportunities.
TNFD-LEAP Methodology	Tool	Risk management and disclosure framework for companies to manage and report their dependencies and impacts on nature.
The Plant List	Database	Comprehensive and authoritative list of vascular plants and bryophytes maintained by the global taxonomic community.
Threatened Species Link	Database	Provides updated and concise information on conservation and management needs of threatened plants and animals in Tasmania.
UNEP FI Guidance on Biodiversity Target Setting	Tool	Bank guidance to take a systematic approach to setting and achieving biodiversity targets.
UNEP-FI Finance, Ocean Pollution & Plastics Guidance	Tool	Finance Engagement Guide to set priorities and challenge companies on emissions, pollution and infrastructure impact.
UNEP System of Environmental Economic Accounting	Framework	Framework that integrates economic and environmental data to provide a more comprehensive view of the relationship between the economy and the environment and the stocks and changes in stocks of environmental assets.
UN PRI Collaboration Platform and Working Groups	Platform	Platform for investors to engage and improve governance on climate and other increasingly prevalent sustainability issues.
World Biodiversity Database	Database	Continuously expanding taxonomic database and information system which aims at documenting all presently known species and making this important biological information accessible worldwide.
World Heritage Convention (WHC)	Convention	An international treaty signed with intentions of nature conservation and the preservation of cultural properties, due to the recognition of the way people interact with nature, and the fundamental need to preserve this balance.
World Register of Marine Species	Database	Taxonomic database providing an authoritative and comprehensive list of marine organisms.
World Wide Fund for Nature (WWF) Biodiversity Risk Filter Suite - Water & Biodiversity Tool	Tool	Aims to help companies evaluate and respond to biodiversity-related risks and opportunities across their operations, value chain and investments.
WWF Biodiversity Stewardship Guidance	Tool	Guidance to help businesses identify their biodiversity risks and opportunities and become stewards of biodiversity.

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ABOUT THE ALIGN PROJECT

The ALIGN Project aims to expand the development and implementation of effective, high-quality infrastructure safeguards in Asia—with specific focus in India, Mongolia, and Nepal—that protect people and nature from harm and ensure ecosystems continue to thrive. The project is made possible by the generous support of the American people through USAID. The ALIGN Project is implemented by WWF in partnership with the Center for Large Landscape Conservation. For more information on the ALIGN Project visit www.alignproject.org.

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