Financing nature: a transformative action agenda

A discussion paper
December 2023

CENTER FOR GLOBAL COMMONS

Foreword

Naoko Ishii

Razan Al-Mubarak

Frannie Léautier

Vera Songwe

Izabella Teixeira

Mari Pangestu

Nature is vital to the health of our communities and the wealth of our economies. There is no life on earth without nature, and no functioning economy without it either.

A resilient, thriving natural world is also our best chance of meeting climate and sustainable development goals. Peatlands, wetlands, soils, forests and oceans absorb half of the world's emissions. A productive and inclusive food system strengthens food security and enhances livelihoods. Protecting nature and supporting equitable access to, and use of, our natural capital is an essential tool for peacebuilding.

Yet our current economic system fails to account for and properly value nature with catastrophic effect. Almost three years after its publication, we have not heeded the dire warnings of the Dasgupta Review – which called for a radical change in how we think, act and measure economic success to protect and enhance our prosperity and the natural world. Humanity has crossed six of nine 'safe and just' Earth System Boundaries, and wildlife populations are declining faster than any time in human history.

It does not have to be this way. The agreement of the Global Biodiversity Framework, alongside the Paris Agreement, has catalysed significant public and private sector attention on nature. Around the world, we also see examples of locally-driven, bankable solutions. From regenerative cocoa production in west Africa to forest restoration in the Amazon and wildlife tourism that conserves and protects endangered species in Botswana, nature-positive models that deliver for people, planet and prosperity are flourishing.

The question in front of us now is "*why do these nature-based solutions remain fragmented pilots?*". The simple answer is that nature is not only undervalued, but it is largely seen as "uninvestable". Nature is location-specific, meaning the metrics of financing nature-based solutions are inherently more complex. A common approach for measuring and valuing nature has yet to be mainstreamed, leading to both systemic underinvestment and misdirected investments in nature. Nature-based solutions attract only 15% of the money which goes to traditional climate solutions like clean energy and low carbon transport. Harmful subsidies receive three to four times more financing than nature-positive investments.

Making nature-based solutions become mainstream investable opportunities requires a radically different approach. We call on leaders to support an ambitious action-agenda to: (1) Set science-based targets and account for nature to fully embed nature into economic decision making; (2) Strengthen domestic and global policy processes for nature finance; (3) Ensure investments and policies are just, inclusive, and accountable; (4) Scale up project finance for nature (eg. through creating regenerative value chains); and (5) Deepen capital markets, mobilize private capital and use public finance catalytically.

At COP27, the Independent High Level Expert Group on Climate Finance laid out a transformative agenda to unlock investment for climate action in emerging markets and developing economies. This paper aims to deepen the action agenda for nature finance, to inspire collective action across public, private and philanthropic finance in how nature is financed globally. We hope that COP28 is a watershed moment, where nature becomes firmly embedded in economic decision making.

Contents

Acknowledgements

Core supporting team:

Barnabé Colin, Naseer Chia, Moritz de Chaisemartin, Guido Schmidt-Traub, Katherine Stodulka

With special thanks for their expert input:

Jeroen Huisman, Julia Turner, Johanna Schlueter, Federico Apéstegui Guardia; Puninda Thind, Roopal Kanabar (Climate Champions); Camille Maclet (CBD); Rodrigo Quintana (TNC); Mark Gough (Capitals Coalition); Simon Zadek (NatureFinance); Rodrigo Quintana (TNC); Guillaume Lafortune (SDSN); Nathalie Olsen, Aurelia Blin (UNEP).

This action agenda has been commissioned by the Center for Global Commons at the University of Tokyo, led by a group of expert practitioners and developed in partnership with Systemiq. It serves as a companion to the Report of the Independent High-Level Expert Group on Climate Finance (IHLEG) and its follow-up, to be launched at COP28, and a follow-up to the UN High-Level Climate Champions report "Mobilizing private capital for nature".

The authors welcome feedback and engagement on this paper and your collaboration to accelerate this critical agenda.

Key Messages

Nature is vital for protecting the health of our communities and the wealth of our economies. Yet the current economic system continues to incentivize destructive activities, leading to nature breakdown. When nature fails, it disproportionately harms Emerging Markets and Developing Economies (EMDEs)

US$140tr
the value of ecosystem services from nature, 1.5 times global GDP

US$530bn
paid in subsidies harmful to nature annually – 3.3x the total amount of nature finance

47%
of wealth creation in low-income countries depends on nature

Conserving, restoring, and sustainably using nature is critical to achieving climate and sustainable development targets

Around
11.3 $GtCo_2e$
nature's **carbon mitigation** potential – equivalent to stopping burning oil globally

Around
50%
climate-resilience infrastructure needs by 2050 could be met with nature-based infrastructure

Close to
80%
of humanity relies on nature for **medicine** and treatment

Around
US$10tr
economic opportunities in a nature-positive economy

Over
980
million people are **employed** by nature (farming, fishing), or **27%** of the global workforce

Yet nature is chronically underfunded. Climate finance is insufficient, inefficient, and unfair – nature finance is worse. We urgently need to scale investment in nature-positive solutions

1/6
nature receives the equivalent of one sixth of flows going to better energy systems

Only
18%
of total nature finance comes from private capital

70%
of finance targets conservation and restoration – more is needed for sustainable agriculture

2%
of finance goes to Indigenous peoples and local communities – the guardians of 80% of intact nature

Urgent, systemic action is needed to mobilize capital for nature by transforming the enabling policy environment, proving business models, and harnessing financial innovation

1
Set targets and account for nature
- Science-based targets, disclosure frameworks
- Natural capital accounting
- Data generation and management

2
Harmonize policies for effective nature financing
- Integrated strategies and spatial planning
- Country platforms, implementation vehicles, enforcement
- Trade, tax and subsidy reform

3
Ensure investments are just, accountable, and inclusive
- Multistakeholder decision making and design
- Community-led approaches to engaging IPLCs

4
Scale up project finance for nature
- Regenerative value chains
- Carbon and biodiversity markets

5
Deepen capital markets, mobilise private capital, use public finance catalytically
- Unlock domestic capital markets
- Ramp up development finance
- Comprehensive sovereign debt approach to nature

Executive Summary

1 The case for nature – delivering for people and planet

Nature[i] is the foundation of the global economy. It is critical to the health of our communities, the wealth of our economies, and delivery of the Paris Agreement and Sustainable Development Goals. Yet our economic systems fail to adequately value nature. The impacts are stark – we are experiencing nature breakdown, the impacts of which are most acutely felt by rural populations in developing economies.

We lack a harmonized approach to dealing with the complexities of measuring and accounting for nature, leading to systemic underinvestment in nature-positive[ii] solutions and misdirection of existing investments towards harmful activities. Nature finance[iii] receives just one-sixth of the capital invested in low-carbon energy.

An approach that systematically embeds nature in decision-making is needed. Growing political momentum, financial and business model innovation, and community and country leadership create an unprecendented opportunity to ramp up ambition and action.

i Nature: the natural world, with emphasis on the diversity of living organisms and interactions among themselves and with their natural environment. This includes categories such as biodiversity, ecosystems, ecosystem functioning, the biosphere, humankind's shared evolutionary heritage, and biocultural diversity (adapted from Diaz, S. et al. [2015])

ii Nature-positive: a high-level goal and concept describing a future state of nature (e.g., biodiversity, nature's contributions to people) that is greater than the current state. (SBTN 2020, Abridged Glossary for Initial Guidance)

iii Nature finance: finance that contributes to activities that conserve, restore or sustainably use nature, and that aligns financial flows with the goals of the Global Biodiversity Framework and Paris Agreement (adapted from OECD and Convention on Biological Diversity)

The current economic system fails to adequately account for and value nature's contribution. It incentivizes harmful activities that disproportionately affect the most vulnerable countries and communities. Our failure to adequately account for nature has led to nature breakdown – humanity has crossed six of nine Earth system boundaries, and wildlife populations have declined by 69% on average. Impacts are most severe in emerging markets and developing economies (EMDEs), whose rural populations rely heavily on nature for their economic well-being and are most vulnerable to its depletion.

The financial system is inefficient, insufficient and unfair[1] – it creates disincentives to deploy capital in EMDEs and creates barriers to investing in climate action. These barriers are even higher when investing in nature:

- **The metrics of financing nature are inherently complex.** Compared to climate (where reducing greenhouse gas emissions is typically the sole indicator of progress), tracking nature impact requires location-specific data across multiple variables, such as freshwater availability, soil health and biodiversity intactness. Defining and monitoring location-specific metrics and solutions is essential to global, regional and local action on nature, alongside ensuring this data can be integrated into financial and policy decision-making in an efficient and actionable way.

- **Harmonized approaches for measuring and valuing nature have yet to be mainstreamed.** Shifting towards nature-positive activities at scale requires a harmonized approach in the way we understand, measure and account for our relationship with nature. Without this, it is more difficult to integrate nature in decision-making processes (e.g., investment, tariff regimes, government accounts, insurance policies, risk management).

- **Nature-positive project financing faces added challenges compared to investments in energy, mobility or industry.** Investors perceive high risks to investing in nature, due to upfront costs, long payback periods, lack of training for farmers, fishers and loggers, and the often small or disaggregated nature of projects. Moreover, some of the priority solutions in nature do not have underlying business models, whereas in the rest of the climate finance agenda, the majority does.

- **Environmental crime, such as logging, illegal mining and the trade and trafficking of wildlife threatens the survival of biodiversity[iv].** It exacerbates climate change, damages ecosystems[v], and harms Indigenous Peoples and Local Communities (IPLCs)[vi].

iv Biodiversity: the variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems. (Convention on Biological Diversity)

v Ecosystem: "all the living things in an area and the way they affect each other and the environment" (Cambridge Dictionary). Ecosystem functions are "the physical, biogeochemical, and ecological components, processes, and outputs of ecosystems that are driven by multiple controls, such as abiotic and climatic factors, ecosystem structure, biodiversity, human disturbance, and land management" (Duncan et al., 2015). These functions largely depend on ecosystem condition and quality (adapted from NGFS)

vi IPLCs: typically, ethnic groups who are descended from and identify with the original inhabitants of a given region, in contrast to groups that have settled, occupied or colonized the area more recently (IPBES)

As a result, the conservation, restoration, and sustainable use of nature is chronically underfunded, resulting in a significant need for additional investment. Finance for nature is skewed towards conservation, although production systems – such as agriculture – drive the majority of nature loss. Private finance is insufficiently mobilized, and not enough public and private finance goes to EMDEs, where it is most urgently needed.

- **Nature finance is skewed to support conservation and restoration activities, which receive 70% of current financing.** Supporting these activities is critical and they remain deeply under-funded. Scaling nature finance overall should combine conservation and restoration with investment in a systematic transformation of commodity production and infrastructure development.

- **Only 18% of nature finance is private capital.** International commitments such as the Global Biodiversity Framework emphasize that we cannot achieve goals without mobilizing financial resources from all sources, public and private, and scaling the use of more effective blended and innovative finance solutions. In 2022 alone, at least US$5 trillion of private capital was deployed on activities with direct negative impacts on nature, across sectors.[2]

- **Most nature finance comes from, and stays in, advanced economies.** Close to 80% of global nature finance flows originate from and are directed to advanced economies. Yet 60% of EMDEs are in debt distress, which restricts the ability of sovereigns to invest in nature.

- **Harmful subsidies receive three to four times more** (US$530 billion) financing than nature-positive public investments in agriculture, fisheries and forestry[3], driving 14% of global deforestation and dwindling fish stocks.[4]

- **A lack of integrated regulation and enforcement of environmental crime costs the global economy almost $300 billion a year.** This is punishing people living in poverty, 70% of whom depend on wild species for food and income.

Yet nature is the foundation of our economies and our wellbeing. Humanity relies on a stable and resilient Earth system: our air, food and the water we drink ultimately depend on the stable provision of nature's services. Put simply, without nature life ceases to exist.

Nature also fosters human health and wealth beyond economic value. IPLCs have built varied ways of understanding and relating to nature. Incorporating these diverse values, views, and solutions into decision-making not only embraces critical principles of justice and inclusion, but also ensures that the global community benefits from knowledge, traditions, and innovations that have historically delivered a safe and just approach to sustainable development.

Nature is critical for delivering on the Paris Agreement and the UN Sustainable Development Goals (SDGs):

- **Safeguarding nature is essential to mitigating climate change.** Peatlands, wetlands, soils, forests and oceans absorb half of total anthropogenic emissions and store twice as much carbon as the atmosphere. Nature's mitigation potential of 11.3 gigatonnes CO_2e by 2030 is the equivalent of stopping burning oil globally.

- **Safeguarding nature is the most cost-efficient way of adapting to climate change.** Replacing or complementing built infrastructure with plants, trees or other alternatives could provide 50% of climate-resilient infrastructure needs by 2050 and save EMDEs at least US$100 billion in costs of climate change annually.

- **Safeguarding nature guarantees millions of jobs.** An estimated 980 million jobs in farming, fisheries, forestry and tourism – one-quarter of the global workforce – depend on the effective management and sustainability of healthy ecosystems. Meanwhile, an estimated 400 million additional jobs could be unlocked in sustainable agriculture and new markets for conservation and restoration.

- **Safeguarding nature means fighting poverty, enhancing food security, and peace-building.** Nature loss enhances inequalities between and within countries; the world's poorest lose access to their means of subsistence and countries become trapped in poverty. Unsustainable land and sea use makes it harder to feed a growing population. Nature loss amplifies threats leading to social destabilisation and violence. Four main factors of insecurity – access to water, food, natural disasters, and migration – can be addressed by transformative action on nature.

- **Safeguarding nature guarantees human health.** Ecosystem services purify water, regulate air quality, and enable soil formation. The entire population relies on biodiversity either for traditional medicines or for pharmaceutical discoveries. 200 health journals have called on the United Nations to treat the environmental crisis as a global health emergency.

The good news is that political momentum, financial innovation, and technological solutions are converging to turn the tide on nature loss. We must seize this momentum to build a systemic transformation agenda for nature.

- **Targets and policy objectives:** As the Paris Agreement did for climate, the Global Biodiversity Framework has focused attention on nature. Nature was central to the G7 Communique for Action, the recent G20 New Delhi Leaders' Declaration called for better measurement of nature data, and it is prominent in the COP28 agenda.

- **Financing innovation:** increasing recognition of the risks from nature loss has led to the development and implementation of innovative financial instruments, such as debt

conversions for nature (e.g., Belize, Ecuador, Gabon), blended finance vehicles (e.g., Vumbuzi Impact Multiplier, Global Fund for Coral Reefs, IDH Farmfit), and innovative tax schemes (e.g., Limpopo Biodiversity Management Agreements).

- **Voluntary initiatives and corporate commitments:** the Science-based Targets for Nature and the Taskforce on Nature-related Financial Disclosures are building bridges between nature, business and finance, accelerated by a recognition of the approximately US$10 trillion in business opportunities across nature.

- **Technological breakthroughs:** a revolution in nature data – enabled by remote sensing, sensors, artificial intelligence, environmental DNA, and drones – is expanding our understanding of nature and our ability to measure, track and account for nature.

2 A systemic transformation agenda for nature

Rebuilding our economy's relationship with nature will require coordinated public and private sector action across five interventions: 1) Setting targets and accounting for nature; 2) Harmonizing policies for effective nature financing; 3) Ensuring investments and policies are just, inclusive and equitable, 4) Expanding project finance for nature; and 5) Deepening capital markets, mobilizing private capital and using public finance catalytically. Through these actions in tandem, we can firmly embed nature in decision-making and support the acceleration and scale of nature-positive action to deliver on the Global Biodiversity Framework, Paris Agreement, and Sustainable Development Goals.

1. Set targets and account for nature

Building a sustainable economic system requires adopting harmonised frameworks of measuring and valuing different types of capital (eg. economic, natural, social). The mainstreaming of a natural capital[vii] accounting framework, supported by science-based targets and high-quality nature data to accurately measure and value nature outcomes can ensure that nature is fully embedded in decision-making processes. This should be applied to policymaking, business strategies, investment decisions and procurement standards.

- **Science-based target setting:** The releases of the Science Based Targets for Nature (SBTN) and Taskforce on Nature-Related Financial Disclosures (TNFD) framework are operationalizing nature-related targets, disclosure and investor engagement. These frameworks have catalysed action among corporates and financial institutions, with several organizations now piloting interim SBTN and TNFD guidance. Such initiatives are increasingly supported by regulation: Article 29 of the French law on Energy and Climate requires financial institutions to disclose information about portfolio impacts on biodiversity. These initiatives should be widely adopted and mainstreamed.

vii Natural capital: the stock of renewable and non-renewable natural resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people. (Capitals Coalition [2016], Natural Capital Protocol)

- **Natural capital accounting:** Shifting towards nature-positive activities at scale requires a transformation in the way we understand, measure, and account for our relationship with nature. The lack of a harmonized approach to accounting for nature has hampered the mainstreaming of nature-positive practices but frameworks like the United Nations System of Environmental-Economic Accounting (UN SEEA) and the Capitals Coalition's Transparent Methodology now make it easier to factor nature into decisions.

- **Data access and management standards:** 70% of investors believe a lack of data is a key barrier to investments that support nature and biodiversity. Whilst the quality of nature data is improving, and enough to drive initial action, current stocks of publicly available data is not comprehensive, updated or accurate enough to baseline the 'state of nature' and thus to track changes to natural capital over time. This prevents financial institutions from developing nature-positive products. More collection and disclosure of data can accelerate the use of decision-quality data for nature and support the direction of capital towards nature.

2. Harmonize policies for effective nature financing

Political momentum is growing, globally, and regionally. Aligned policy processes – often delivered at national level through international platforms – can improve planning, incentives, monitoring, governance, and implementation for climate, nature and development.

- **Better planning (e.g. through spatial planning processes):** Governments need to manage trade-offs between optimizing for different climate, nature and development outcomes, for example when deciding where to award concessions for industry against designating Protected Areas. National spatial planning processes - such as those pioneered by Costa Rica, Paraguay, South Africa and others - could identify high-risk areas off-limits to development, seek out opportunities for nature-based solutions within production systems, support rigorous management of development impacts, guide the restoration of degraded areas, and codify these priorities in national maps of land use.

- **Better incentives (e.g. through nature-positive subsidies):** Governments should incorporate nature-related risk management into fiscal recovery packages and budgetary planning, revise tariff and subsidy regimes – including the progressive repurposing of $530billion in annual harmful subsidies[5] – to support sustainable agriculture and fishery models, and align their own procurement with nature-positive outcomes.

- **Better governance and implementation (e.g. through country platforms):** Political agreements are needed to support transformative change for specific long-term objectives. Country platforms – such as those Brazil's Ecological Transformation Plan, and Country Packages under the Forest and Climate Leaders' Partnership - can provide a country-led institutional co-ordination mechanism to identify climate, nature and development priorities, structure financing instruments to deliver them, build an enabling policy environment, and mobilize bilateral, multilateral and philanthropic donors, as well as private sector actors.

- **Better monitoring (e.g. through better monitoring, reporting and verification systems):** ensure that commitments are being enforced (e.g. protected areas, prevention of environmental crime) and that action for nature is accurately tracked (e.g. to enable payment for ecosystem services) through robust MRV systems and enforcement mechanisms.

3. Ensure investments are just, accountable, and inclusive

Including women, marginalized communities and IPLCs in the design of a nature-positive economy is essential because they are crucial managers of landscapes and seascapes. Ensuring the inclusion of these communities in the design, governance and implementation of policies and investments, and the codification and respect of their land rights, is not only a just imperative but a key enabler of nature's survival.

- **Secure IPLC rights over assets and enhance their resource management:** ensuring communities conserve or reclaim land tenure rights should be the foundation of any approach engaging IPLCs.

- **Ensure IPLC inclusion in the creation and governance of PAs and MPAs:** for example, in September 2023, at the UN General Assembly, Maori leaders called on the world to confer legal personhood to the whale and pledged to work together to implement Indigenous customary protections across whale migration routes between critical feeding and breeding grounds. This has created the world's largest indigenous MPA network, of over a 2,200,000km^2 area.

- **Design place-based financing mechanism with, and for, IPLCs and smallholder communities:** encouraging the creation, strengthening and broadening of financing tools led by or designed for IPLCs and rural or marginalized communities, with a focus on reliability of access to long-term funding.

4. Expand project finance for nature

One of the biggest challenges to mobilizing private sector investment is identifying a strong pipeline of bankable projects. Despite pledges seeking investments with measurable environmental benefits and financial returns, the perceived lack of clearly investible projects still limits capital flows. This is because the scale-up of nature-positive pipeline – at the supply level – faces constraints related to the structure of projects and value chains, and the need for project preparation and technical assistance throughout.

- **Scaling regenerative value chains for soft commodity production and ecosystem restoration requires pairing financial support with technical assistance and high-integrity value chain standards. This can help draw in necessary commercial supply chain finance, carbon finance, and other market-based solutions.**

Transparent reporting standards for insetting can help push incumbents such as massive international traders towards regenerative value chains. Pipeline acceleration and value chain incubation, as demonstrated by Regeneration, can benefit from public-private collaboration and engagement at country or landscape level. Incubators need the involvement of: corporates (as product off-takers), governments (through their policies), financial institutions and technical assistance providers, including the support philanthropic funding and impact investing.

- **Carbon and biodiversity markets will be critical to value nature and fix market failures.** An increasing range of private-sector business models are rewarding nature protection. As biodiversity markets grow alongside carbon markets, ensuring the integrity of design, governance and implementation will be critical. Interest is growing in creating connected or fully integrated global carbon and nature markets, including through supervised carbon stock exchanges, jurisdictional credit markets and national credit frameworks.

5. Deepen capital markets, mobilize private capital and use public finance catalytically

At the demand level, neither domestic nor international capital is moving fast enough or at the scale required. Capital markets have traditionally viewed the risk-reward ratio of investing "into" (e.g., conservation) and "for" nature (e.g., sustainable agriculture) as prohibitive. An end-to-end de-risking infrastructure and strategic use of concessional capital to de-risk private investment are needed to mobilize more and better nature finance. Investment is constrained by: the time-value gap of investments, the need for recurring interventions (conservation and restoration), the relatively small size of investments, the geographical aggregation of risks in a landscape (agriculture, fisheries, forestry, infrastructure), and the increased vulnerability of habitats and frequency of natural hazards (all assets).

- **Unlock domestic capital:** domestic resource mobilisation for nature should focus on bringing liquidity to nature stewards and SMEs, through affordable, accessible financing in all forms: debt, equity, and blended finance.

    - **Domestic capital markets are uniquely placed to engage the local private sector and consumers.** They have the footprint and capacity to deliver finance at retail level (local banks, asset managers, corporates, informal financiers and national DFIs). Shifting agricultural value chains and markets in EMDEs requires providing better access to financing for smallholder farmers and small and medium enterprises (SMEs).

    - **Farmers and fishers (nature stewards) require better access to working capital.** Liquidity shortages create a huge food security risk in Asia and Sub-Saharan Africa where smallholders produce 80% of the population's food. It also prevents multi-year agricultural transitions. Liquidity shortages can be addressed

through: secured long-term commercial contracts, the creation of bank accounts, supplier financing solutions including cash management and working capital, debt to early or mid-stage companies with limited or flexible collateral requirements; access to small loans and credit (local currency) for working capital and long-term finance, and technical assistance to borrowers for documentation and reporting.

- **More mechanisms to enhance domestic bank capacity are needed.** Priorities include: building awareness and capacity, creating incentives for banks to lend through guarantees, mechanisms for international commercial banks to increase local banks' capacity, and facilitating the distribution of nature-positive finance (e.g., debt, insurance, equity) portfolios.

- **Corporates with outsized impact on value chains (e.g., coffee, cocoa, palm oil) should commit to reducing deforestation in their supply chains and help build consumer demand for more sustainable products.** These companies need to communicate to shareholders that long-term activities which may impact short-term value are critical and should be rewarded.

- **Ramp up development finance: development banks must be central to creating an effective response and bringing diverse actors to support a shared agenda of transformative development.** As detailed in the Triple Agenda Roadmap, MDBs must be bigger, better, and bolder. Their capacity to address market failures and act as a source of pipeline, makes them essential to mobilize private capital through risk mitigation and risk pooling, address nature-related risks, and provide transition signals to the wider system.

  - **Development banks could further strengthen the impact of their US$18.7 trillion assets through mandates and targets for nature finance.** This includes: scaling MDB adaptation finance allocations, building ambitious climate and nature transition action plans, creating explicit targets for nature within financing for climate, and capacity building – at the interface of agricultural intermediaries, market access players, microfinance institutions and other value chain actors – to increase financial inclusion and access to finance for smallholders and communities.

  - **Development banks can build bridges between sovereigns and private actors.** Natural Capital Labs could be structured as incubators for innovative financing for nature and solutions addressing barriers.

  - **Development banks, in particular MDBs, should further develop and promote catalytic and concessional instruments.** Concessional capital used for technical assistance and project preparation can help unlock private investment by developing a stronger project pipeline. Risk transfer – hedging on currency risk, political risk or commodity price insurance – can be provided by DFIs and MDBs to address a host of risks in EMDEs. Guarantees and 'first loss' tranches – are highly catalytic but under-utilized – can target many risk types and attract private capital players both domestically and internationally.

- **Build a comprehensive approach to integrating nature into sovereign debt markets:** targeted mechanisms – debt-free financing, debt buybacks, and refinancing tied to nature-positive outcomes – could contribute to rebalancing sovereigns' financial stability and enhancing stewardship to future generations.

    - **EMDEs face mounting economic pressure as debt burdens rise** – 60% of EMDEs are either in or close to debt distress, placing severe limits on public investment in nature. This is reinforced by the unequal architecture that makes EMDEs access to financing inadequate and expensive.

    - **There is growing momentum around debt conversions for nature, which provide a blueprint for scaling and replication.** In 2023, debt-for-nature transactions were approved in Ecuador, Gabon and Peru – with a total value of US$2.1 billion, or 20 times more than over the past decade. While recognizing the limitations of these instruments, transactions over the last year provide a model for co-investment platforms, in which grantors, guarantee providers, insurers and technical assistance providers coordinate to provide streamlined services across different instruments and transactions, using shared impact principles, aligned objectives, and operating as "deal teams". (case study: Galapagós Blue Bond)

    - **To address a larger share of the total debt stock, nature covenants should be systematically included in debt restructuring processes.** Given the deadlock of the Common Framework Initiative over reforming the sovereign debt architecture, complementary ad-hoc approaches will be necessary. Nature and climate KPIs could also be built into debt service relief, such as the Debt Service Suspension Initiative (DSSI), to complement and reinforce policy-based conditionality.

3 Four investment priorities to value intact nature, restore degraded nature, and address the drivers of nature loss

If implemented, the systemic transformation agenda set out in Section 2 above would create an enabling environment supporting nature-positive solutions to rapidly replicate and scale. We urgently need to accelerate investments that address the drivers of nature loss, going beyond conservation and restoration towards a shift in critical sectors, e.g. agriculture, infrastructure and extractives. Many nascent success stories show that we have the tools and knowledge to deliver additional investment needs – valued at around US$400 billion annually by 2030 – and re-orient existing capital away from harmful activities. The increasing range of solutions across these investment priorities differ in risk-return profile and commercial viability. Scaling them requires mobilizing the full spectrum of public and private capital. In some cases, and unlike for energy systems, public capital only, combined with regulation and standardisation, will be the critical unlock, while other opportunities will be suited to commercial capital only.

Nature finance should drive more capital "into" nature – conservation and restoration – but also "for" nature – shifting agriculture, fisheries, forestry, mining, infrastructure – towards nature-positive outcomes. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) highlights five key drivers of nature loss: land use change, climate change, pollution, invasive alien species, and natural resource use and exploitation. Nature finance should focus on agriculture, forestry and fishing, which is responsible for 85% of species loss, 80% of deforestation, 70% freshwater use, and drive US$12 trillion in "hidden costs".

The good news is that a range of bankable nature-positive solutions are flourishing, delivering positive nature, climate and social impact as well as financial returns for communities, countries, companies and investors. These can be broken down into four priorities:

- **Investments into ecosystem conservation and restoration:** the Global Biodiversity Framework calls for the conservation of 30% of terrestrial, freshwater and marine ecosystems, and the restoration of 30% of degraded areas, by 2030. This should lead to the restoration of 150 million hectares of degraded agricultural land – an area larger than Europe.

- **Investments in nature-positive food, forestry and fishing:** upfront financing to nature stewards will be essential to implement agroforestry, no-tillage farming, multi-trophic aquaculture, improved nutrient management, and rotational grazing, for example. Finance will be needed for technical assistance, machinery, or cost amortisation to nature stewards in the start of the transition period.

- **Investments to shift diets:** Global diets need to converge towards local variations of the "human and planetary health diet", predominantly plant-based diets which include protective foods (fruits, vegetables and whole grains), a diverse protein supply, and reduced consumption of sugar, salt and highly processed foods.

- **Investments to reduce nature impact of infrastructure and extractive sectors and develop better production practices:** This includes mining, metals, and urban infrastructure, which should include a shift towards less harmful practices across the project lifecycle. It also includes water, waste and wastewater utilities, which prevent pollution of critical ecosystems.

Nature-positive solutions offer different risk-return profiles and call for different types of financial capital. In some cases, public capital only, combined with regulation and standardisation, will be the critical unlock, while other opportunities will be suited to commercial capital only. Scaling the most successful solutions requires mobilizing the full spectrum of public and private investment, deployed alone or in combination. Catalytic capital to kick-off first-of-a-kind projects (grants, concessional) will be critical for many sectors, but de-risked and pure commercial capital become more relevant as projects mature. Risk mitigation and technical assistance will be needed across investment priorities, especially before nature reaches commercial viability.

4 An action agenda

In the face of nature breakdown, urgent action is needed to transition to a development model that adequately values nature's contribution to people and planet. This paper is a call to action for delivering a transformative agenda to rapidly accelerate flows of private and public capital "into" and "for" nature, and embed nature firmly into decision-making. To accelerate action, we propose the following key actions, to be launched at or around COP28, and to be developed in the next two years, until COP30 in Belém, Brazil, which will represent an opportunity to take stock of progress:

1. Set targets and account for nature

- **Adopt natural capital accounting standards** in public and private investment and strategic planning decisions, building on frameworks like UN SEEA and the Capitals Coalition's Transparent Methodology, and on early examples of national accounting initiatives (eg. as seen in Rwanda).

- **Set science-based targets for climate and nature** in line with SBTi and SBTN guidance, and require commitment to science-based targets as a criteria for public and private investment.

- **Invest in the collection and sharing of high-quality nature data,** promote and invest in national data standards and data sharing facilities and adhere to CARE and FAIR principles to ensure ethical governance of nature data collection and use.

- **Set regulation for the disclosure of nature risks, impacts and dependencies,** as piloted through France's Article 29, and commit to 'radical transparency' disclosing climate and nature risks, impacts and dependencies under TCFD and TNFD.

2. Harmonize policies for effective nature financing

- **Develop and support comprehensive and up-to-date National Biodiversity Strategies and Action Plans (NBSAPs) and fully integrate nature into Nationally Determined Contributions (NDCs)**, leveraging recommendations and cross-country collaboration initiatives on from the NBSAP Accelerator Partnership, and its knowledge portal

- **Conduct and support integrated, inclusive spatial planning processes** in line with target 1 of the Global Biodiversity Framework, to develop a national land use plan that delivers on climate, nature and development targets, ensuring IPLC engagement, and whole-of-government approach for implementation

- **Promote ambitious national standards and champion multilateral initiatives for nature,** such as due diligence and disclosure legislation, bilateral and global agreements on ending wildlife crime, nature-positive trade provisions and subsidy regimes

- **Develop, deliver, and advocate for the mainstreaming of integrated policy processes and build private and public sector collaboration to accelerate finance for nature-positive outcomes,** for example through country packages (e.g., Brazil Ecological Transformation Plan, Forest Climate Leaders' Partnership)

3. Ensure investments are just, accountable, and inclusive

- **Integrate IPLCs into the design, governance and implementation of investments, policies and strategies** whenever these have direct or indirect contact with IPLC lands

- **Secure IPLC land tenure rights** as the foundation of engagement with IPLCs

- **Commit to principles of justice and equity,** including around country ownership and equitable pathways (requiring access, affordability and additionality)

4. Expand project finance for nature

- **Scale up regenerative value chains** through guaranteed off-take agreements for regenerative commodities, and innovative financing facilities that aggregate investment, provide technical assistance, and strengthen value chain linkages

- **Build high-integrity carbon and biodiversity markets** with robust design, governance and implementation structures, powered by innovative financing mechanisms

5. Deepen capital markets, mobilize private capital, and use public finance catalytically

- **Unlock domestic capital markets,** including banks, asset managers, and DFIs in EMDEs, by building supplier financing solutions to close liquidity gaps, and stimulating domestic corporates' and private markets' commitments towards regenerative value chains

- **Ramp up development finance** by increasing DFI and MDB mandates and targets for nature finance, strengthening MDB collaboration with the private sector through Natural Capital Labs, and supporting MDBs in pioneering guarantee mechanisms, novel forms of risk insurance (including sovereign risk), and public finance support for innovation

- **Build a comprehensive sovereign debt approach to nature** by building co-investment platforms to replicate debt conversions for nature, and integrating nature covenants in debt restructuring and sovereign credit ratings

1 The case for nature – delivering for people and planet

1.1 The current economic system finances nature loss and ignores nature's value, leading to nature breakdown

"When we put nature on our balance sheets, you'll know Africa is wealthy"
William Ruto, President of Kenya[6]

The current economic system fails to adequately value nature's contribution and incentivizes harmful activities. This has led to us breaking through 'safe and just' Earth system boundaries[7]**.** Human production and consumption are destroying stocks of natural capital, causing nature to decline at unprecedented rates[8]. One indicator of change – the average 69%[9] decline in the abundance of monitored species across the animal and plant kingdoms – demonstrates the speed and scale of pressure our economies are putting on nature. In short, the demand for nature's products and services is grossly exceeding its ability to supply.

The impacts of climate change and nature loss disproportionately affect the most vulnerable countries and communities. Rural communities in EMDEs are both heavily reliant on nature for their economic well-being and most vulnerable to its shocks and depletion[10]. Approximately half of lower-income countries' wealth creation depends on direct contact with nature[11], while 85% of biodiversity hotspots are situated in EMDEs[12]. In low-income countries, agriculture accounts for around 25% of gross domestic product (GDP), 40% of net exports and

over 60% of employment[13]. Catastrophic drought in Ethiopia and Kenya and floods in Haiti and Pakistan are clear signs of the need to transition to a 'safe and just' economic model that fully accounts for nature's contribution to our well-being and resilience.

Yet nature breakdown represents a planetary emergency and a generalized economic risk. Central bankers stress-testing national banking sectors have been very clear: the loss of ecosystem services is a systemic risk[14], with 45-72% of securities held by national financial institutions dependent[15] on ecosystem services. Industries that are moderately to highly dependent on nature account for half of global GDP (US$44 trillion)[16], with critical supply chains at risk from nature breakdown. For example, the dramatic decline in insect populations, termed the "insect apocalypse"[17], threatens US$235-577 billion of crop production that depends on pollination[18].

The IHLEG on Climate Finance[19] has highlighted that the financial system is inefficient, insufficient and inequitable, creating disincentives to invest in EMDEs and barriers to financing climate action. Mobilizing capital for nature is even more challenging than transforming the energy system. There are intrinsic complexities to bridging between nature and the economy:

- **The metrics of financing nature are inherently complex.** Compared to climate (where reducing greenhouse gas emissions is typically the sole indicator of progress), tracking nature impact requires location-specific data across multiple variables, such as freshwater availability, soil health and biodiversity intactness. Defining and monitoring location-specific metrics and solutions is essential to global, regional and local action on nature, alongside ensuring this data can be integrated into financial and policy decision-making in an efficient and actionable way.

- **Harmonized approaches to measure and value nature are yet to be implemented at scale.** Shifting towards nature-positive activities at scale requires a harmonized approach in the way we understand, measure, and account for our relationship with nature. Although there are standardized approaches to integrating the value of nature in decision-making (e.g., UN SEEA[20], Natural Capital Protocol[21]), these have yet to be implemented in critical systems and processes (e.g., tariff regimes, government accounts, insurance policies, risk management), which has led to suboptimal decision-making that results in nature loss.

- **Nature-positive project financing faces added challenges compared to investments in energy, mobility or industry.** Investors perceive higher risks to investing in nature, due to upfront costs, long payback periods, lack of training for farmers, fishers and loggers, the often small or disaggregated nature of projects, and the limited track record of investment success. In some cases, investments in nature do not have underlying business models, whereas in climate finance (apart from agriculture), a majority do.

- **Environmental crime, such as logging, illegal mining, and the trade and trafficking of wildlife, threatens the survival of biodiversity, exacerbates climate change and has significant negative impacts on ecosystem health and the livelihoods of IPLCs.**

Lack of integrated regulation and enforcement is leading to a leakage of up to almost $300 billion from the global economy annually – this is most acutely felt by the world's poor, 70% of whom depend on wild species for food and income.

As a result, the conservation, restoration and sustainable use of nature is chronically underfunded, requiring approximately US$340-467 billion in additional investments (see technical annex). This is clear given the current flows of nature finance:

- **Nature is still narrowly viewed through the lens of conservation and restoration, which receive the lion's share of nature finance.** Supporting activities such as Protected Areas (PAs) and Marine Protected Areas (MPAs) – while still deeply underfunded and critical – receive approximately 60% of public domestic nature finance and 70% of private nature finance[22]. To tackle drivers of nature loss in a systemic way, finance needs to support a comprehensive transformation of commodity production and infrastructure development. The tropical forest frontier is a case in point: PAs are critical macro levers to change, but even under the most ambitious targets for protecting natural landscapes, only one third of the forest frontier will be protected from commercial pressures. To protect the remaining 370 million hectares, sustainable business practices must grow by at least 20% annually[23].

- **Only 18% of nature finance comes from the private sector[24], including corporates.** International commitments on climate, biodiversity and development emphasize that we cannot achieve goals without mobilizing private capital. To unlock this investment, a smarter use of blended finance mechanisms will be needed to reduce risks – real and perceived – especially related to nascent nature-positive business models and technologies. In 2022 alone, at least US$5 trillion of private capital was deployed on activities with direct negative impacts on nature, across sectors.[25]

- **Most nature finance comes from and stays in advanced economies.** Around 80% of global nature finance flows originate from and are directed to advanced economies[26]. With 60% of EMDEs in debt distress, the ability of EMDE sovereigns to invest in nature is constrained, emphasizing the need for more and better financing to flow to EMDEs.

- **Most of the finance aligned with nature-positive objectives comes from domestic sources of finance,** especially government agencies, national development finance institutions, and corporations with in-country operations, while the Global Biodiversity Framework calls for increasing international financial resources to at least US$200 billion annually by 2025[27].

- **Harmful subsidies in agriculture, fisheries and forestry continue to receive three to four times more[28] (US$530 billion) financing than nature-positive investments[29].** Nature-negative public finance, composed of price incentives and fiscal transfers to "any activity with a direct negative impact on nature, based on explicit subsidies for which global datasets exist"[30], undermines investments in nature-positive projects. Agricultural subsidies are responsible for an estimated 2.2 million hectares of forest loss annually, 14% of global deforestation, while fishery subsidies drive dwindling fish stocks[31].

- **Lack of integrated regulation and enforcement of environmental crime is leading to a leakage of almost US$300 billion from the global economy annually[32]** – this is most acutely felt by the world's poor, 70% of whom depend on wild species for food and income.

1.2 Yet nature is the foundation of the global economy and of life on Earth. It is critical for safeguarding human health and wealth, and our greatest ally in achieving climate and sustainable development targets

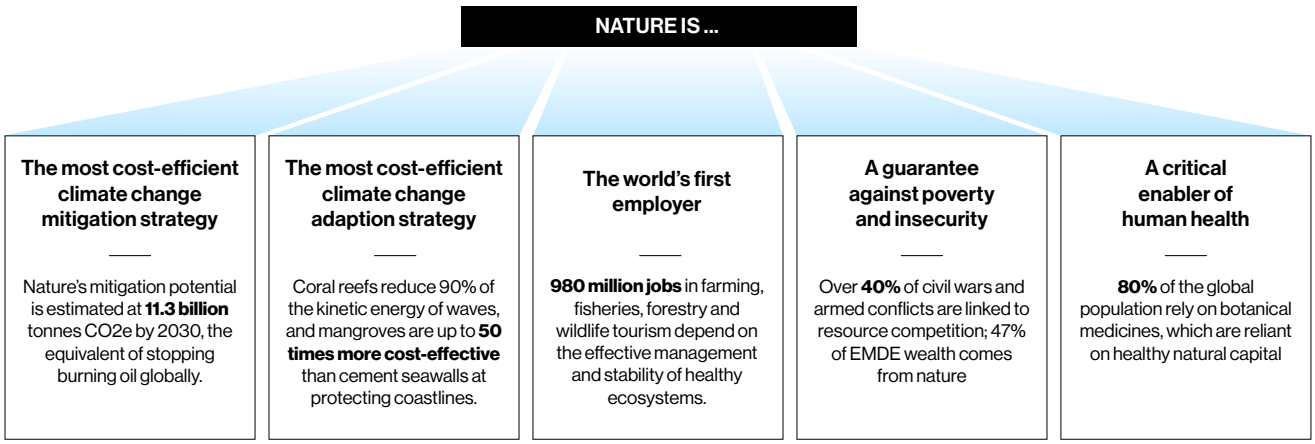
Nature is the foundation of our economies and our socio-economic wellbeing. Humanity relies on a stable and resilient Earth system[33]: the air we breathe, the food we eat and the water we drink ultimately depend on the stable provision of ecosystem services. Put simply, without nature life ceases to exist[34], and our economies would collapse[35].

Nature also fosters human health and wealth beyond economic value. IPLCs around the world have built varied ways of understanding and relating to nature that respond to their local contexts. Incorporating these diverse values, views, and solutions into decision-making not only embraces critical principles of justice and inclusion, but also ensures that the global community benefits from knowledge, traditions, and innovations that have historically delivered a safe and just approach to sustainable development.

Nature is critical to achieving climate and sustainable development. Without nature, we cannot deliver on the Paris Agreement and the UN SDGs. Nature, when extracted, provides short-term monetary value in markets that fail to fully account for the value of its services[36]. This comes at the cost of societal and economic well-being, and of climate change mitigation and adaptation in the long-term. Currently, most capital flows financing externalize the full costs of nature depletion. Inefficient and unsustainable use of natural capital assets for commercial gain impose local, national, and global costs on society[37].

Safeguarding nature can deliver co-benefits for climate and development in five overarching ways:

FIGURE 1
The link between nature, climate and development



Sources: (Griscom B.W., et.al. [2017], Earth Security [2021], Lieuw-Kie-Song, M., et.al., [2020], Cohen, F., et.al., [2017])

- **Nature is essential for mitigating the effects of climate change.** Peatlands, wetlands, soils, forests and oceans absorb half of total anthropogenic emissions and store twice as much carbon as in the atmosphere[38]. Nature's mitigation potential is estimated at 11.3 billion tonnes CO_2e in 2030, the equivalent of stopping burning oil globally[39].

- **Nature is the most cost-efficient way of adapting to climate change.** Replacing or complementing built infrastructure with plants, trees, sand dunes and other permeable surfaces costs around 50% less than equivalent grey infrastructure alone[40]. Meanwhile 50% of climate-resilient infrastructure needs by 2050 could be met with nature-based infrastructure. These interventions are particularly relevant for cities, coastal communities and farmland, and examples of success can be seen in combating floods in Fiji[41] and protecting coastlines from erosion in Trinidad and Tobago[42]. Integrating nature into infrastructure investments can build long-term resilience, while also reducing air pollution, capturing carbon dioxide and providing social benefits.

- **Nature creates and maintains over one quarter of all jobs worldwide.** An estimated 980 million jobs in farming, fisheries, forestry and tourism depend on the effective management and sustainability of healthy ecosystems[43]. The Food and Land Use Coalition identified ten critical transitions needed to deliver a sustainable food system, including transitioning to regenerative agriculture and diversifying protein supply. Delivering on these transitions could bring 395 million decent jobs[44]. Conversely, loss of nature equates to loss of jobs, given the natural capital assets on which nature stewards – farmers, fishers, loggers – depend, and inevitably reduces economic output.

- **Nature means fighting poverty, enhancing food security and peace.**

    - **Poverty:** Nature loss enhances inequalities between and within countries. The world's poorest lose access to means of subsistence and EMDEs face economic distress. Caribbean countries suffer average yearly losses from storm damages equivalent to 17% of their GDP[45], while sub-Saharan Africa would face an asymmetric contraction in the event of an ecosystem breakdown, estimated at 9.7% annual GDP by 2030 (US$358 billion)[46].

    - **Food security:** Unsustainable land-use practices are not just harming the planet, but also impacting our ability to feed a growing population. Every dollar spent on land restoration and sustainable land management can yield up to $30 in economic benefits, including increased crop yields, improved water availability and reduced land degradation[47].

    - **Peace:** Protecting nature and ensuring equitable distribution of resources can have a direct impact on tackling conflict. Over the last 60 years, over 40% of civil wars and armed conflicts have been linked to competition for resources.[48] Four main clusters of insecurity – access to water, food, natural disasters, and migration – can all be addressed by transformative action on nature and climate. In response,

a range of initiatives, such as the Selva y Conflicto programme in Colombia, are exploring approaches for building peace and nature-positive outcomes in unison[49]. Kenya's representative to the United Nations, Martin Kimani, advocates for climate change adaptation being "the most peace-positive undertaking in regions like the Sahel"[50].

- **Nature is a critical guarantor of human health.** Ecosystem services purify water, regulate air quality, and enable soil formation critical to food production on land and at sea. Declining wildlife and pollinators have been associated with declines in nutrition and health[51], and 200 health journals have called on the United Nations to treat the environmental crisis as a global health emergency[52]. Moreover, traditional medicines and pharmaceutical discoveries depend on biodiversity, and 80% of people rely on botanical medicine[53].

1.3 Urgent action is required to address the drivers of nature loss

There is increasing recognition that delivering on nature, climate and economic targets are complementary rather than competing aims[54]. For example, the net value of production from crops, grazing and timber can increase by 83% without loss of climate mitigation or biodiversity, across 146 countries. If we act now, the cumulative cost of stabilizing biodiversity intactness[55] by 2050 is estimated at US$7 trillion – 8% of annual GDP – but delaying action by a decade will double the cost to US$15 trillion[56].

Nature finance needs a comprehensive investment agenda to address the drivers of nature loss and contribute to the implementation of the Global Biodiversity Framework and Paris Agreement. This requires shifting existing flows and driving more investment "into" nature – conservation and restoration – as well as "for" nature – shifting agriculture, fisheries, forestry, mining, infrastructure – towards nature-positive outcomes. IPBES sets out five key drivers of nature loss[57]: land use change, climate change, pollution, invasive alien species, natural resource use and exploitation, as mapped in Figure 2. The breakdown of drivers at a sector level demonstrates that nature finance should adopt a "whole of economy approach"[58] focused on agriculture, forestry and fishing, which have an outsized impact on nature (85% of species loss, 80% of deforestation, 70% freshwater use) and drive US$12 trillion in "hidden costs", exceeding their contribution to GDP. Yet these sectors received US$2.6 trillion in financing in 2019 alone[59], double the GDP of Indonesia.

Addressing the drivers of nature loss will require around US$400 billion of additional investments globally, combined with the repurposing of harmful public and private capital. These figures – based on the analytical work set out in the G7 leadership for sustainable, resilient and inclusive economic recovery and growth[60] – are per-annum flows which assess sector and geographical requirements for investments across natural capital (see technical annex for a full breakdown). Investment should target opportunities across four areas, which we lay out in detail in Section 3:

- **Biodiversity conservation and restoration** (US$159-245 billion): the 30x30 target enshrined in the Global Biodiversity framework calls for the conservation of 30% of terrestrial and marine ecosystems by 2030. Implementation will require additional public investments to scale up effective management and enforcement of conservation – 90% of which should be directed towards EMDEs – combined with emerging market structures, including eco-tourism, carbon and biodiversity markets, and benefit sharing from the use of genetic resources.

- **Sustainable agriculture, fisheries and forestry** (US$151-187 billion): Adopting productive and regenerative agriculture, fisheries and forestry practices at scale is critical to transition towards a nature-positive food system. This will require building regenerative value chains for soft commodity production – eg. cereals, fruit, vegetables, seafood – to help draw in necessary commercial supply chain finance, carbon finance, and other market-based solutions.

- **Healthy diets** (US$28 billion): Unhealthy diets have both negative planetary and human health impacts, driving nature loss as well as obesity and diet-related non-communicable diseases, especially in high-income countries. Financing healthy diets will depend on product reformulation, developing alternatives, and public incentives.

- **Infrastructure and extractives impact reduction** (US$5.5 billion): Mitigating harmful impacts on nature is key to the way we build cities and infrastructure, extract natural resources, and dispose of waste.

These priority investment opportunities are demonstrating small-scale success but not currently being scaled up. An enabling infrastructure that adequately value's nature's contribution is needed for these solutions to become bankable, delivering positive nature, climate and social impact as well as financial return.

1.4 Momentum for a nature-positive transition is beginning to emerge, but systemic approaches need to be mainstreamed

The good news is that political momentum, financial innovation and technological solutions are converging to turn the tide on nature loss, presenting a unique opportunity to ramp up ambition, drive action and redirect capital out of the harmful, nature-intensive economy. Momentum is growing across governments, industry, public and private investors, philanthropy and civil society to find ways to pay for nature and improve its use.

There are increasing signs of momentum:

- **Clear targets and policy objectives:** the agreement of the Global Biodiversity Framework has mobilized momentum among governments, businesses, financial institutions, and civil society. Nature has been explicitly recognized in the EU Taxonomy, and features heavily in the COP28 agenda. Several countries are now considering "Country Packages for Forest, Nature and Climate" to mobilize finance for national action. Brazil has announced a plan for a comprehensive transformation of its economy through greener infrastructure, sustainable agriculture, reforestation, a circular economy, and climate adaptation[61], putting nature at the core of industrial policy. Since the agreement of a $20 billion annual commitment for biodiversity financing - as codified in target 19 of the Global Biodiveristy Framework - biodiversity finance commitments have reached US$8 billion[62]. Moreover, the Summit for a New Global Financial Pact and World Bank-IMF Annual Meetings in Marrakech put the spotlight on the financial community to better integrate environmental and development challenges, and to build more solidarity into North-South financing mechanisms[63].

- **Financing innovation:** increasing recognition of the risks from nature loss has led to the development and implementation of innovative financial instruments – debt conversions for nature (e.g., Belize, Ecuador, Gabon), blended finance vehicles (e.g., Vumbuzi Multiplier Impact Fund, Global Fund for Coral Reefs (GCFR), IDH Farmfit), and innovative tax schemes (e.g., Limpopo Biodiversity Management Agreements). Some of the world's largest commercial financial institutions – AXA, HSBC, BNP Paribas, Bank of America – have announced natural capital funds with individual targets of up to US$1 billion[64]. Ministries of Finance, the gatekeepers of government expenditure[65] are ramping up action. Leading development finance institutions (DFIs) are taking a more active role to de-risk investments in conservation and restoration, and sustainble agriculture, projects. Central banks have begun acting, with stress tests performed on seven national banking sectors to date[66], largely informed by the Network for Greening the Financial System (NGFS)[67]. The voluntary group notably released a Conceptual Framework on nature-related financial risks in September 2023, to help mainstream nature across the mandate of central banks and financial supervisors[68].

- **Corporations are scaling up action on nature through voluntary standards and accounting frameworks:** High-level business action on nature connects leading approaches through the Assess, Commit, Transform, Disclose framework (ACT-D)[69]. Guidance from the SBTN and the TNFD framework are triggering commitments from business and financial institutions, with over 100 organisations piloting both initiatives. The Nature-Positive Initiative is promoting the original and high-integrity definition of nature-positive and is use by individual actors[70]. At the regional level, the African Natural Capital Alliance is catalyzing action on TNFD amongst its 41 members[71]. The Capitals Coalition's Natural Capital Protocol and supporting Transparent Initiative has developed standardized natural capital accounting and valuation principles for business in line with the European Green Deal, providing a potential standard for nature-based accounting and decision-making. Large corporates like Walmart, Danone, and Nestle have committed to transform their supply chains to be truly regenerative.

- **Advances in nature data technology can empower better financing tools:** remote sensing, AI, environmental DNA, drones, metagenomics – a combination of satellite and in-situ data is pushing the frontiers of measuring and tracking nature at rapidly decreasing cost, enabling private and public sector action. Investments in nature technology has grown significantly, now accounting for US$7.5 billion of venture capital[72].

Coordinated collective action is needed to fundamentally shift how we value and finance nature. It is possible - every intervention in the agenda below has been developed somewhere before with success – but scaling them requires a systemic transformation of public and private sector action.

2 A systemic transformation agenda for nature finance

Rebuilding our economy's relationship with nature, delivering additional investments and repurposing existing capital – in a way that is comprehensive, just and equitable – will depend on coordinated public and private sector action across **five priority areas:**

FIGURE 3
Five priority areas for action on nature finance

1.	**Set targets and account for nature**	• Science-based targets and disclosure frameworks • Natural capital accounting • Data generation and management
2.	**Harmonize policies for effective nature financing**	• Integrated strategies and spatial planning • Trade, tax and subsidy reform • Country platforms, implementation vehicles, and enforcement
3.	**Ensure investments are just, inclusive and accountable**	• Multistakeholder decision-making and design • Community-led approaches to engagement with IPLCs
4.	**Expand project finance for nature**	• Regenerative value chains • Carbon and biodiversity markets
5.	**Deepen capital markets, mobilize private capital, use public finance catalytically**	• Unlock domestic capital markets • Ramp up development finance • Build comprehensive sovereign debt approach to nature

2.1 Set targets and account for nature

Building a sustainable economic system requires fully embedding nature into public and private decision-making. This requires adopting a framework to measure and value different types of capital, including economic, natural, human and social capital. Mainstreaming natural capital accounting frameworks, supported by science-based targets setting and high-quality nature data to accurately track and value nature outcomes can ensure that nature is fully embedded in decision-making processes, and should be applied to policymaking, business strategies, investment decisions and procurement standards.

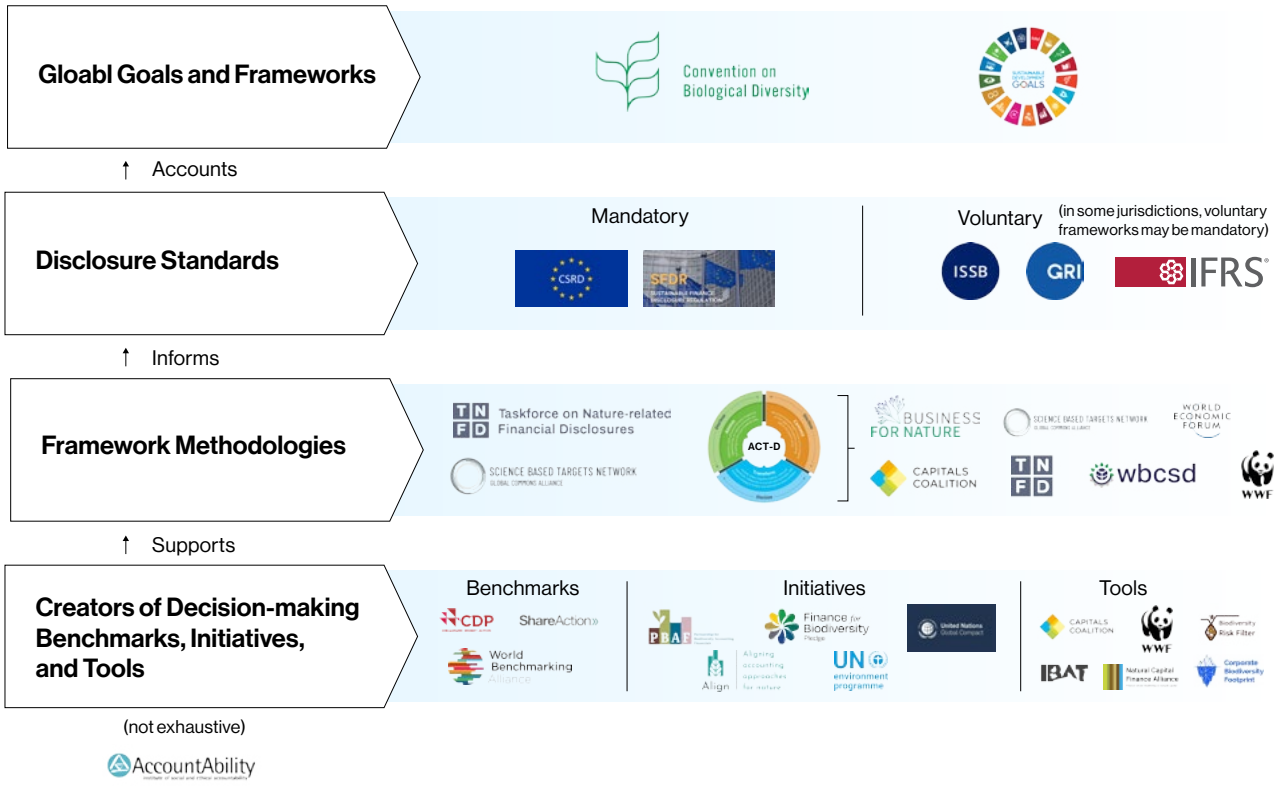
Enabling more and better decision-making on nature requires: 1) setting robust, science-based targets and committing to disclosure ; 2) mainstreaming natural capital accounting at scale; 3) improving the collection and disclosure of high-quality nature data.

2.1.1 Target-setting and disclosure frameworks

Emerging mandatory and voluntary standards are providing increasing clarity and scientific rigour for policy-makers, corporates, and financial institutions to grapple with nature's many facets (figure 4). The emerging landscape of standards and frameworks aims to clarify the metrics and indicators needed to operationalize global goals for climate, nature and development, and harmonize what public and private sector institutions should track, measure, and disclose. For example, the ACT-D framework, developed in a collaboration of leading organizations led by the Capitals Coalition, guides business through the various tools to support them to chart a pathway towards nature-positive action.

FIGURE 4

Stratification of well-known nature-focused resources, frameworks, methodologies, standards, and global goals, and an orientation on how this landscape fits together

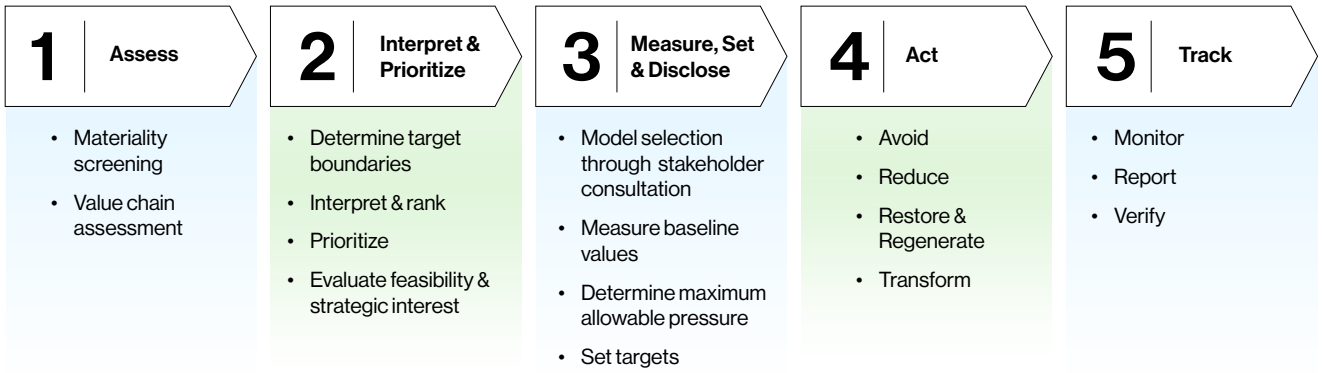


Source: Nature and Climate Action: A Resource Navigator for Companies and Financial Institutions

Science-based targets (SBTs) can distil global goals, such as the Global Biodiversity Framework, into achievable targets. Over 3,500 companies have SBTs, committing them to taking climate action in line with the Paris Agreement. Using SBTs, companies can set measurable and achievable objectives – disaggregating a global 1.5°C goal into company-specific targets that contribute to that shared goal.

SBTs for nature go beyond climate action to provide systematic solutions to reduce the risk of nature loss across four key areas – freshwater, biodiversity, land, and oceans. Set out in SBTN guidance, these are designed to regain and retain the ecological function of landscapes, engage communities in solutions, and invest in enabling conditions for transformational change. By focusing on four critical realms of nature – and in combination with emissions-focused SBTs – these targets provide an integrated approach for delivering on climate, nature and development outcomes. Companies follow five steps (Figure 5): assess environmental impacts; interpret nature data and prioritize locations with the aim of addressing environmental impact; collect data, measure baseline values, set targets, and disclose data; act to meet targets; and track progress over time.

FIGURE 5
SBTN 5-Step Framework for Science-Based Target Setting



In a similar vein, TNFD has taken inspiration from the Taskforce for Climate-Related Financial Disclosures (TCFD) to provide a framework for organizations to manage and report on risks from biodiversity loss and ecosystem degradation, and support Target 15 of the Global Biodiversity Framework[73]. TNFD has developed an integrated assessment process for nature-related risk and opportunity management called "LEAP" that can be used by companies and financial institutions to drive a global financial shift via a better allocation of assets, moving a nature-negative impact towards a nature-positive focus. The LEAP process incorporates the approach to natural capital accounting developed by the Natural Capital Protocol, functions like a materiality assessment, and is interoperable with SBTN's guidance, which can inspire the final step below.

- **L**ocate their interfaces with nature at priority locations and activities;
- **E**valuate nature-related dependencies and impacts;
- **A**ssess how these may translate into business risks and opportunities; and,
- **P**repare actions to address risks by setting quantitative targets and reporting on progress.

Nature-related financial risk assessment by central banks and financial regulators is an essential tool that can send the right signals to the real conomy. The NGFS has been instrumental in developing a framework for assessing these risks and opportunities, which should now inform domestic financial regulations, such as green bond guidelines, central bank price and financial system stability mandates. These are critical tools incentivizing businesses, especially SMEs, to contribute to conservation and restoration, and the emergence of regenerative value chains. For example, the Central Bank of Zambia has revised its green loan guidelines, integrating biodiversity into bond issuance[74].

2.1.2 Natural capital accounting

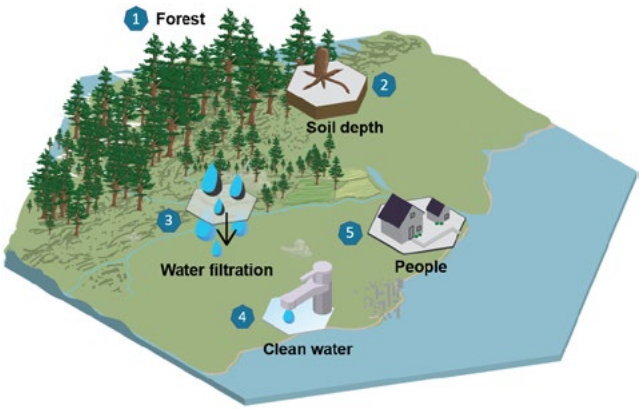
Ensuring that economic development models are truly sustainable and nature-positive requires a system of accounting that records an inclusive measure of wealth, including social, environmental, and human capitals, going beyond GDP[75]. With net zero targets now commonplace, the adoption of carbon accounting systems has been widely adopted to measure emissions and guide a long-term strategy to mitigate climate change. Given the location-specificity and complexity of quantifying nature, developing an equivalent consensus around natural capital accounting has proven more challenging, but is equally critical. By accounting for nature, decision-makers can:

- Baseline the state of nature and monitor how land use practices influence the extent and condition of nature across target areas
- Measure the impact of investment and provide a quantified impact figure as a return on investment
- Prioritize investment and policy decisions (e.g. sourcing locations for commodities, or designating PAs vs concessions for industries)
- Engage with confidence in high-integrity carbon and nature markets, and receive fair payments for ecosystem services

Though assigning monetary value to nature remains controversial, harmonised approaches towards natural capital accounting are gaining momentum – these now need to be adopted at scale. For example, the UN SEEA provides governments with a framework to measure ecosystem services, track changes in ecosystems, and assess impacts of socio-economic activity. UN SEEA creates an account of ecosystem assets' monetary value (stocks) based on the exchange value of the ecosystem services (flows), facilitating comparisons with other key economic datapoints. As illustrated in Figure 13 below, UN SEEA takes a spatial approach to accounting, as the benefits a society receives from ecosystems depend on where those assets are in the landscape in relation to beneficiaries. Policymakers have begun to adopt UN SEEA; for example Indonesia's Ministry of National Development and the World Bank introduced an initiative to better understand the feasibility of low-carbon development, and used the UN SEEA for scenario modelling. The G7 Alliance on Nature-Positive Economy – a voluntary forum for the implementation of the Global Biodiversity Framework within the G7 – highlighted natural capital accounting as a core priority from 2024 onwards[76].

FIGURE 6
The UN SEEA's spatial approach to assessing how ecosystem assets generate ecosystem services to beneficiaries

The UN System of Environmental-econimic accounting (UNSEEA) adopts a spatial approach to assessing the value of the ecosytems and the services they provide



- UN SEEA is built on five care accounts. These accounts are compiled using spatially explicit data and information about the **functions of ecosystem assets (stocks)** and the **ecosystem services (flows) they produce.** They are split into **physical and monetary accounts.**
- The UN SEEA account for the size and health of an ecosystem and the monetary value of the services it provides to users in an economy.

1. **Forests (Physical ecosystem extent)** - the forest is measured by the hectares it covers
2. **Soil depth (Physical ecosystem condition)** - the forest can be analysed through indicators such as soil depth, that can measure the health of the ecosystem
3. **Water filtration (Physical ecosystem services flow)** - filtration services helps produce clean water, that can be assigned a monetary value on the benefits it rovides to users
4. **People (Monetary ecosystem asset)** - benefits from clean water accure to actors in economy, including households, that prodcue well-ebing elements that can be measured used quantitative economic techniques

Source: UN SEEA.

For the private sector, the Natural Capital Protocol provides an internationally standardized framework to identify, measure, and value impacts and dependencies on natural capital to inform organizational decisions. The Protocol explores key questions to be answered when integrating the value of natural capital into organisational processes, and can include a monetary value being assigned to nature. The new Transparent Methodology leans heavily on the Natural Capital Protocol and is an EU-funded project designed to help corporates comply with the Corporate Sustainability Reporting Directive (CSRD). It has been developed by the Capitals Coalition, World Business Council for Sustainable Development (WBCSD) and the Value Balancing Alliance, and is fully aligned with SBTN and TNFD.

Several tools have since been piloted, based on emerging harmonized approaches.

- **China** has developed its own system of accounting for nature that informs policy. The Yangtze river floods in 1998 caused damage worth US$13.2 billion, which led to the Sloping Land Conversion Program. More than 120 million farmers have enrolled in this land retirement programme, which compensates farmers for restoring forests and grassland. To understand the policy's effects, the government carried out an ecosystem assessment, and developed the Gross Ecosystem Product (GEP), which tracks nature's contribution to human wellbeing. The GEP has been used to evaluate the conservation efforts of provincial governments, determine the basis for payments for ecosystem services, and the definition of PAs.

- **The Rwanda Natural Capital Accounts for Ecosystems** is an interministerial process that integrates natural capital into economic analysis and national development dialogue[77], combining spatial analysis for land, water, minerals and ecosystems.

- **ETH Zurich** has developed SEED, tool to measure biodiversity complexity which enables governments, companies and financial institutions to measure the state of biodiversity for any pixel (30 metres by 30 metres) on the planet, through one composite indicator.

- **The Landbanking Group** takes a balance sheet approach to assess nature along four defined dimensions to create individual natural capital accounts. Through their Landler portal, nature stewards can sell verifiable claims on nature improvement or preservation claims (hydrosphere 'water', pedosphere 'soil', atmosphere 'climate' and – especially – biosphere 'biodiversity'). Buyers are strategic insetters, 'offsetters', commodity buyers, investors and insurers.

2.1.3 Data generation, management and standards

Increasing the quality, quantity and comparability of publicly available nature data and insights is a critical enabler of nature-positive action. Tracking nature-related impacts and dependencies requires collecting location-specific data across a large number of variables, such as soil health, water scarcity, and biodiversity. Assessing the effectiveness of nature action requires a strong foundation of 'state of nature' data, a set of stock data for a baseline nature assessment and the foundation upon which other nature data sit. The Value Commission has been convened to provide confidence and transparency in how value factors are used inform decision-making[78]. Similarly, the Nature Risk Profile launched by UNEP-WCMC and S&P Global analyses companies' impacts and dependencies on nature[79].

70% of investors believe a lack of available data is a key barrier to making investments that support nature and biodiversity. Whilst available nature data is sufficiently robust to make investment choices between projects clearly contributing to nature conservation against a project contributing to nature erosion, available data is still not current, consistent or comprehensive, nor accurate enough to provide the level of confidence and assurance required for all private and public sector use cases. Without a robust baseline of the state of nature, we cannot fully or reliably assess change over time, for example, linked to government policies or business impacts. Improving the availability and consistency of state of nature data would support delivery of the following activities:

- **Enabling governments to establish comprehensive and up-to-date NBSAPs** and fully integrate nature into their NDCs, as called for under the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC) respectively.

- **Support corporates to assess their value chain footprint, commit to SBTs, transform their sourcing practices towards nature-positive outcomes, and meet their existing regulatory requirements in some jurisdictions.** Help them to prepare for further voluntary or regulatory commitments to report their dependencies, impacts and risks (e.g. through SBTN methods and TNFD disclosure recommendations).

- **Provide financial institutions with sufficient and timely access to clear, consistent, and comparable sets of metrics** for assessing nature-related dependencies, impacts, risks and opportunities across their investment and credit portfolios in order to stop financing harmful activities and direct financing towards nature-positive outcomes.

- **Support IPLCs by informing their stewardship, conservation and advocacy efforts,** and supporting the demonstration of 'nature-positive' stewardship to enable payments for ecosystem services.

Fortunately, rapidly developing technologies are generating new tools and data to drive business and policy action. For example, next generation remote sensing data from satellites and drones are being widely used to track key indicators like forest cover (e.g. the Land & Carbon

Lab). However, satellite data can only meet part of the need for nature-related data as it is unable to comprehensively track biodiversity or critical ecosystem services, which require more *in situ* data. Advances in *in situ* data collection technologies (e.g., low-flying drones, AI-driven image recognition software, acoustic/imaging sensors, eDNA, proteomics, metagenomics) mean the quality of data is improving as rapidly as data acquisition costs are coming down, presenting a significant opportunity to develop a more comprehensive baseline of the state of nature. This has been driven and supported by the emergence of 'nature tech' as an investment category in private markets, with a 130% rise in early-stage deal activity between 2020 and 2022[80]. In 2023, the first pure-play biodiversity venture firm – Superorganism – was created with the goal of addressing the drivers of nature loss. In the coming years they will be building a portfolio of 30-35 startups across software, hardware, biotech and others[81].

High quality, nature-related data is a global public good that can enable a wide array of public, private and civil society stakeholders to embed nature in decision-making processes. However, existing levels of government and philanthropic funding have failed to stimulate and incentivize sufficient collection and public disclosure of nature data. The urgency of the moment calls for coordinated public and private sector action to improve the quality and quantity of publicly available nature data. To this end, TNFD's recent scoping study[82] calls for global nature data facility, supplemented by national and sub-national initiatives that can: i) develop clear frameworks on what data needs to be collected and how; ii) provide the incentives to facilitate data collection, maintenance and connection; and iii) develop a focal point for data access for a diverse range of relevant stakeholders.

MRV systems are key to tracking efforts to mitigate climate change and nature loss. The Paris Agreement established universal and harmonized MRV provisions for climate mitigation, which are central to effective implementation of NDCs. As commitments to nature increase under the Global Biodiversity Framework, and as nature markets scale, building robust MRV systems is a critical step to tracking and protecting nature, and to credibly demonstrate positive nature impact to prevent greenwashing. For example, effective MRV systems can monitor the effectiveness of private sector commitments to halt deforestation across supply chains, and demonstrate compliance with the due diligence regulation in trade.

MRV is the multi-step process of measuring the climate, biodiversity, and social benefits of an activity and progress towards environmental, sustainability, and regenerative outcomes. It includes three steps:

- **Measurement:** the collection and analysis of data related to climate and nature indicators, e.g. greenhouse gas emissions, biodiversity, forest cover, water use.

- **Reporting:** the standardisation and disclosure of data (publicly or to a restricted audience) to allow for comparison of impacts across sectors, corporates and countries and support integrated decision-making, e.g. by financial institutions or accreditation bodies/ standard-setters.

- **Verification:** the independent assessment, auditing, and quality assurance of reported data to ensure accuracy and reliability.

2.2 Harmonize policies for effective nature financing

Countries need strong and sustainable policy and institutional reforms for nature finance. The IHLEG report[83] identifies four common threads for long-term national reform agendas:

- **Institutional capacity** to shape and manage the intergenerational investments needed in human capital and sustainable infrastructure.
- **The adoption of carbon pricing and elimination of fossil fuel subsidies,** together with complementary policies on standards, design and R&D that will be essential for a shift to a zero-carbon future.
- **Domestic reforms** to create investable pipelines, ensure the financial viability of long-term investments, and support market mechanisms to work more effectively and efficiently to direct capital where needed.
- **'Just transition' programmes** that can alleviate adjustment costs and protect those that may be adversely affected by the low-carbon transition, including from the accelerated phase-out of coal.

The nature finance challenge is arguably more complex and diffuse than energy investment needs. Policies are vital to mobilize more nature finance and bend the curve on nature loss. In particular, countries need to harmonize policies for nature finance across a range of ministries and government agencies, including environment, agriculture, finance, and infrastructure. Moreover, policies need to align between national and local levels. This will require spatial planning, and clearer incentives and reforms to trade policies. 'Country platforms' can be effective in communicating a shared vision and in engaging domestic and international partners around ambitious action.

2.2.1 Better planning: integrated strategies and spatial planning

To meet nature and climate objectives, countries need to make strategic choices about competing types of land-use through spatially explicit targets and policies across agriculture, environment, and infrastructure. Decarbonizing energy systems requires quantitative decarbonization pathways. Progress towards nature and biodiversity targets depends on whole-of-government spatial plans to identify and manage competing land (or ocean) uses. An inclusive spatial planning process, as called for in target 1 of the Global Biodiversity Framework, can help identify and address competing land uses, promote, nature-based solutions, support the mobilization of large-scale finance, and include IPLCs in decision-making[84]. Critical components of national spatial planning processes include:

- **Creating and publishing spatially-explicit climate, nature and development plans:** While often viewed separately – with decision-making being conducted in siloes — the

climate and nature crises are fundamentally connected and require integrated approaches to be effectively addressed. Countries should develop integrated, whole-of-government spatial planning processes and include actionable maps of current, 2030, and 2050 land-use and nature-based actions in their climate (NDCs) and biodiversity (NBSAPs) strategies, and in national development plans.

- **Building spatial intelligence capabilities** to apply spatial data on nature, carbon, and infrastructure for policy design and decision-making in line with long-term strategies towards sustainable land use.

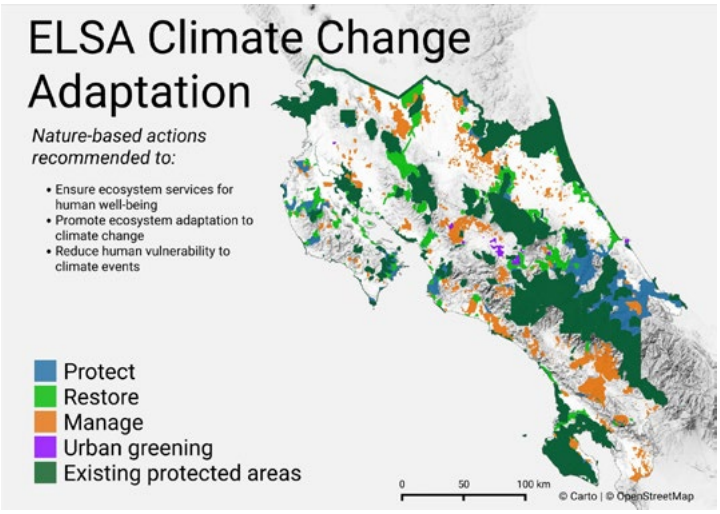
- **Fostering an iterative, inclusive and collaborative process** that respects the rights and knowledge of IPLCs to deliver integrated action on climate and nature and access commercial and financial opportunities.

Several 'first-mover' countries have embraced spatial planning and started to drive real action. For example, Costa Rica's ambitious restoration and conservation policies became a headline issue in cabinet deliberations, after Carlos Manuel Rodriguez (Environment Minister 2002-2006 and 2018-2020), produced a set of maps that turned out to be inconsistent with maps used by other ministries (Figure 7). The government worked together on a shared approach, which proved vital for the country's successful restoration and conservation policies. As Rodriguez says: "maps are like coffee; they bring everyone around the table"[85]. Today, through the SPACES coalition, governments of Panama and Paraguay have picked up the baton and are developing fully-costed, 30x30-aligned spatial plans to deliver on integrated climate, nature and development targets.

FIGURE 7

Costa Rica created integrated maps to visualize the spatial overlap between the carbon and non-carbon benefits of nature – Essential Life Support Areas (ELSA)

Convergence of seven environmental and social benefits considered in Costa Rica's REDD+ programme (source: Pollini et al., 2019). The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.



Locations where Costa Rica can take nature-based actions to support the achievement of its National Climate Adaptation Plan, identified through applying the ELSE methodology (MINEA, 2022). the boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Source: SPACES (2022)

2.2.2 Better incentives: subsidy, public finance and trade reforms

Governments devote an average of 0.1% of total expenditure to nature, which is insuffient to meet the scale of the financing need[86]. In addition to mobilizing more public capital for nature, governments should direct more spending towards nature-positive outcomes. Political commitment can unlock these resources: for example, Brazil has initiated a comprehensive plan for ecological transformation, underpinned by regulatory and tax policies. Deforestation decreased by 48% in the first eight months of the Lula administration spearheading this process[87].

Close to 90% of taxpayer money spent on agricultural, fisheries, and forestry subsidies – around US$530 billion annually, split between price incentives and direct payments to producers – supports sectors that harm nature under current practices, notably livestock, dairy and rice[88]. Policies focus on maintaining low food prices for domestic consumers with limited requirements on producers to limit environmental externalities[89]. Support also tends to favour wealthier commercial producers, while limiting access to markets for smallholder farmers. Historically, fisheries subsidies have often led to overfishing, depleted fish stocks and a decline in employment[90]. Public finance thus supports perverse incentives for ecosystem degradation and inequality. In this context, the Global Biodiversity Framework Target 18 calls to "eliminate, phase out or reform harmful subsidies in a proportionate, just, fair, effective and equitable way, reducing them by at least US$500 billion annually by 2030"[91].

Subsidy regimes could drive low-emission, resilient and nature-positive production, and healthy diets, in a "win-win-win for people, planet and prosperity"[92]. Similarly, major consumers, public authorities could use their purchasing power and tax regimes to purchase goods and services that support nature-positive production, and encourage citizens and corporations to adapt their consumption[93]. Governments should incorporate nature-related risk management in fiscal recovery packages and budgetary planning, revise tariff and subsidy regimes to support the scaling of sustainable agriculture and fisheries, and align government procurement with nature-positive outcomes. This requires political commitment to engage stakeholders and design sound policy. Realignment could comprise:

- **Redirecting agriculture and fisheries subsidies** towards investments in nature-positive technologies R&D, as well as income support for nature stewards to adopt them.
- **Using government purchasing power to promote, and build demand for, healthy, sustainable diets,** including in social protection systems (school meals, public works, pensions, public insurance programmes).
- **Align food pricing structures** within public procurement and taxation, with consumption guidelines that respect human and planetary health.
- **Explore the use of fiscal incentives** to support the development of more sustainable and resilient food systems and consumption and the transition to healthy diets.
- **Support nature-positive agricultural research and innovation** notably on under-consumed healthy foods.

Trade is essential to food security and could provide critical signals to protecting nature – however, nature is seldom integrated into trade agreements and policies. Trade is essential to food security today; trade in agricultural products has more than tripled since 2000 to reach US$1.53 trillion and 80% of the world's population depends on imports for food[94]. The food system's hidden costs are transmitted through international trade. Tropical commodity value chains – notably cattle, soya and palm oil – are the biggest single drivers of deforestation[95]. Despite the interconnection between trade and environmental degradation, few governments systematically integrate environmental and trade policies[96]. Moreover, efforts to cement sustainability objectives at the heart of preferential trade agreements – through non-trade environmental provisions – have so far led to limited environmental outcomes. A study covering 180 countries and 279 trade agreements found that environmental provisions are seldom associated with improved performance in environmental indicators, including forest size, PAs, and species protection[97].

A range of trade and market mechanisms could be reoriented to achieve less harmful impacts on nature and promote shifts to sustainable practices. For example, the use of due diligence systems, free trade agreements, tariffs, and other market mechanisms have been applied to nature-related issues, and can be improved further. Specific areas of focus for policy reform could prioritize:

- **Promoting ambitious national standards:** the development of due diligence legislation to ensure companies are not importing soft commodities linked to deforestation, for example the European Union's Regulation on deforestation-free products, should be combined with positive incentive structures and support to encourage nature-positive production, through collaboration between producer and consumer countries; the mainstreaming of nature risks and impact assessments in decision-making, in particular budget development and allocation in Finance Ministries, in support of Goal D and Target 14 of the Global Biodiversity Framework[98], and as being undertaken in France and the UK.

- **Championing multilateral initiatives:** linking trade with sustainability does not need to wait for the reform of multilateral institutions, including the World Trade Organization (WTO). Rather than aiming for global consensus, WTO rules allow for the formation of plurilateral agreements, which bring together "coalitions of the willing" countries. For example, the Remaking Global Trade for a Sustainable Future Project (Villars Framework[99]) has made sustainable agriculture and food systems a critical issue of its reform package. It calls for the restructuring of the WTO approach to subsidies to consider sustainable development, and also calls for a tariff reduction scheme on sustainable goods, services and technologies, based on carefully defined standards. Safeguarding nature through trade can only be achieved by penalizing harmful activities and rewarding nature-positive activities in conjunction. Initiatives to ensure environmental crime-free value chains, such as TRAFFIC and End Wildlife Crime, should also be central to these reforms.

2.2.3 Better implementation: country platforms

"Country platforms" are emerging as a promising way to mobilize domestic and international partners around ambitious climate and nature action. Such country platforms can take a multitude of forms depending on local preferences, but they always combine a strong vision and investment strategy for sustainable development that is supported by key ministries and government agencies, with clear points of contact for engaging civil society and the private sector domestically and internationally. Where necessary, these country platforms also mobilize international development partners for increased blended and public finance.

Country platforms can help organize and drive the interventions and recommendations in this report. Early pioneers of country platforms around ambitious nature and climate objectives include:

- **Brazil's Ecological Transformation Plan:** a comprehensive transformation of Brazil's economy and development pathway, aiming to reduce emissions by 35% by 2030 and by 141% by 2050 while seizing a US$160-270 billion annual economic opportunity and creating 8 million new jobs. Led by Finance Minister Haddad, this transition plan is centred around key sectors including: greener infrastructure, sustainable agriculture, reforestation, circular economy, increased use of technology in productive processes and climate adaptation, and is supported by policy reform.[100]

- **Country platforms supported by the FCLP:** Launched at COP27, the FCLP supports the development and delivery of 'Country Packages for Forests, Nature and Climate'. Each platform is led by host forest countries (eg. Ghana) and convenes international partners (bilateral agencies, development banks, private capital, philanthropy, as well as civil society) around an ambitious transformation strategy to meet nature and climate objectives with a focus on forests. Such country platforms can raise the level of ambition, support the integration of policy reform to protect forests and critical ecosystems, support IPLC inclusion, and help mobilize the finance needed from private and public sources.

- **Egypt Country Platform for Nexus of Water, Food and Energy (NWFE) – country ownership to move from pledges to implementation:** NWFE, launched in July 2022 following the announcement of Egypt's National Climate Strategy 2050 (Ministry of Environment, 2022), aims to accelerate the national climate agenda. The Platform integrates a set of high priority projects for adaptation and mitigation, grouped around the three main pillars of water, food and energy and selected through a prioritisation process led by the Government of Egypt. These climate action projects will be implemented with a programmatic approach and include projects that would replace existing inefficient thermal power plants with renewable energy, enhance small farmers' adaptation to climate risks, increase crop yields and irrigation efficiency, build resilience of vulnerable regions, develop water desalination capacity, establish early warning systems, and modernize on-farm practices. Further, the platform adopts a multi-stakeholder approach by deploying innovative forms of finance such as concessional loans, blended finance and debt conversion programmes.

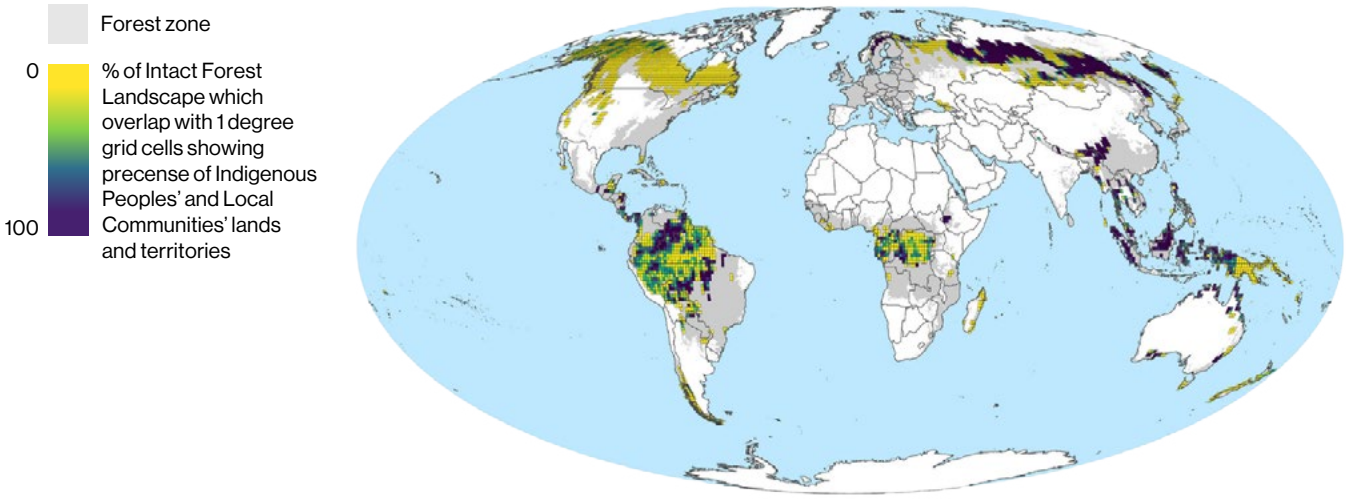
2.3 Ensure investments and policies are just, inclusive and accountable

Today, the deployment of climate and nature finance is inefficient, insufficient and inequitable[101]. At present, only 25% of pledged finance reaches projects on the ground, and less than 1% of total climate finance goes to IPLCs. Only 3% of IPLC's needs for tenure reform are being met. We need to transition to a more equitable financing model that centres the role of women, smallholders and IPLCs in the nature-positive transition, and ensures that historically marginalized communities have a seat at the table. The Global Biodiversity Framework Target 19 on financial resources highlights the "role of collective actions, including by IPLCs, and non-market based approaches, including community-based natural resource management, civil society cooperation and solidarity"[102].

Women, marginalized communities and IPLCs are crucial stewards of landscapes and seacapes and must be included in the design of a nature-positive economy. IPLCs own or govern 80% of all ecologically intact ecosystems[103], which represents carbon sequestration capacity of 300,000 million tonnes, or 250 times the total of air travel emissions, and coincides with 36% of the area covered globally by Key Biodiversity Areas (KBAs) [104] (Figure 8). In Asia and Sub-Saharan Africa, smallholder farmers produce 80% of food[105], but their access to finance (grants, concessional debt) is insufficient[106]. They are spending as much as US$368 billion collectively of their own income on becoming resilient to climate change, despite having contributed close to no emissions[107]. Likewise, women make up 43% of the global agricultural workforce but female farmers receive only 10% of the total aid for agriculture, forestry and fishing, and 5% of all agricultural extensions services[108]. Women's pivotal role in food production and household nutrition means any food system transformation – better production processes, healthy diets, reduction in food loss and waste – depends on the explicit promotion of gender equity. Providing women with sufficient information on the nature-positive transition, unlocking the resources for implementation, and clarifying ownership of productive assets can have significant benefits for nature and sustainable development[109].

FIGURE 8

Mapping intact forest and IPLC presence overlap



Source: Fa et.al., (2020) [110]

Case after case, from community forestry in Mexico[111] to subsistence farming in central India[112] has demonstrated that IPLCs are nature's most effective stewards. 65% of all land owned by IPLCs has zero or low levels of human modification, while 90% is in good ecological condition[113]. Ensuring the inclusion of IPLCs, and respecting of IPLC land rights, is not only a just imperative but a key enabler of nature's survival.

Despite the evidence of IPLCs' importance for nature, their stewardship and knowledge have historically been excluded from decision-making processes:

- IPLCs have often been separated from ecosystems with which they were deeply connected, without their consent. The creation of PAs in EMDEs has led to an estimated displacement of 10 million people, including through violent evictions[114].
- Only 20% of IPLC lands and forests are recognized as owned by or designated for IPLCs.
- IPLCs rarely have sufficient access to finance for safeguarding nature. Between 2011 and 2020, IPLC tenure and forest management received just US$270 million per year, less than 1% of Official Development Assistance (ODA) for climate change in the same timeframe[115], and IPLCs only saw a fraction of these commitments, which flow through large intermediaries.

IPLCs have rarely been consulted in the processes and outcomes of market infrastructure design. For example, forestry and land use credits traded on voluntary carbon market (VCM) have not always guaranteed the right safeguards for protecting IPLC rights[116].

IPLC knowledge and expertise should to be integrated into the design, governance and implementation of solutions, whether financing vehicles or policy solutions[117]. Conservation or restoration involving IPLC lands should employ a community-led method both to protect nature and to address the socio-environmental needs of communities:

FIGURE 9

Three-step community-led approach to engagement with IPLCs

1 Secure IPLC rights over assets and enhance their resource management

Enabling communities to conserve or reclaim land tenure rights should be the foundation of any approach to engaging IPLCs. For example, communities from the Indigenous Territory of Apyterewa and the Yanomami Peoples in Roraima have recently reclaimed their rights of exclusion – the authority to decide who has access, withdrawal power and management rights to their territory. Brazil's Supreme Court of Justice recognized this right and mandated the Brazilian government to take action to remove illegal intruders from their territories.

2 Ensure IPLC inclusion in the creation and governance of PAs and MPAs

For example, in September 2023, at the UN General Assembly, Maori leaders called on the world to confer legal personhood to the whale. They pledged to work together for the first time to implement Indigenous customary protections across whale migration routes between critical feeding and breeding grounds, creating the world's largest Indigenous MPA network over a 2,200,000 km2 area. The network will come under a customary protection framework that intends to allocate more investment into whale conservation and introduce seasonal protections across whale migratory routes and blue corridors.

3 Design place-based financing mechanisms with, and for, IPLCs

Encouraging the creation, strengthening and broadening of financing tools led by or designed for IPLCs, including REDD+ finance, enterprise finance, PES, Village Savings and Lending Associations (VSLAs), community-driven ecotourism, carbon and biodiversity credits, and cash transfers (PES, UBI, non-contributory pensions, conservation payments, cash for work schemes), with a focus on reliability of long-term funding.

Source: (Mane, A. [2023].)[118], (Charapa Consult. [2022].)[119]

Without justice and equity built into the allocation and use of finance there will be no just nature-positive transition. Ensuring a more equitable nature finance system – eg. through the the mainstreaming of "Green Accountability" principles[120] of transparent, demand-driven, accessible, responsive, market-building – can rapidly improve efficiency and impact. For example, every US$1 invested in Green Accountability could unlock up to US$12 that are currently wasted. This means shifting agency from Global North to South, tackling waste and inefficiencies throughout the lifecycle of nature finance commitments, and improving outcomes across sectors, geographies and communities through more equitable and inclusive forms of design and decision-making.

2.4 Scale up project finance for nature

Strengthening the pipeline of nature-positive projects with attractive returns remains one of the biggest challenges to private and public sector investment. Despite pledges seeking investments with measurable environmental benefits and financial returns, the lack of clearly identifiable projects still limits capital flows. On the supply side, the structure of projects and value chains, and the need for high project preparation financing, have led to a lack of projects meeting the investment criteria for financing. On the demand side, financial institutions have traditionally viewed nature-related investments as having an unfavourable risk-return profile, leading to underinvestment. This relative scarcity can be explained by the fact that the scale-up of nature-positive projects faces constraints throughout the value chain[121].

FIGURE 10
Key supply- and demand-side barriers for nature-positive investments have led to under-investment in nature-positive projects

Supply-side barriers:
underinvestment in projects

Structure of projects and value chains

- Small, disjointed value chains and projects
- Complex match-making ecosystem
- Seed funding gap for smaller ticket sizes
- Incapacity of proposed projects to pass risk, compliance or investible criteria
- Mismatch between product returns and revenue to nature stewards

Preparation and technical assistance

- Project preparation disconnected from follow-on funding (including risk-sharing mechanisms)
- 50x more project preparation funding needed than infrastructure projects
- < 50% of project preparation facilities support very early-stage development

Demand-side barriers:
real and perceived risks

Insufficient nature-related risk management

- Under-investment in nature-positive and continued investment in harmful activities
- Nature loss risks disruption to value chains, raw material price volatility, price externalities, stranded assets
- Acute physical (and systemic) risk
- Transition risks from portfolio misalignment with policy or litigation

Unattractive risk-return profile of nature finance

- Nature takes time to prove impact
- Nature needs recurring interventions (e.g., surveillance) which creates high OPEX
- Projects are relatively small

Source: Blended Finance Taskforce (2020), author analysis.

Dedicated action is required to support project development – through regenerative value chains and high-integrity carbon and biodiversity markets – while reducing the cost of capital through better risk-sharing and risk mitigation solutions. This combination of interventions can aggregate projects to an investable scale and unlock large pools of capital.

2.4.1 Expand nature markets: regenerative value chains, carbon & biodiversity markets, and grant financing

1. Regenerative value chains

Scaling regenerative value chains for soft commodities requires more investment, better technical assistance, and high-integrity standards. There are three priorities for immediate action:

- **Transparent target frameworks and reporting standards for carbon removals or insetting[122] will encourage large international value-chain actors to invest in regenerative value chains.** The EU Deforestation Regulation, forthcoming standards on beyond value-chain mitigation under the SBTi, and SBTN create strong incentives for large value chain players to avoid deforestation and increase carbon removals within their supply chain. We are seeing slow but steady progress towards more regenerative supply chains that also promise to increase climate resilience. These trends might lead to greater vertical integration of value chains that could increase local value addition. To accelerate progress, governments – particularly in importing countries – need to strengthen fair regulatory standards for sustainable supply chains. These standards should – where possible – build on exporting countries' standards and be accompanied by more technical assistance.

- **Pipeline acceleration and value chain incubation initiatives are emerging, but more support is needed to expand operations and attract private capital.** In recent years, public finance and philanthropy have driven innovative financing facilities that aggregate investments in smallholder farming, provide training to farmers, strengthen value chain linkages to increase farmers' incomes, and enable effective monitoring solutions (e.g., Partnership for Forests, AFR100). Such innovation facilities can develop new business models that draw in commercial supply chain finance, carbon finance, and other market-based solutions to leverage public and philanthropic finance. Public-private collaboration and financing at country or landscape levels can accelerate innovation by bringing together corporates (product off-takers), governments (policy supporting initiatives), financial institutions and technical assistance providers.

- **Technical assistance and training for innovators.** Upskilling is required at every level of the value chain. Most importantly, training should be provided to nature stewards for local processing, income diversification and nature-positive practices. Investors stand to benefit from learning about how to manage multiple stakeholders working in the tropical frontier, and supporting the conversion of large corporates or local agri-food operators to sustainably produced commodities.

Grant financing will be critical to finance project development and technical assistance, to help projects overcome initial preparation stages or high cost of capital constraints keeping the project from being realized. For example, the Global Environment Facility (GEF) provides grant funding and policy support, helping EMDEs address environmental priorities and achieve international targets. In August 2023, the GEF announced the creation of the Global Biodiversity Framework Fund[123], operationalized with initial contributions from Germany, Canada and the UK.

2. Carbon and biodiversity markets

International carbon and emerging biodiversity markets must ensure the highest levels of integrity at supply and demand sides. Recent scandals in the VCM have brought attention to low-integrity carbon projects that undermine environmental outcomes and trust in carbon markets. Partly as a result, VCM carbon prices have collapsed. Much clearer and stricter rules are needed to rebuild trust and tackle conflicts of interests in the carbon markets. On the demand side, SBTi's upcoming beyond value chain mitigation (BVCM) guidance and VCMI's Claims Code of Practice[124] will clarify how companies can use the VCM to achieve near-term and long-term decarbonisation. On the supply side, the Integrity Council for the Voluntary Carbon Market has proposed Core Carbon Principles (CCP) to ensure high-quality supply.

In addition to higher standards for demand and supply, structural changes are underway for carbon markets:

- **Jurisdictional credit markets.** Ideally, carbon markets should operate at a jurisdictional scale to address leakage and quality challenges, but this may not be possible in every country. ART-TREES is an independent carbon credit issuer announced at COP26 to structure jurisdictional approaches to REDD+ crediting, rather than the project-level approach to forest protection that is currently prevalent in the VCM. Guyana was the first country to issue jurisdictional ART-TREES credits for a total value of US$750 million, with 15% of funds flowing to IPLCs[125]. In Africa, Ghana, Kenya, Zimbabwe and Tanzania are taking steps to regulate the trade in carbon credits from domestic projects and to shift towards jurisdictional approaches[126].

- **Article 6 transactions are on the rise, but quality standards remain unclear.** There is continuing uncertainty about how Article 6 transactions can be structured, but recent developments have shown promise. For example, a developer of clean cooking projects in Rwanda sold their credits to German non-profit Atmosfair, marking the first time that credits issued by an independent standard have been publicly recognized to have Article 6 authorization[127]. At the same time, several countries have undertaken Article 6 transactions for forest carbon credits without adhering to any internationally agreed quality standards. It is highly doubtful that such transactions ensure environmental integrity, which is vital to maintaining trust in the carbon markets.

- **Supervised carbon stock exchange:** A network of stock exchanges could collaborate on

the development of an interoperable market in which carbon credits would be sold without the constraints of multiple unregulated markets. In September 2023, Indonesia launched a carbon exchange targeting coal power plants to participate in trading[128].

- **Carbon credit guarantees:** Guaranteeing the carbon credits of emitters can also strengthen integrity. As an example, the World Bank's Multilateral Investment Guarantee Agency (MIGA) has been seeking to develop a product to guarantee against the risk of governments changing their policies on the export of carbon credits (including corresponding adjustments)[129]. MIGA's core mandate is to insure project developers against sovereign risks, such as sudden, retroactive policy changes or expropriations. If a country is unable to pay back MIGA obligations, this is interpreted as a default on a World Bank loan, which triggers a stop to all World Bank lending and IMF support. Therefore, MIGA can insure risks could not be taken on by any private insurer without the same leverage in EMDEs. A MIGA guarantee could be designed to help build necessary confidence within carbon credits' investor communities.

Biodiversity markets are developing alongside carbon markets and might become an additional financing instrument for nature conservation and restoration[130]. Voluntary biodiversity credits are in their early stages of market development. As with the VCM, ensuring the integrity of demand and supply will be critical. Several types of biodiversity credits exist today: offsetting within countries based on domestic regulation (e.g. for infrastructure) which will not be internationally traded and will account for a small share of financing needs[131]; adding biodiversity to carbon credits using existing or new methodologies that generate higher prices in the VCM ('stacked credits'); and international biodiversity credits. Several initiatives are seeking to build viable, transparent and accountable biodiversity credit markets. In August 2023, the **Taskforce on Nature Markets** released a set of recommendations to ensure nature markets advance equitable, nature-positive outcomes. The **Biodiversity Credit Alliance** (BCA) is working together with IPLCs to promote strong foundations and principles[132].

2.5 Deepen capital markets, mobilize private capital and use public finance catalytically

At the demand level, neither domestic nor international capital is moving fast enough or at the scale required. Capital markets have traditionally viewed the risk-reward ratio of investing "into" (e.g., conservation) and "for" nature (e.g., sustainable agriculture) as prohibitive. Three sources – i) domestic markets; ii) development finance; and iii) sovereign debt markets – could be critical to delivering more and better nature finance.

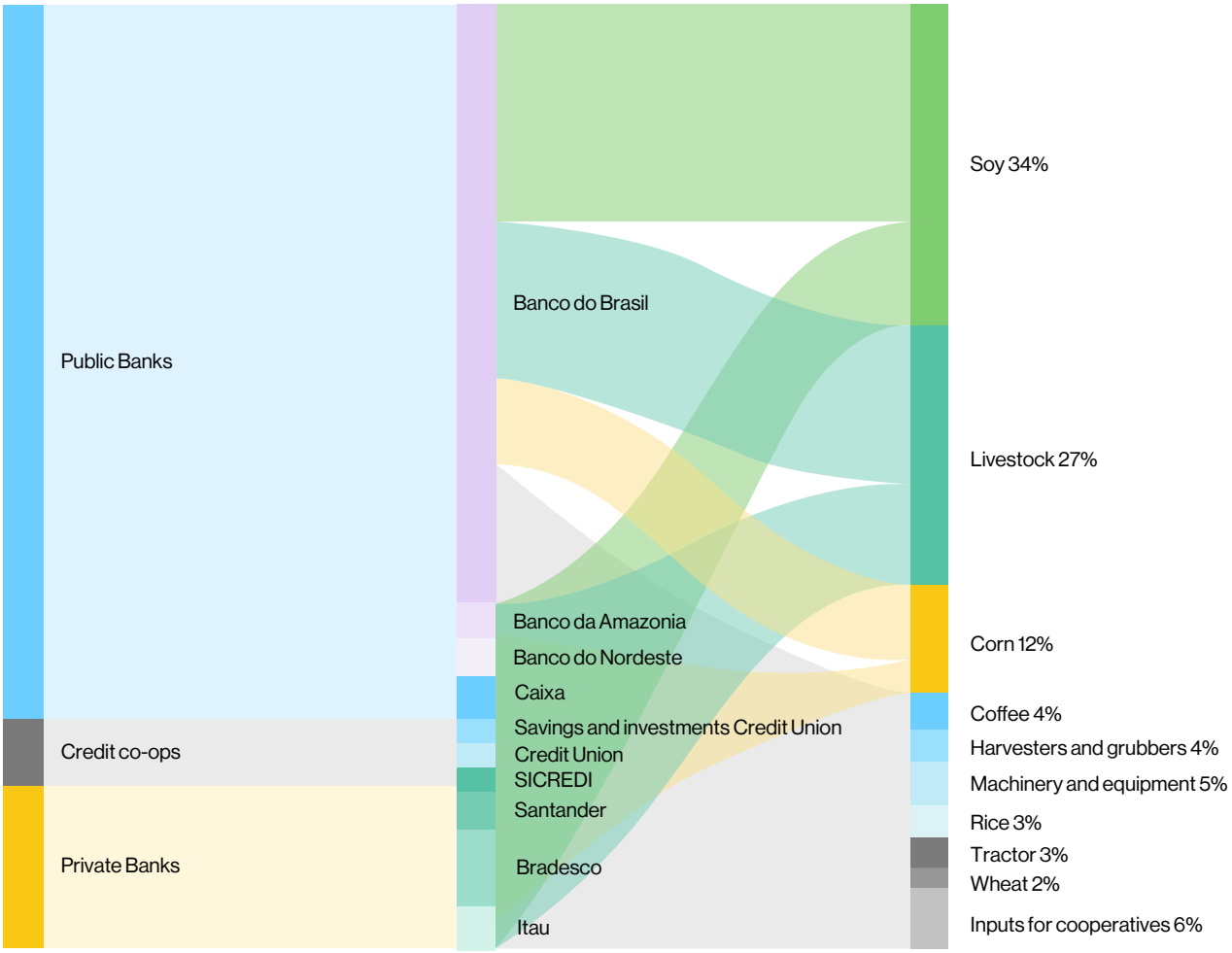
2.5.1 Unlock domestic capital markets

Domestic resource mobilization (DRM) is becoming a key priority in the financial system reform agenda and should be equally prioritized on nature. Nature-rich EMDEs are investment destinations with large-scale opportunities; DRM can help close the finance gap, and support long-lasting and sustainable development, making EMDEs less dependent on international finance. Because of their local footprint and capacity to deliver finance at the retail level, domestic capital markets are uniquely placed to engage the local private sector and consumers. They are not just platforms for enhanced capital, but ecosystems that blend finance, innovation, and entrepreneurship. Better utilized, they could stimulate corporate dynamism and assist in the implementation of national priorities.

To shift entire economies and markets to nature-positive models, SMEs and nature stewards must be able to access affordable debt, equity and blended financing. Banking unbanked nature stewards and improving the affordability of debt and equity would stabilize the liquidity of nature stewards, reducing cash transactions, securing savings and assets, and providing supplier financing solutions, whereby off-takers' banks pay nature stewards on delivery or upon harvest (see the Aquafoods case study below). Domestic commercial banks are potentially well-suited to provide cash management and working capital solutions, but the financial system in which they operate are of limited size and depth. Only a small fraction of private savings, pension and insurance pools are deployed, sometimes less than 1%. In many countries, regulation restricts the amount of capital deployed into the real economy. In other cases, there is a tendency to mainly invest in (perceived) safe government securities; the risk-return profile of nature remains often unattractive, and there is limited catalytic capital in local currency to address this. As a result, private credit has either been limited in the real economy of EMDEs, or has been directed towards sectors with attractive risk-return, even where those sectors have been harmful for nature. For example, in Brazil rural credit for agriculture is issued almost wholly by DFIs (Figure 11), and most of the US$100 billion in private credit has gone towards unsustainable soya and cattle, which have historically also been largely subsidized.

FIGURE 11

Rural credit earmarked towards top 10 agricultural products, Central Bank of Brazil



Source: Central Bank of Brazil, Rural Credit 2020/20221

Third-party working capital solution to illegal fishing – the case of Aquafoods

Costa Rican fish trading company Aquafoods has developed a third-party working capital financing solution, "reverse factoring". It keeps fishers from engaging in illegal, unreported, and unregulated fishing by implementing compliance and sustainability KPIs against higher purchase prices for underlying commodities. To close its working capital finance gap, Aquafoods collaborates with private investors and third-party entities, with a fintech as the financing platform. They have established trust funds and raised capital totalling US$2-3 million, sufficient to cover three years' worth of the suppliers' working capital requirements. The fintech platform acts as a custodian, facilitating payments to fishers and reimbursing investors while overseeing fundraising. Investors benefit from short-term transaction cycles and rapid returns, receiving a 14% annual return and their initial investment returned within just sixty days.

To enable these interventions, mechanisms should be put in place to expand capital deployment capabilities and entice domestic capital holders to finance nature-positive activities. This is relevant for corporates, commercial banks, asset managers, DFIs and informal players, who are familiar with local markets and regulation, well placed to assess credit risk, lend in local currency, and have relevant loan management infrastructure.

- **Create incentives for banks to lend through deposit and savings guarantees, in local currency:** public and development financiers could work with banks to expand their nature-positive portfolios, by de-risking the loans they extend through guarantees. As lenders become more familiar with the sector, the need for this de-risking falls.

- **Better capacity building and technical assistance across the investment ecosystem:** lack of familiarity with nature-positive projects and assets contributes to high cost of debt and collateral requirements. Developing benchmarks and frameworks for nature-positive businesses and projects could help lenders better evaluate projects and reduce perceived risks.

- **Increase private markets' interest in the food value chain:** Private markets can fill critical technology and infrastructure gaps. For example, private equity and venture capital are prominent in innovations across alternative foods, hi-tech farm equipment, mid-stream tech, agri-biotech, and data solutions.

- **Build more effective collaboration with pension fund trustees:** increased collaboration is crucial to build trust and help make well-informed investment decisions. In Kenya, for example, more than 20 pension funds have formed a consortium to invest in infrastructure, pooling their capacity to spot and overcome barriers. The collaboration is needed on a project level but also at a national level.

- **Create mechanisms for international commercial banks to increase local banks' capacity and appetite for lending to nature-positive SMEs:**

    - **On-lending:** international commercial banks are not well-suited to lend directly to nature-positive SMEs, given small ticket sizes and lack of familiarity with or footprint in many nature-rich countries. However, global banks still have a role to play in improving access to affordable debt for nature-positive SMEs. They could lend directly to local commercial banks or development institutions with defined use of proceeds, for those institutions to on-lend to SMEs.

    - **Facilitate the distribution of nature-positive finance (e.g., debt, insurance, equity) portfolios:** building global distribution vehicles systematically supported by large-scale guarantees conditioned by nature-positive covenants could bridge the gap between direct finance to nature stewards, including loans, insurance and equity, and global capital markets. Investing in nature at scale would thus increase the financial sustainability of the overall financial system, addressing the

fact that nature-related risks are increasingly becoming a systemic risk, whereby unpredictability leads to higher tail risk[133]. De-risking should focus on the creation of a buyer market, to create the proper conditions for risk distribution mechanisms. For example, the **Tropical Landscapes Finance Facility (TLFF)[134]** is a blended finance facility focused on regenerative agriculture expansion in Indonesia. It includes a lending platform, managed by ADM Capital with BNP Paribas, as well as a grant fund, managed by the UN Office for Project Services. Once projects reach maturity and begin to generate cash flows, they are aggregated and packaged in a bond programme that helps recycle loan capital for further TLFF lending[135].

2.5.2 Ramp up development finance

The Triple Agenda Roadmap calls for MDBs to be bigger, better, and bolder, and provides recommendations for MDBs to finance nature more efficiently[136]. There is a growing recognition of the need for a change in the mandate, operating models, and scale and mix of financial support required from MDBs to enable them to respond to today's pressing global and development challenges, including, very centrally, climate change, biodiversity loss and environmental degradation. In their COP27 Statement, MDBs committed to address nature, climate and development in an integrated manner, to maximize co-benefits[137].

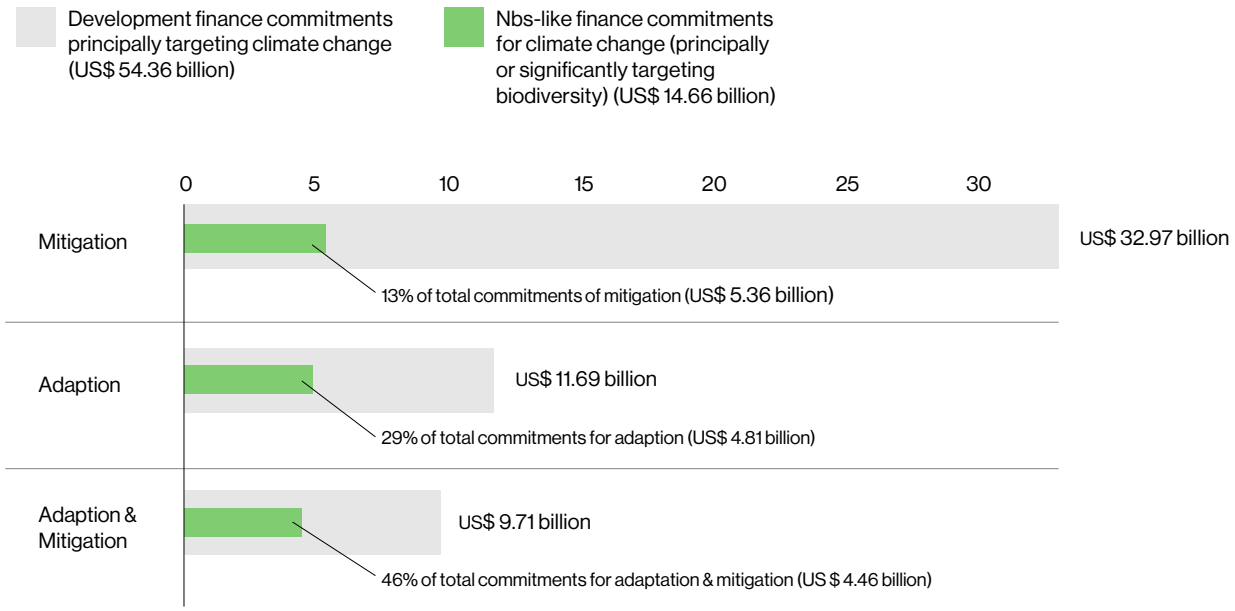
MDBs are essential to mobilize commercial capital through risk mitigation and risk pooling, address nature-related risks and provide transition signals to the wider system. Over 500 MDBs and DFIs exist with assets totalling US$18.7 trillion, but only 6% of banks possess 84% of total assets[138]. The eight largest MDBs have US$1.83 trillion of assets on their balance sheets[139]; if these "mega-banks"[140] focused on nature, it would create several "tipping point" effects across the development finance system.

- **Pipeline development:** MDBs are critical primary and secondary sources of pipeline for financial institutions. They can ensure availability of projects for investment, through project preparation facilities and technical assistance, and can clarify the suitability of how different types of finance. Thanks to their footprint and long-term on-the-ground involvement, they have sufficient understanding of opportunities and capacity to convene commercial capital providers. Moreover, their books are filled with billions of dollars in commitments – loans, guarantees, investments – a source of pipeline for secondary capital markets, through distribution mechanisms, such as securitzation[141].

- **Market incubation:** MDBs and DFIs[viii] are major financiers of agricultural commodities and fisheries[142]. For example, in Brazil, 75% of rural credit targeted at the soya and cattle sectors – linked with high rates of deforestation – comes from DFIs (Figure 11). They are thus also highly exposed to industries driving nature loss, with US$3.1 trillion of collective DFI balance sheets to be dependent on vulnerable nature, while assets under management could cause US$1.1 trillion of damages annually[143]. Thus, by realigning their portfolios they have significant capacity to address nature-related risks and provide portfolio transition signals to the wider financial system.

- **Public-private transmission channel:** as stated in the Finance in Common Declaration, "development banks build bridges between governments and the private sector; between domestic and international agendas; between global liquidity and microeconomic solutions; and between short-term and longer-term priorities"[144]. They work with national governments to improve the enabling environment – policy, regulation, rule of law – and also play an important intermediary role by deploying concessional funding on behalf of aid agencies.

FIGURE 12
Total nature finance commitments within the categories of MDB climate finance



Source: Atteridge, A., et.al. (2022) [145]

viii MDBs and DFIs have different goals and purposes. MDBs are chartered by two or more countries for the purpose of encouraging economic development in EMDEs. Shareholders are national governments, but can also include international or private institutions. Private sector contributions generally come in the form of trust funds, such as the World Bank's Global Public Goods Fund, from which the bank draws concessional capital. MDBs provide support through equity investments, market-rate and concessional loans, grants, and credit enhancement instruments such as guarantees or political risk insurance. They have both public and private sector operations and often have entirely separate private sector arms, such as the World Bank's IFC. On the other hand, DFIs are set up by a national government, with a mandate to make investments based on impact alongside financial return. They provide market-rate or near-market-rate loans and guarantees, and do not often provide equity investments, with the exception of the US DFC. To expand their operations and respond to demand DFIs can receive new capital from their owner government. In some countries, this counts as Official Development Assistance (ODA).

Development banks' investments in nature should be strengthened, yet MDB's current risk-averse operating models remain misaligned to transformational investments and private capital mobilisation[146]. However, the structure and risk profile of natural capital assets specifically requires effective and centralized investment platforms and engagement with the private sector to mitigate risks. MDB exposure to Agriculture, Food and Land Use accounts for less than 10% of climate mitigation and adaptation finance portfolios[147] (see Figure 12). For instance, only US$4-9 billion of a total US$150 billion (3-6%) in ODA provided by MDBs is spent on activities that lead directly to conservation and restoration[148]. Despite having committed to projects, business models, and financing instruments to address the drivers of nature loss at COP26[149], few outline where nature is material in their portfolio. There are some exceptions to the rule demonstrating what's possible:

- The **Asian Development Bank** (ADB) jointly with the Global Environment Facility (GEF) announced the establishment of a Natural Capital Fund[150] in November 2023, designed to support projects that enhance food security, conservation and restoration.

- The **Agence Française de Développement** (AFD) disclosed its 2022 investments in nature by geography and nature protection lever; investments totalled €736 million, approximately 6% of total assets under management[151]

- The **Dutch Entrepreneurial Development Bank** (FMO) announced a €1 billion commitment to build a forestry portfolio by 2030[152]

- The **Asian Infrastructure Investment Bank** (AIIB) announced plans to triple its climate financing to US$50 billion over the course of the decade (through to 2030) and specifically raised mangrove restoration projects in China as an area of focus[153], highlighting the role of nature-based infrastructure

- The **European Investment Bank** (EIB) has raised interest in debt conversions for nature[154]

- **Banco do Brasil** in collaboration with the **Inter-American Development Bank** (IDB) launched a US$250 million bioeconomy financing programme, that aims to support biodiversity-friendly businesses such as rural producers in the Amazon[155]

- Germany's **KfW Development Bank** and Conservation International launched 'Eco. business Fund', which provides debt financing, channelling funds into local financial institutions to drive conservation and sustainable use of resources[156]

Given inherent risks to investing in nature and project challenges (as identified in Section 2.4) concessional capital is essential for de-risking investments and mobilizing more private capital, thus building a track record of nature-positive solutions as clear revenue streams:

- **Political, currency and commodity price risk insurance can be provided by MDBs, DFIs or private insurance companies to address a number of risks in nature-rich**

EMDEs. For example, to ensure the success of the Galapagós debt conversion for nature (see 2.5.3), the DFC provided political risk insurance for the entire value of the marine bond. A group of 11 private insurers then provided >50% reinsurance to facilitate DFC's commitment. This helped enhance the credit rating of the bond issuance to 'Aa2', a high rating for bonds. This, in turn, reduced the interest payable on the bond to 5.6% per annum, reducing by two thirds Ecuador's cost of borrowing until maturity in 2041. The **MAR Insurance Program,** a multi-year parametric insurance collaboration[157] between Willis Tower Watson and the Mesoamerican Reef Fund that provides coverage for key reef sites in Mexico, Belize, Guatemala, and Honduras. The mechanism triggers pay-outs (by the insurer(s), AXA Climate being the initial underwriter) and the deployment of finance reef response brigades immediately after a qualifying hurricane event. Given the scale of landscape needed for such mechanisms to work, de-risked capital is necessary to boot strap the business into attractive private capital. Therefore, the InsuResilience Solutions Fund, backed by the German development bank KFW, provided multi-year finance at a premium.

- **Guarantees can address a variety of risks in conjunction, including macro, commercial, and technical risks.** Guarantees transfer risks faced by investors to a public or private third party, thereby enhancing the risk-return ratio of the underlying financial instrument[158], and can catalyse private-sector investment by a ratio of 1:30[159], five times more than MDB loans[160]. Despite far higher mobilisation ratios than loans, equities and credit lines, guarantees have historically made up only a fraction of International Financial Institutions' (IFIs) capital commitments to climate and nature (roughly 4%, 2016-2020[161]).

  Guarantees specific to nature could include a number of safeguards for maximum impact. First, credit guarantees[ix] could be combined with technical assistance to nature stewards built into the mechanism. For example, the **AGRI3Fund**, which mobilizes investments for low-cost crop finance loans, combines a US$300 million guarantee to commercial and development banks providing impact loans and a US$15 million technical assistance tranche provided directly to clients and farmers[162]. The Fund contains two teams with specific expertise managing the respective interfaces. Building clear distribution channels from the get-go can also help better aggregate smallholder nature stewards involved, with for example a local asset manager, investment facility, input retailer, and fintech. Another example is the US$2 billion **Vumbuzi Multiplier Impact Fund** launched by SouthBridge and the Arab Bank for Economic Development in Africa (BADEA) to turbocharge capacity building and the attribution of grants and loans available to restore over 128 million hectares of degraded lands across 34 countries in Africa. It leverages grant money from philanthropic sources to free financing on the capital market and blends with debt financing from DFIs and commercial investors. This Fund opens the door for more private sector financial partners to invest in efforts aligned with AFR100. The fund aims to blend US$500 million of concessional finance with US$1.5 billion private capital to support local restoration efforts across Africa.

ix Credit guarantees address the limited use of credit enhancement at scale. By enhancing the credit rating of a debt instrument, a guarantee can attract cheaper financing for nature programmes and broaden the interested commercial finance universe. Guarantees reduce debt servicing costs, allowing reinvestment in nature and development outcomes, which is particularly relevant in a context of higher interest rates.

- **First loss structures (juniority in equity and debt) protect senior investors by taking first losses on the value of the security.** First-loss capital takes a position that suffers the first economic loss if assets below it lose value or are foreclosed on - in the event something goes wrong, the most junior or subordinated tranche is paid out last. Public funds are deployed as junior investors to de-risk commercial capital. For example, the **IDH Farmfit Fund** includes tripartite risk sharing agreement between IDH, USAID and senior capital investors, which mitigates high perceived private investor risk in smallholder supply chains[163]. The Fund takes up to 30% first loss through sub-debt, mezzanine investment or equity. The DFC then takes up to 50% second loss guarantee (up to US$250 million), providing comfort to senior capital investors. These catalytic first and second loss guarantee providers take on the bigger shares of risk to provide additionality from start, reducing participation rates over time to increase the share of commercial funding, as a growing track record demonstrates the creditworthiness of borrowers over time.

With the development finance reform agenda building momentum, MDBs and DFIs have a unique opportunity to stimulate nature-positive development. A clear strategic prioritization of nature could include the following six interventions:

FIGURE 13

A six-point agenda for MDBs and DFIs to better integrate nature into their mandate

Formally establish ambitious climate, nature and biodiversity impact targets and transition action plans	Ensuring that MDB plans, and reporting are in line with emerging standards for non-state actors such as those to which GFANZ/NZ alliances are committed. Plans must be fit for purpose for the challenges faced by increasingly climate-vulnerable countries and communities. They must also align with and translate global commitments around investing in NBS into their existing portfolio commitments.
Incorporate an explicit target for nature-positive investments within MDB financing targets for climate	This integration approach at the strategic level has been previously announced by France and the UK at the One Planet Summit, and should be replicated.
Increase volume targets for conservation and restoration, and regenerative value chains	Ensuring development capital is fit for purpose for nature – including a focus on capacity and market building, supporting agricultural intermediaries, market access players, microfinance institutions and other value chain actors to increase financial inclusion and access to finance for smallholders, IPLCs and small projects.
Close ecological literacy gaps	While signed up to strong safeguards on paper, there are large gaps in capacity and implementation, both among large and smaller banks. Few have biodiversity specialists on staff, relying on a generalist function and external advice. Institutions could prioritize hiring and training people with suitable experience, including around risk assessment and financial and legal structuring of nature-positive projects, as well as people with an understanding of smallholder farming and forestry.
Strengthen collaboration with the private sector	Establishment of Natural Capital Lab units within MDBs as incubators for innovative financing for nature (e.g., IDB followed by ADB, and EIB's Natural Capital Financing Facility) is a promising development. Similarly, at the Paris Summit, the World Bank launched the Private Sector Investment Lab with the aim to develop and rapidly scale solutions that address the barriers that are preventing the private sector from investing at scale in EMDEs, but with a focus on renewable energy and energy infrastructure. This could be extended to nature.
Increase catalytic and concessional instruments to scale EMDE capital resources and mobilize private finance	Scale MDBs' use of catalytic instruments (e.g., MIGA with political risk insurance), mandate DFIs – who may not have access to these catalytic instruments – to mobilise private sector investment and shift internal incentives from achieving high deal volumes to co-financing with the private sector to reward innovation. Catalytic instruments could be included in these co-financing partnerships, pooling capital from a broader set of sources across public, climate funds, sovereign wealth funds and philanthropic sources.

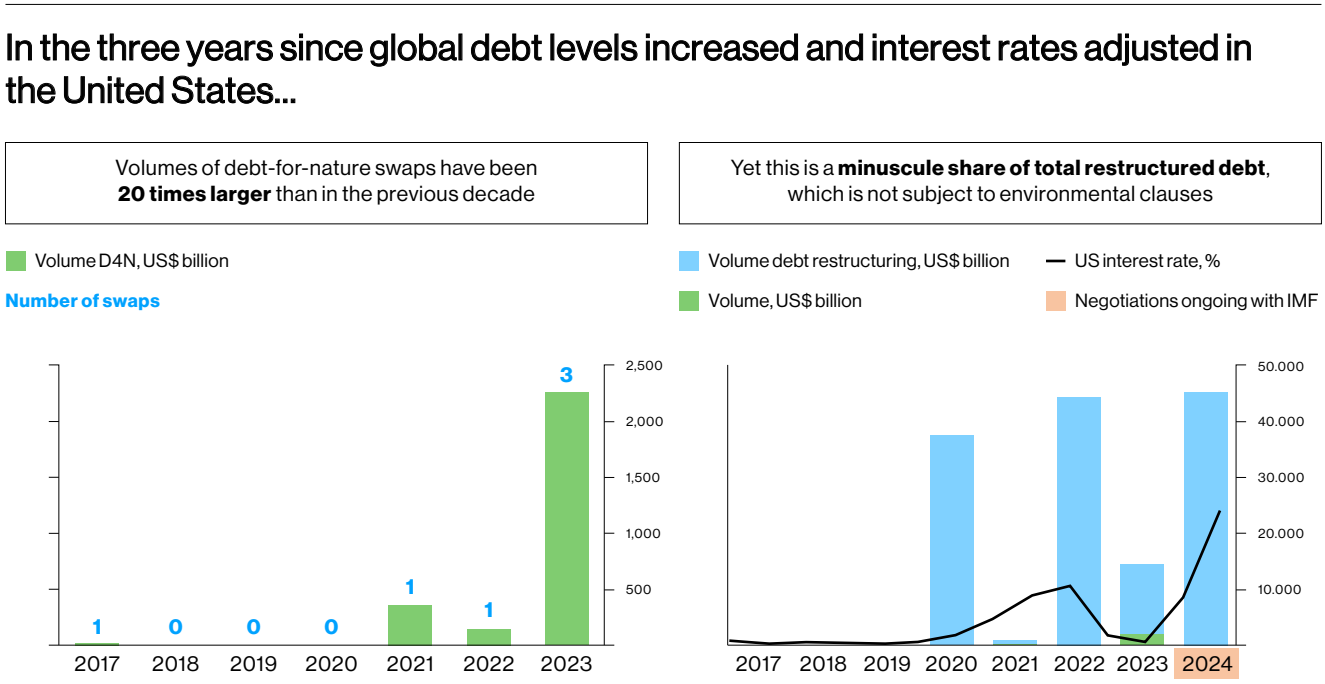
Source: (Expert interviews, author analysis, The Biodiversity Consultancy [2021] , One Planet Summit [2021] [165])

2.5.3 Build a comprehensive sovereign debt approach to nature

A series of exogenous shocks – Covid-19, the conflict in Ukraine, natural disasters – have depleted fiscal resources of countries across the global economy and increased sovereign debt burdens. The total external debt stock among EMDEs reached US$11.4 trillion in 2022, a 15% increase from the previous year, and more than double the levels of a decade ago. Of EMDEs, 60% are either in or close to debt distress[166], while African countries – responsible for 4% of global emissions – are now having to spend 5-15% of GDP responding to climate shocks.[167]

The current context is reinforced by the unequal sovereign debt architecture that makes EMDEs' access to financing inadequate and expensive. Interest rates have continuously progressed upwards in the past 18 months (Figure 14), which increases debt service burdens. Monetary tightening in advanced economies has further exacerbated financial stress, driving up refinancing costs.

FIGURE 14
Growing volume of debt conversions and the case for nature clauses in restructuring

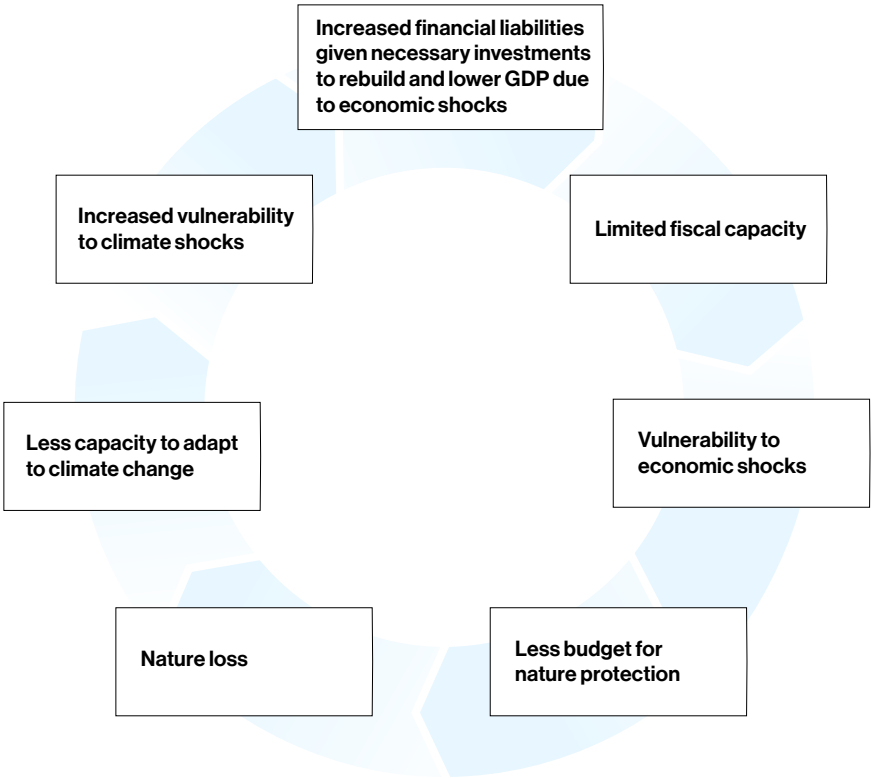


Source: (Expert interviews, author analysis, US Congressional Service [2022].)

Increasing debt burdens restrict the ability of sovereigns to invest in nature, exacerbating nature loss. Debt servicing tends to crowd out other development priorities, including nature, climate, education and health[168], particularly since some of the most biodiverse countries also face some of the highest debt levels. The ten most forested EMDEs alone[169], for example, owe nearly US$460 billion in external sovereign debt service over the next five years (2023-2027)[170]. In the 1980s, 1990s and 2000s, the Heavily Indebted Poor Countries (HIPC) turned to their natural resources as the fastest and easiest way to service debt and interest payments, with a clear increase in deforestation following credit downgrades[171]. Natural capital makes up nearly half of the wealth of low-income countries[172], meaning increasing debt burdens can compel low-income countries to tap into their natural wealth.

FIGURE 15

The debt-nature-poverty spiral



Author analysis.

To date, no comprehensive approach to integrating nature into sovereign debt markets exists[173]. The Sustainability-linked Sovereign Debt Hub has highlighted the absence of nature-related risk considerations among credit ratings agencies' methodologies, and has modelled the effect of nature loss on credit ratings, default probabilities, and cost of capital for 26 sovereigns. In the event of a partial ecosystem services collapse, more than half would have their credit rating downgraded. For example, China, Malaysia, India, Indonesia and Bangladesh would be downgraded four to six notches[174], significantly increasing cost of debt on capital markets.

Therefore, sovereigns' vulnerability to nature loss is a systemic economic and financial risk that remains overlooked by capital markets. There is a strong rationale for credit ratings agencies to revisit their models, for investors to engage with sovereigns and their real economy actors, and for governments to support nature-positive actions to increase the economic and financial resilience of their countries.

Countercyclical mechanisms such as debt buybacks, refinancing and haircuts tied to climate and nature outcomes are urgently required to rebalance sovereigns' financial stability and stewardship towards future generations. They are critical enablers of the investment agenda for nature; without sufficient fiscal resources, sovereigns become stuck in a debt-nature-poverty spiral (Figure 15), and cannot commit resources to conservation and restoration of their natural capital, nor to transforming their land and sea use. Two mechanisms could help address debt challenges while increasing financing for nature: i) debt-conversions for nature and nature performance bonds; ii) nature covenants in debt restructuring obligations and sovereign ratings.

1. The short-term option: debt conversions for nature and nature-performance bonds

Debt conversions for nature are not new, but there is growing momentum around them as sovereign debt burdens have increased. In these transactions, countries are incentivized to "sanctuarize" their natural capital and collect returns over time, reducing their economies' vulnerability to physical and transition risks[175], and increasing climate and nature resilience.

Three transactions approved in 2023 amounted to twenty times more than over the previous decade, with a total value of US$2.1 billion. Over the past 35 years, the average ticket size for debt conversions has been US$2.5 million (~140 conversions total). Today, the average size of transactions has significantly increased, which in turn reduces relative transaction costs. For example, Ecuador's 'Galapagos debt conversion for nature' (see below) alone was worth US$1.6 billion, while Gabon completed a US$500 million transaction. Sri Lanka has reportedly been in talks for a close to US$1 billion deal[176]. In a marked change, these transactions are also crowding in private creditors, as opposed to past transactions driven solely by public-funded institutions.

Ecuador Galapagós debt conversion for nature

In May 2023, Ecuador completed the world's largest 'debt conversion for nature', eliminating US$1 billion of foreign debt – 9% of its commercial sector debt – and mobilizing US$656 million of private sector funding guaranteed for marine conservation. The issuance of a 'Galapagos marine conservation-linked bond' by an EU based Special Purpose Vehicle (SPV), was structured by Credit Suisse. DFC provided political risk insurance for the entire value of the bond, which was also bolstered by a US$85 million credit guarantee provided by the Inter-American Development Bank (IADB). A group of 11 private insurers provided >50% reinsurance to facilitate DFC's commitment. This de-risking mechanism helped enhance the credit rating of the bond issuance to 'Aa2'. This, in turn, reduced the interest payable on the bond to 5.6% per annum, reducing Ecuador's cost of borrowing (via the loan) by two-thirds until maturity in 2041.

This approach provides Ecuador with a long-term, secured source of funding for conservation, with dedicated private sector funds that will provide grants for a minimum of 18 years. The deal is expected to provide US$450 million for Galapagos marine protection by 2041, entirely tied to conservation priorities, as identified by Ecuador and its partners. Funds are distributed through the Galapagos Life Fund ('GLF'), a Delaware-incorporated trust fund operating in the Galapagos, and distributing an annual average of US$12 million in grants as well as an additional US$5-6 million into a permanent endowment that is expected to be worth US$227 million up until 2041, allowing the GLF to fund grants at the same level thereafter.

Sustainability-linked sovereign bonds ('SLL' for loans or 'SLB' for bonds) can also attract impact-driven investment for climate and nature. Sovereigns raise debt on the capital markets, and the use of proceeds is linked to climate and nature-positive outcomes. This approach can decrease the cost of borrowing and/or widen the accessible creditor pool. Two types exist: first, customary loans / bonds where the borrowing must be spent on specific climate and nature objectives (e.g. green and blue bonds); second, sustainability-linked bonds where the cost of borrowing is specifically linked to the delivery (or non-delivery) of measurable climate and/or nature outcomes, but where governments have more flexibility on how they use the funds to achieve these outcomes. For example, Uruguay has issued a US$1.5 billion sustainability-linked bond, which has two key performance indicators, one of which is based upon the Glasgow Leaders Declaration on Forests and Land Use.

Standardizing debt conversion mechanisms is key to reduce transaction costs and increase benefits for issuer countries. Several factors indicate the time is right for replication: Firstly, MDBs and DFIs are committing to guarantee loans in case sovereigns fail to repay[177]. Secondly, the proceeds and impact framework are highly replicable, as the Galapagós conversion builds on prior transactions in Belize and Barbados. Thirdly, there is an opportunity for financial institutions to scale these transactions: bond holders receive above market rate returns, re-

insurers benefit from high-grade credit risk, and investment banks gain access to arranging and structuring fee pools. EMDEs benefit from a diversified base of creditors, DFIs and IFIs enter mutually beneficial partnerships, and the resultant strong credit rating helps sovereigns attract impact investors.

Benefits could converge around co-investment platforms. In these platforms, grantors, guarantee providers, insurers and technical assistance providers could coordinate to provide similar services, use harmonized impact principles, align on objectives, and operate as "deal teams". These platforms exist at a nascent stage but need large-scale anchor catalytic capital support to create system level changes. Moreover, it is critical to ensure that use of proceeds is sufficiently transparent and that PA and MPA management authorities benefit from these additional pools of capital. To increase transparency, increased efforts and focus could be made by NGOs and international agencies to oversee and support cash waterfalls.

2. The long-term option: Systematic integration of nature into sovereign debt

As several debt restructuring negotiations are under IMF coordination, there is an opportunity for nature-related risks to be integrated more systematically into sovereign ratings and obligations, alongside financial, tax and macroeconomic covenants against debt rescheduling. Given the deadlock of the Common Framework Initiative over reforming the sovereign debt architecture[178], complementary ad-hoc approaches are needed. The disaster debt relief clause announced at the Paris Summit, in June 2023 – a key part of the Bridgetown Agenda[179] – provides some lessons. Aiming to provide financial headroom at a time when borrowers need it most, the clause allows for a mechanical pause in repayment schedules, transferring repayment by months or years. It is a mutually beneficial scenario - the borrower is provided with the financial headroom to dedicate money to reconstruction and adaptation, while the lender does not see their average portfolio rating decrease, preventing them from raising interest rates or selling portfolios, in line with their capital adequacy constraints. Building on this success, nature and climate KPIs could also be built into debt service relief, such as the Debt Service Suspension Initiative (DSSI), to complement and reinforce policy-based conditionality.

Moreover, efforts are underway to address the credit enhancement of sustainability-linked sovereign financing for nature and climate. A joint declaration from MDBs, DFIs and international organisations including the GEF and GCF is being launched at COP28, notably calling for a technical taskforce to increase the effectiveness, efficiency, affordability, accessibility, availability and scalability of credit enhancement at the facility, product and process levels.

3 Four investment priorities to value intact nature, restore degraded nature, and address drivers of nature loss

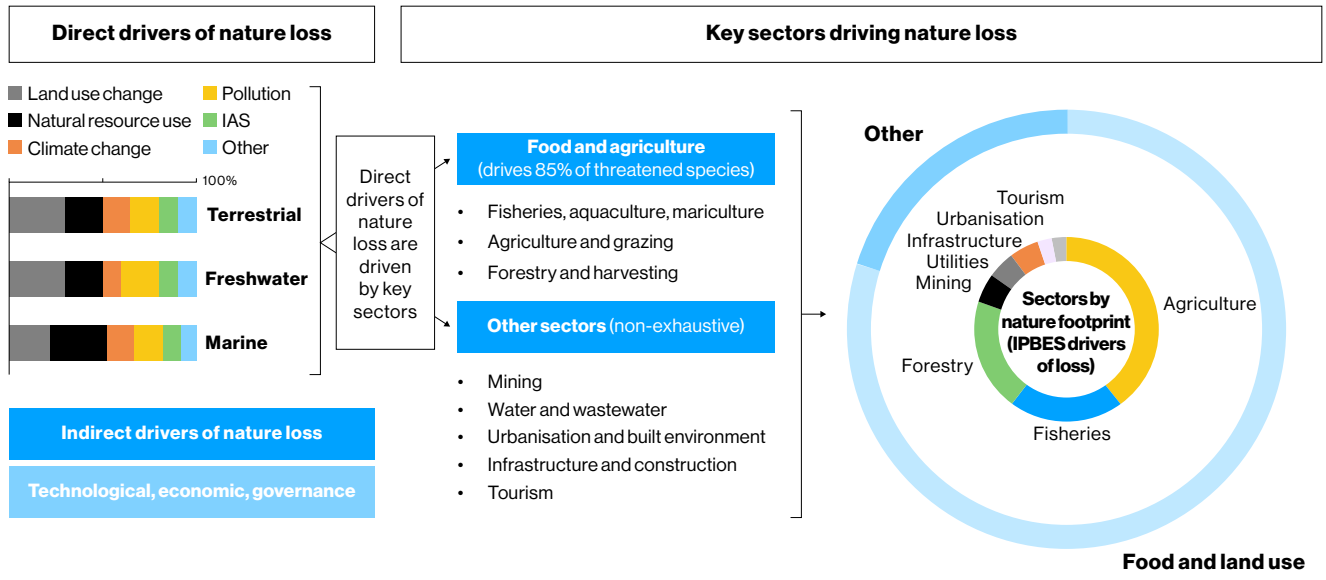
If implemented, this systemic transformation agenda (Section 2) could create an enabling environment for nature-positive solutions to rapidly replicate and scale. To achieve international goals, we need a comprehensive set of solutions that value intact nature, restore degraded nature and address the drivers of nature loss. Many nascent success stories show that we have the tools and knowledge to deliver additional investment needs – valued at around US$400 billion annually by 2030 (see technical annex) – and re-orient existing capital away from harmful activities. The *'Better Finance, Better Food'* case study catalogue identifies over 50 examples of business models and financial solutions which mobilize capital for the new nature-positive economy[180]. The increasing range of solutions across these investment priorities differ in risk-return profile and commercial viability, which means scaling them requires mobilizing the full spectrum of public and private capital. In some cases, and unlike for energy systems, public capital only, combined with regulation and standardisation, will be the critical unlock, while other opportunities will be suited to commercial capital only.

3.1

Value intact nature, restore degraded nature, address the drivers of nature loss

Nature finance should drive more capital "into" nature – conservation and restoration and "for" nature – shifting agriculture, fisheries, forestry, mining, infrastructure – towards nature-positive outcomes. IPBES sets out five key drivers of nature loss[181]: land use change, climate change, pollution, invasive alien species, natural resource use and exploitation, as mapped in Figure 16. The breakdown of these drivers at a sector level demonstrates that nature finance should adopt a "whole of economy approach"[182] focused on agriculture, forestry and fishing, which have an outsized impact on nature (85% of species loss, 80% of deforestation, 70% freshwater use) and drive US$12 trillion in "hidden costs", exceeding their contribution to GDP. Yet these sectors received US$2.6 trillion in financing in 2019 alone[183], double the GDP of Indonesia.

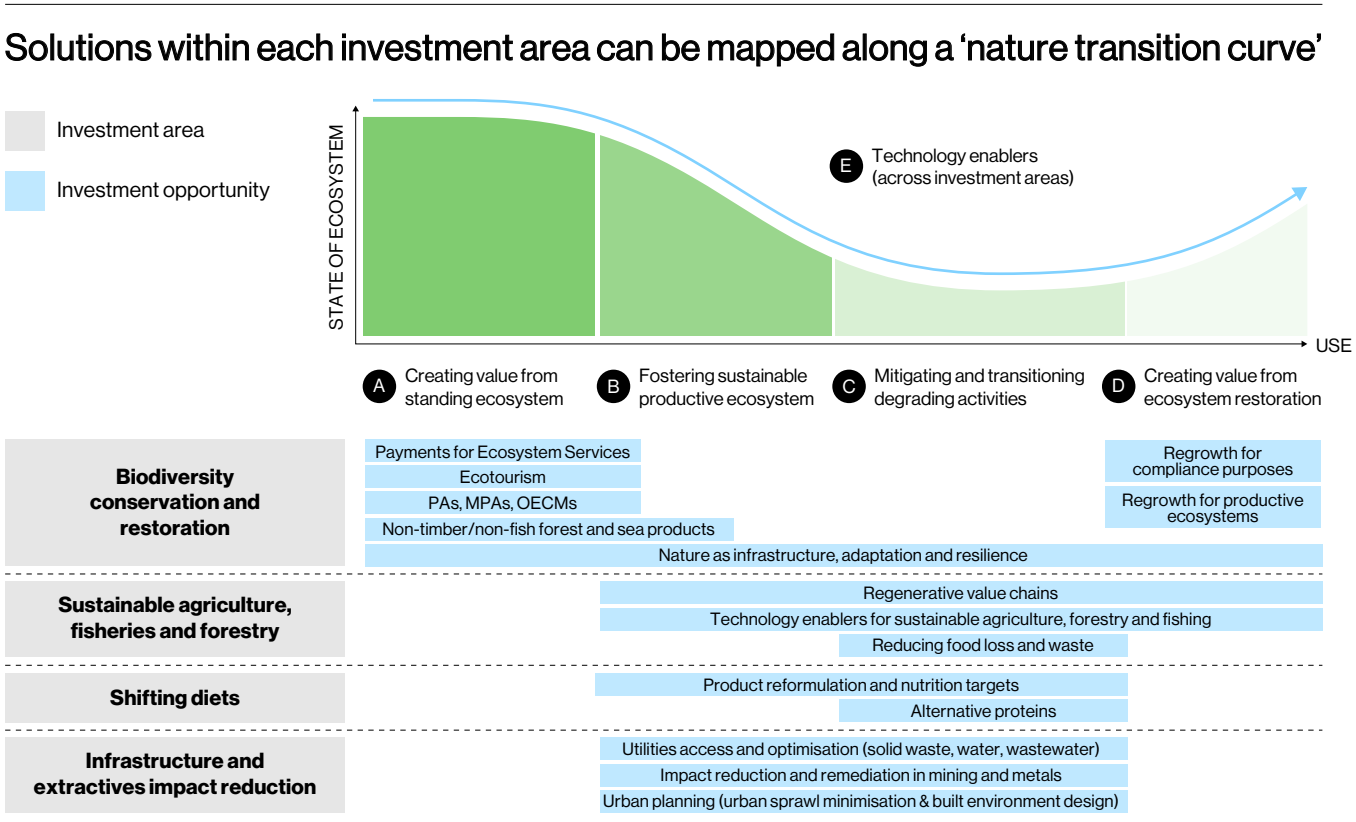
FIGURE 16
Tackling the direct drivers of nature loss requires a "whole of economy approach"



Source: IPBES (2019)

Nature-positive investment opportunities can be grouped into four overarching investment priorities: **i) conservation and restoration; ii) sustainable agriculture, fisheries, and forestry; iii) healthy diets; iv) infrastructure and extractives impact reduction.** The opportunities within each area can be mapped along a "nature transition curve" (Figure 17), which identifies four main states of ecosystem health. To take the example of forests, these are: undisturbed forest; forest used productively; degraded land; and restored forest. Across each stage of ecosystem health, different nature-positive business models can deliver nature and economic outcomes. Interventions across the curve can be progressed in tandem, depending on the state of nature. The Nature Transition Curve highlights that natural ecosystems cannot solely be viewed through the lens of conservation and restoration: nature is "ever-present"[184] in our economies, which requires action cross multiple sectors simultaneously.

FIGURE 17
Investment solutions, broken into investment priorities, along the nature transition curve[185]



Source: (author analysis, Turner et.al., [2019].)

1. Biodiversity conservation and restoration:

The global 30x30 target enshrined in the Global Biodiversity Framework calls for the conservation of 30% of terrestrial and marine ecosystems by 2030. The conservation, restoration, and sustainable management of nature is essential to meeting global climate and biodiversity targets. 30x30 is the focus of the High Ambition for Nature and People (HAC) – a coalition of over 100 countries that calls for nationally-driven and IPLC-informed solutions[186] to increasing the volume, size and quality of PAs, MPAs, and Other Effective Area-Based Conservation Measures (OECMs).

Implementing 30x30 will require around US$140 billion in additional investments, focused on scaling up effective management and enforcement of conservation, and 90% of which should be directed towards EMDEs. Insufficient government subsidies to PAs and MPAs has historically impeded effective conservation. Among designated PAs and MPAs[187], only 35% and 9% respectively benefit from sufficient management and staff budget, hampering habitat management, patrolling, community engagement, and wildlife monitoring[188]. Illegal poaching and logging – the world's fourth largest criminal activity[189] – takes place in one third of PAs[190]. Conversely, in a set of 62 MPAs across 24 countries, fish populations in MPAs with sufficient funding and personnel grew close to three times more than others[191].

Emerging market structures are expanding revenue streams for conservation, and these should be scaled. A blend of financing mechanisms[192], for example combining fee-funded protection with other opportunities for mobilizing revenue, such as high-integrity carbon markets, ecotourism, benefit-sharing from the use of genetic resources, and the sale of non-timber forest products, such as cocoa, can multiply revenue streams that create value from nature, support livelihoods, and maintain ecological functionality:

- **Sustainable and inclusive ecotourism** – tourism in PAs or in hospitality that shares revenue with conservation agencies – can enhance funding for conservation, as well as promoting local economic development and community support[193]. Country cases in Zambia, Nepal, Brazil and Fiji suggest that a healthy PA tourism sector provides production and income multipliers, that tourism tends to benefit poorer communities most, and that tourism can create additional job opportunities[194].

- **Carbon and nature markets are critical for valuing standing forests.** Only carbon markets – and possibly emerging biodiversity markets – can provide financing at scale for standing forests. The voluntary carbon market (VCM) has grown rapidly, but demand for carbon credits has fallen sharply following revelations about widespread carbon projects of low integrity. Some analysts maintain that carbon markets will continue to grow substantially through to 2030[195], but the pushback against carbon offsetting and emerging standards for beyond value-chain mitigation under the SBTi are likely going to curtail corporate demand. Meanwhile government markets for high-integrity REDD+ projects have seen low demand. However, the framework recently agreed on Article 6.4 may pave

the way for new compliance market agreements. Nonetheless, building high-integrity standards for carbon and biodiversity markets becomes the critical condition to scaling finance for standing forests.

- **Fair and equitable benefit sharing arising from the use of genetic resources – as detailed in Goal C of the Global Biodiversity Framework[196] – could generate significant additional investment for biodiversity.** Traditionally hampered by regulatory barriers – including the limited success of implementing the Nagoya Protocol[197] – benefit sharing obligations are undergoing modernisation. The Global Biodiversity Framework and BBNJ Agreement, ratified in June 2023 and also known as the "Treaty of the High Seas", aim to ensure fair benefit-sharing with provider countries following the development of commercial products from both physical and digital forms of biodiversity, anywhere on the planet[198]. Both treaties have called for the creation of "Special Funds"[199], which could eventually be filled with contributions from the biotechnology industry.

By 2030, delivering on conservation targets must be combined with the restoration of 350 million hectares of degraded land[200] – over double the total size of European farmland[201] – which will require around US$70 billion in additional investment. Restoration measures differ by geography and ecosystem, but generally include invasive species management, species reintroduction, planting vegetation, and/or converting a degraded land to agroforestry. Restoration can create economic opportunities and equitable outcomes: US$85 billion in net benefits to national economies[202], US$30–40 billion a year in extra income for smallholder farmers, additional food for close to 200 million people[203] and 20 million additional jobs by 2030[204]. While restoration yields higher profitability compared to monocultural systems, it requires higher upfront investments, demands a larger workforce and significant upskilling.

In total, around US$200 billion of additional investments annually are needed by 2030 to accelerate conservation and restoration of terrestrial and marine ecosystems – thankfully, numerous pilots and projects have demonstrated that conservation and restoration can provide sound economic opportunities, on top of co-benefits for climate and people:

- **Delta Blue Carbon** is the largest coastal restoration and management project in the world. This project seeks to restore and conserve 350,000 hectares of mangroves in the Indus Delta region of Sindh Province, Pakistan[205]. In the last six years it has planted 75,404 hectares of mangrove forests. Around 300,000 credits have also been sold on Singapore-based carbon exchange Climate Impact X with the latest pricing reaching US$29.72 per tonne.

- **AFR100** is a pan-African initiative that aims to restore at least 100 million hectares of land across 34 countries by 2030. The initiative has crowded in private capital and gathers a pool of public donors, investors and corporates; for example, SouthBridge Investments and the Arab Bank for Economic Development in Africa (BADEA) announced the US$2-billion "Vumbuzi Fund" to turbocharge capacity building and the attribution of grants and loans for restoration communities and entrepreneurs.

- **Wilderness Holdings** in Botswana offers wildlife safaris that simultaneously conserve and restore wilderness and wildlife across seven African countries[206]. The group directs its tourism revenues towards conserving 6 million acres of protected land, reintroducing animals into the wild, rehabilitating existing natural environments, and maintaining its sustainable ecotourism activities.

- In South Africa, the Department of Forestry, Fisheries and the Environment, together with the Sustainable Finance Coalition, has designed **Biodiversity Management Agreements, an innovative tax incentive scheme for threatened rhinos and lions in the province of Limpopo[207].** These agreements offer unique income tax incentives for private landowners, who undertake to carry out conservation measures. This initiative contributes to national Biodiversity Management Plans, closes a financing gap for threatened species, and creates a candidate OECM, thus supporting the implementation of South Africa's 30x30 target.

- The **Katingan Mentaya Project in Indonesian Borneo** runs a community development programme across 34 villages to encourage people to take part in forest restoration[208]. At the same time, the programme provides microfinance for small business development and vocational training for communities to convert to sustainable practices. This is a clear example of creating value from a standing ecosystem, fostering a sustainable use of the ecosystem, and mitigating harmful activities (states A, B, and C of the Nature Transition Curve above).

2. Sustainable agriculture, fisheries and forestry:

The development of food and land use systems in recent decades has improved health and wealth – yet, food and agriculture systems remain the largest source of global ecosystem degradation, biodiversity loss and water use, and a key driver of climate change[209]. For example, enabling policy environments and public and private sector innovation has increased cereal yields by 93%, reduced deaths from undernourishment, and made food more widely affordable[210]. However, 80% of deforestation is driven by demand for food[211]. Soil erosion alone creates global costs equivalent to the GDP of South Africa[212]. Food systems are also exposed to supply chain and climate shocks. Just three crops – maize, wheat and rice – constitute nearly 60% of humans' calorific needs, but production of these grains is concentrated in a few key regions, and industry has outsized influence on the governance and distribution of critical inputs[213]. Furthermore, a land area the size of India and Canada combined is used to grow food that goes to waste[214], putting even greater pressure on our ecosystems.

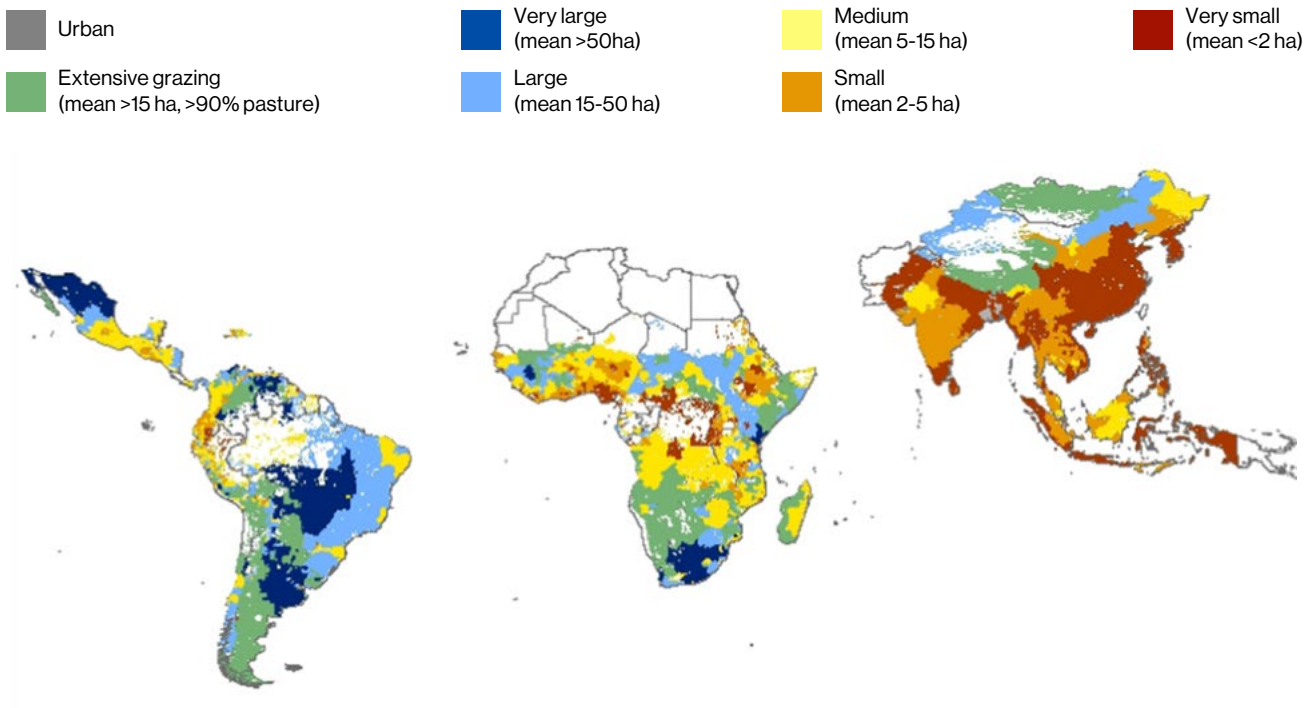
Adopting productive and regenerative agriculture, fisheries and forestry practices at scale is a critical transition towards a nature-positive food system. By 2030, around US$160 billion a year in additional investments will be needed to transition at least 50% of agricultural land to regenerative practices, enforce sustainable fishing practices, and grow improved natural forest management. A broad definition of productive and regenerative models includes a set of practices that regenerate soil, reduce synthetic fertilizers and pesticides, and that go beyond

the reduction of negative impacts to ensure that food systems have positive environmental effects[215]. These include agroforestry, no-tillage farming, multi-trophic aquaculture, improved nutrient and feed management, rotational grazing, pastureland rehabilitation, for example. Blueprints of community-driven regenerative models exist. For example, **Andhra Pradesh Community-Managed Natural Farming** is a state-wide agroecological transition plan with the goal of transitioning 6 million farmers over 6 million hectares and 50 million consumers towards regenerative practices[216]. As of July 2023, 700,000 farmers had adopted sustainable practices, with clear signs of nature-positive impact: crop diversity is double that of incumbent farms, and yields of prime crops (rice, maize, millet, finger millet, red gram) have increased by 11%[217], bringing accompanying financial return.

Existing sources of finance for agriculture, fishing and forestry are insufficient and inefficiently allocated[218] – characterized by insufficient private capital allocation, risk management, and public financing. On capital allocation, investors perceive high transaction costs to investing in small-scale farming and fishing, due to high upfront costs, long payback periods, and the often small or disaggregated nature of projects. Smallholder nature stewards (farmers, fishers, loggers) and small and medium enterprises (SMEs) form the backbone of land and sea use value chains in EMDEs[219], yet they face severe constraints in access to finance. 60% of global food supply comes from farms of less than 15 hectares (Figure 18)[220], and half of that from farms of less than 2 hectares. At the same time, these stewards live in a constant liquidity shortage; close to half of the 500 million smallholder and family farmers and fishermen in the world have no access to a bank account[221]. On risk management, nature-related risks of agri-food companies threaten financial institutions' portfolios, yet 70% of the world's 60 largest publicly listed meat, dairy and aquaculture producers are failing to manage these risks[222]. Agriculture and fisheries are deeply exposed to physical shocks, with billions of dollars in losses from flooding, fires and drought annually. On public financing, subsidy regimes led by governments – worth US$530 billion every year[223] – are incentivizing harmful practices across the land and sea use value chain. Market mechanisms provided by governments, such as tariffs, quotas and subsidies, for the most part disregard the provision of public goods[224].

FIGURE 18

Map of smallholder farms in EMDEs



Source: Macmillan, S., (2019).[225]

Building regenerative value chains for soft commodity production can help draw in necessary commercial supply chain finance, carbon finance, and other market-based solutions. There is an increasing economic case for transitioning to these practices, with investments in regenerative practices estimated to deliver US$4.5 trillion each year by 2030[226]. Unlocking this opportunity requires targeted supply and demand side interventions. On the supply side, nature stewards require upfront working capital and accompanying technical assistance to adapt to regenerative practices, for example to finance new machinery and equipment. On the demand side, corporate offtake commitments can provide a guaranteed market for regenerative products, and give smallholders certainty of demand.

Case study: Regeneration – building regenerative value chains

Regeneration creates markets and catalyses finance for regeneratively produced tropical commodities like coffee, cocoa and honey across forest frontier countries in Latin America, Africa and Southeast Asia. It seeks to tackle the lack of capacity, financing and incentives for farmers to produce sustainably, and the lack of demand at scale for deforestation-free, nature-positive commodities by: i) supporting local communities via market access players and regenerative operators with technical assistance; ii) creating demand in corporates for nature-positive commodities, thus building a market of off-takers; and iii) catalyzing financing for forest protection and regenerative agriculture through donors and investors. From 2020 to 2022, Regeneration mobilized €14 million of private finance to benefit 50,000 smallholder farmers, keeping 100,000 hectares of land under sustainable land management.

3. Healthy diets:

Unhealthy diets have both negative planetary and human health impacts, driving nature loss as well as obesity and diet-related non-communicable diseases, especially in high-income countries. With an estimated 20% of adults dying due to poor diet[227], there is an urgent need to move towards a diet regime that accounts for both human and planetary health. The EAT-Lancet Commission proposes a dietary framework to help achieve a "planetary health diet"[228]. It includes more protective foods (fruits, vegetables, whole grains, legumes, nuts), limited salt, sugar and saturated fats, moderate red meat consumption, consumption of whole rather than refined grains, and little or no ultra-processed foods high in saturated fats, salt and sugar[229]. Many of these foods will be more efficient in their production phase and reducing impact on nature[230]. For example, land use per 100g of alternative proteins (pulses, groundnuts, peas) is close to 100 times more efficient than animal protein[231]. In total, transitioning to healthy diets by 2030 will require US$30 billion in additional investments, but could unlock US$2 trillion in economic opportunities[232].

Financing healthy diets will depend on product reformulation, the development of alternatives, and public incentives. Alternative proteins have the highest CO2e savings per dollar of any sector[233]. A growing range of products – from plant-based meat to lab-grown cellular meat – has enabled strong growth, of around 43% in Asia-Pacific and 25% in Europe in 2022[234]. Encouragingly, the 50 largest global meat, dairy and seafood companies are now investing in alternative proteins via corporate venture capital arms[235]. Despite these trends, market penetration remains low, in part because of the perception that alternative proteins do not match animal-based products on either taste and price parity. Large agri-food manufacturers, processors and retailers should commit to progressively replacing their portfolios with nutritious foods as well as supporting policy reform[236]. New players developing alternative proteins should

be supported to reach price parity with animal protein, without leaving farmers behind. Public policy should adapt pricing of foods to reflect their true costs on society and planet, through better public procurement, taxes, subsidies and regulatory frameworks (Section 3.1.2). The Government of Singapore demonstrates how governments could benefit from scaling the growth of alternative proteins, including by increasing food security[237].

- Large-scale private capital has recently been flowing into alternative protein solutions, such as the US$400 million Series C round for **Upside Foods** (cellular agriculture) and the US$150 million Series C round to **Meati Foods** (fermentation)[238].

- **Danone** is reformulating 70% of its plant-based milk with healthier ingredients[239].

- **The Government of Canada** has invested over US$30 million in plant protein research and US$100 million in dedicated infrastructure.

4. Infrastructure and extractives' impact reduction:

Investment for mitigating and transitioning nature-negative impacts of the extractives industry and the infrastructure sector is a critical part of the nature-positive transition. In total, US$5 billion of additional investments will be needed by 2030 in sectors to minimize their disturbance on nature and use of natural resources, such as mining, and in others to prevent pollution of natural environments, such as waste treatment. Investments should be additive to companies' financing pathways for decarbonisation. Mitigating nature-negative activities is key to the way we build cities and infrastructure, extract natural resources, and dispose of waste.

The built environment faces a combination of market and planning failures that has led to sprawl or poor use of urban space. Construction and management of urban and peri-urban spaces entails land use, and cities today face overcrowding, congestion and resource pressure[240], with terrible consequences for nature. Guided by land use regulations, building standards and spatial planning, investments should focus on increasing the utilisation of under-exploited buildings and spaces, as well as developing the space above existing buildings, and under buildings and roads, to enhance densification. This will be particularly critical in rapidly urbanizing regions of sub-Saharan Africa, South America and Southeast Asia where urbanisation is likely to lead to large biodiversity loss[241].

The mining and metals sector occupies 0.1% of the world's land, but industry concessions are often in ecologically and culturally sensitive areas[242]. 17% of mining operations linked to critical energy transition metals – cobalt, lithium, nickel – are located within one kilometre of a key biodiversity area or a PA. A shift towards less harmful practices is essential across the lifecycle of mining and metal extraction sites[243], underpinned by better data collection to measure impacts on the state of nature, from the mine site into adjacent landscapes and value chains[244]. Remediation of mining sites should also be mandated, either for a "second life"[245] – such as a mine reconverted into a waste recovery site – or as a restoration project.

Finally, ensuring access to utilities is a critical measure for managing and reducing pollution and the solid waste that cities and rural areas leave behind[246]. 80% of the world's wastewater is released into the environment without adequate treatment[247], driving chronic ecosystem damage. Plastic waste alters habitats, harms wildlife, and damages ecosystem services; more than 800 species are known to be affected by marine plastic pollution[248]. Utilities that provide cleaner air, safer water, more efficient sanitation, modern energy, and comprehensive waste and recycling services are critical for nature and people. Yet globally municipal waste infrastructure projects have failed to attract sufficient public and private capital. Most country-based utilities (waste and wastewater systems) – where they exist – are financed by domestic sources of funding. International commercial funding in waste infrastructure, for example, accounted for just 3% of total private participation in infrastructure (PPI)[249].

- **The Indonesian government, in partnership with the governments of Jembrana and Pasuruan,** is prioritizing innovative finance solutions to address the 40 million tonnes of waste polluting nature from waste burning and dumping[250]. Project STOP helps cities in Indonesia design and implement low-cost waste management systems[251]. Building these waste collection and sorting businesses alongside beach and river cleanups reduces pressures on local biodiversity, GHG emissions from combustion, and respiratory diseases due to pollution.

3.2 Who finances what?

To value and restore nature, and address the drivers of nature loss, around US$400 billion of additional investments globally will need to be combined with the repurposing of harmful public and private capital. These figures – based on the analytical work set out in the G7 leadership for sustainable, resilient and inclusive economic recovery[252] – are per-annum flows which assess sector and geographical requirements for investments across natural capital (see technical annex for a full breakdown).

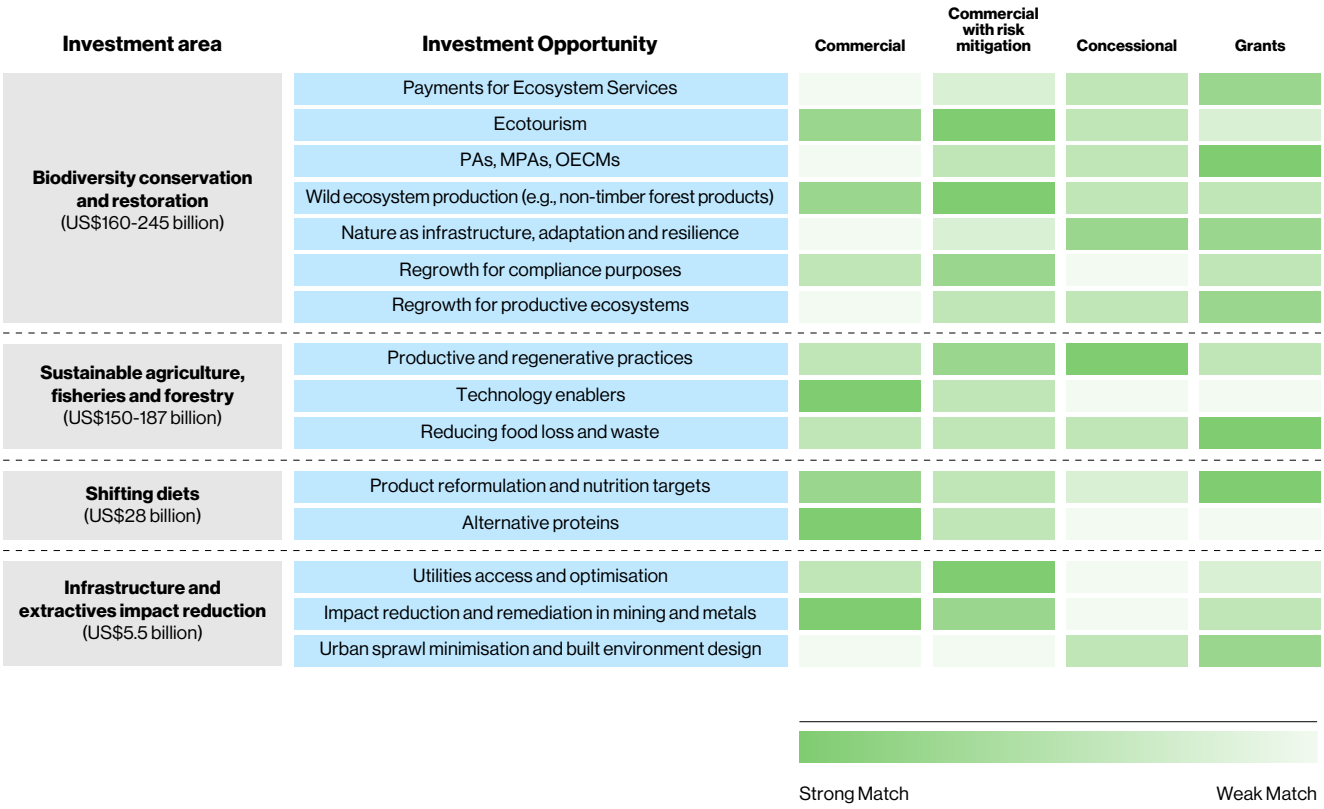
Nature-positive solutions are diverse, offering different risk-return profiles and calling for different types of capital. The heat map below (Figure 19) shows that certain types of capital can support different categories of nature-positive business models dependent on the specific risks (e.g. technology, geography, revenue model), return expectations/asset class (e.g. VC, private equity, infrastructure) and scale of projects. Public and private capital are complementary, and can be deployed separately, or in combination. All will be needed to scale up investment in nature. **Some of these opportunities have business models that can be investable – sometimes with risk mitigation for first-of-a-kind projects or to address high cost of capital. This includes ecotourism and alternative proteins, for example. Others may not have a working business model and public capital – combined with regulation and standardisation – will be more suited,** such as PAs and nature-as-infrastructure for climate adaptation[253].

FIGURE 19

Mapping of investment opportunities along the Nature Transition Curve with capital types

Scaling nature-positive solutions requires **mobilizing the full spectrum of public and private capital**, deployed standalone, or in combination

Different investment opportunities require different types of capital, based on risk profile and revenue case



Source: (author analysis, Blended Finance Taskforce. [2023])

- **Catalytic capital to kick-off first-of-a-kind projects (grants, concessional) will be critical for many sectors,** but de-risked and pure commercial capital become more relevant as projects mature. For example, conservation and restoration have lower returns on investment, so will be mainly financed by grants and subsidies.

- **Conservation and restoration will predominantly be financed by grants and subsidies (Figure 20):** Capital of this kind does not necessitate repayment or financial return from the project; national and sub-national governments, philanthropies, and development banks allocate grant funding with the aim of achieving specific environmental or social outcomes. Governments today provide 80-85% of total finance for conservation and restoration[254], yet they still lack the revenue to allocate sufficient resources. Increasing the total volume of grants will require increasing government fiscal space and budgetary planning, extending grant terms, targeted allocation strategies, enhanced balance sheets of multilateral funds, and reshaping domestic private sector markets.

- **Transitioning to sustainable agriculture, forestry, and fishing will be highly dependent on the location and context, and will require a combination of debt, equity and grants.** Private sector investments (e.g., grants as supply chain finance, where food corporates disburse grants to their supply chains, equity in agricultural technology companies) will need to be combined with domestic, bilateral and multilateral public finance to enact policy change, as well development finance to mitigate risks faced by private investors. Private markets have been especially dynamic when investing in technology enablers, where the revenue case is clear.

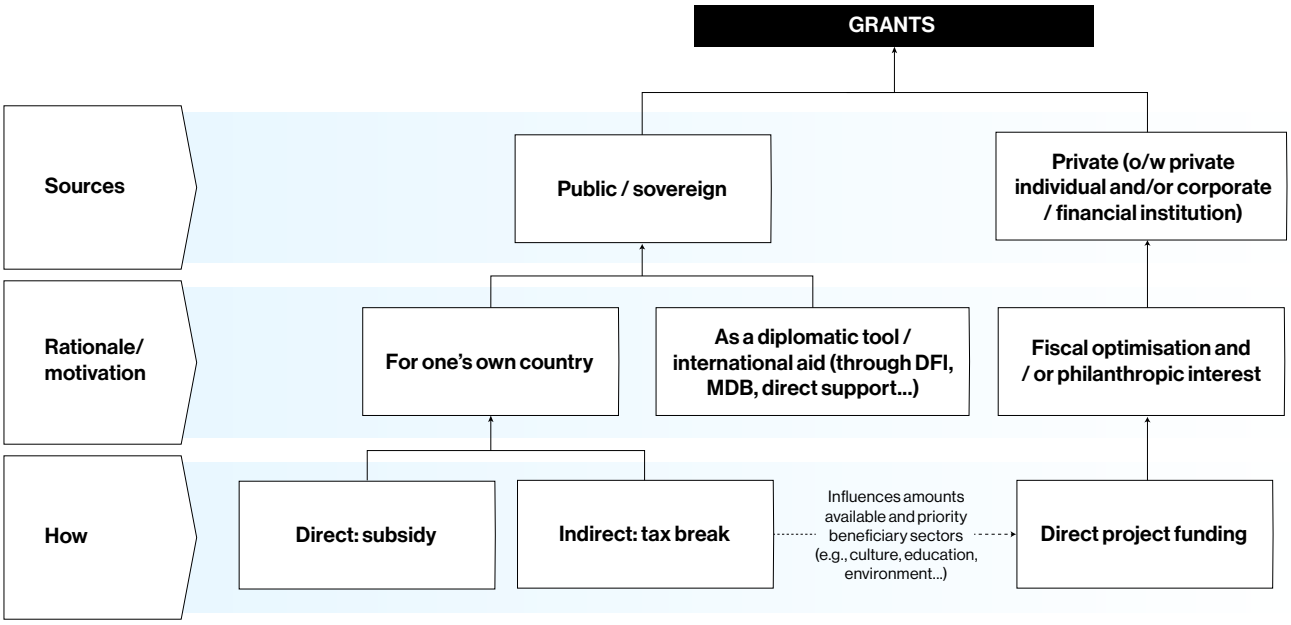
- **Risk mitigation and technical assistance will be needed across investment priorities,** especially before nature reaches commercial viability across capital markets. Closing the skills gap will be essential for equipping producers with the right tools to transition sustainably.

- **Transitioning to sustainable agriculture, forestry, fishing is highly location and context-specific, and will require a combination of debt, equity and grants, calling on all types of capital.** Private sector investments (e.g., grants as supply chain finance, where food corporates disburse grants to their supply chains, equity in agricultural technology companies) will need to be combined with domestic, bilateral and multilateral public finance to enact policy change, as well development finance to mitigate risks faced by private investors. Private markets have been especially dynamic in investments related to technology enablers, where the revenue case is clear.

- **Risk mitigation and technical assistance will be needed across investment priorities,** especially before nature reaches commercial viability across capital markets. Closing the skills gap will be essential for equipping producers with the right tools to succeed in the transition.

FIGURE 20

Use of proceeds from grant financing, a priority for investments "into" nature



Source: author analysis

4 Call for Action

In the face of nature breakdown, urgent action is needed to transition to a development model that adequately values nature's contribution to people and planet. This paper is a call to action for delivering a transformative agenda to rapidly accelerate flows of private and public capital "into" and "for" nature, and embed nature firmly into decision-making. To accelerate action, we propose the following key actions, to be launched at or around COP28, and to be developed in the next two years, until COP30 in Belém, which will represent an opportunity to take stock of progress:

1. Set targets and account for nature

- **Adopt natural capital accounting standards** in public and private investment and strategic planning decisions, building on frameworks like UN SEEA and the Capitals Coalition's Transparent Methodology, and on early examples of national accounting initiatives (eg. as seen in Rwanda).

- **Set science-based targets for climate and nature** in line with SBTi and SBTN guidance, and require commitment to science-based targets as a criteria for public and private investment.

- **Invest in the collection and sharing of high-quality nature data,** promote and invest in national data standards and data sharing facilities and adhere to CARE and FAIR principles to ensure ethical governance of nature data collection and use.

- **Set regulation for the disclosure of nature risks, impacts and dependencies,** as piloted through France's Article 29, and commit to 'radical transparency' disclosing climate and nature risks, impacts and dependencies under TCFD and TNFD.

2. Harmonize policies for effective nature financing

- **Develop and support comprehensive and up-to-date National Biodiversity Strategies and Action Plans (NBSAPs) and fully integrate nature into Nationally Determined Contributions (NDCs)**, leveraging recommendations and cross-country collaboration initiatives on from the NBSAP Accelerator Partnership, and its knowledge portal

- **Conduct and support integrated, inclusive spatial planning processes** in line with target 1 of the Global Biodiversity Framework, to develop a national land use plan that delivers on climate, nature and development targets, ensuring IPLC engagement, and whole-of-government approach for implementation

- **Promote ambitious national standards and champion multilateral initiatives for nature,** such as due diligence and disclosure legislation, bilateral and global agreements on ending wildlife crime, nature-positive trade provisions and subsidy regimes

- **Develop, deliver, and advocate for the mainstreaming of integrated policy processes and build private and public sector collaboration to accelerate finance for nature-positive outcomes,** for example through country packages (e.g., Brazil Ecological Transformation Plan, Forest Climate Leaders' Partnership)

3. Ensure investments are just, accountable, and inclusive

- **Integrate IPLCs into the design, governance and implementation of investments, policies and strategies** whenever these have direct or indirect contact with IPLC lands

- **Secure IPLC land tenure rights** as the foundation of engagement with IPLCs

- **Commit to principles of justice and equity,** including around country ownership and equitable pathways (requiring access, affordability and additionality)

4. Expand project finance for nature

- **Scale up regenerative value chains** through guaranteed off-take agreements for regenerative commodities, and innovative financing facilities that aggregate investment, provide technical assistance, and strengthen value chain linkages

- **Build high-integrity carbon and biodiversity markets** with robust design, governance and implementation structures, powered by innovative financing mechanisms

5. Deepen capital markets, mobilize private capital, and use public finance catalytically

- **Unlock domestic capital markets,** including banks, asset managers, and DFIs in EMDEs, by building supplier financing solutions to close liquidity gaps, and stimulating domestic corporates' and private markets' commitments towards regenerative value chains

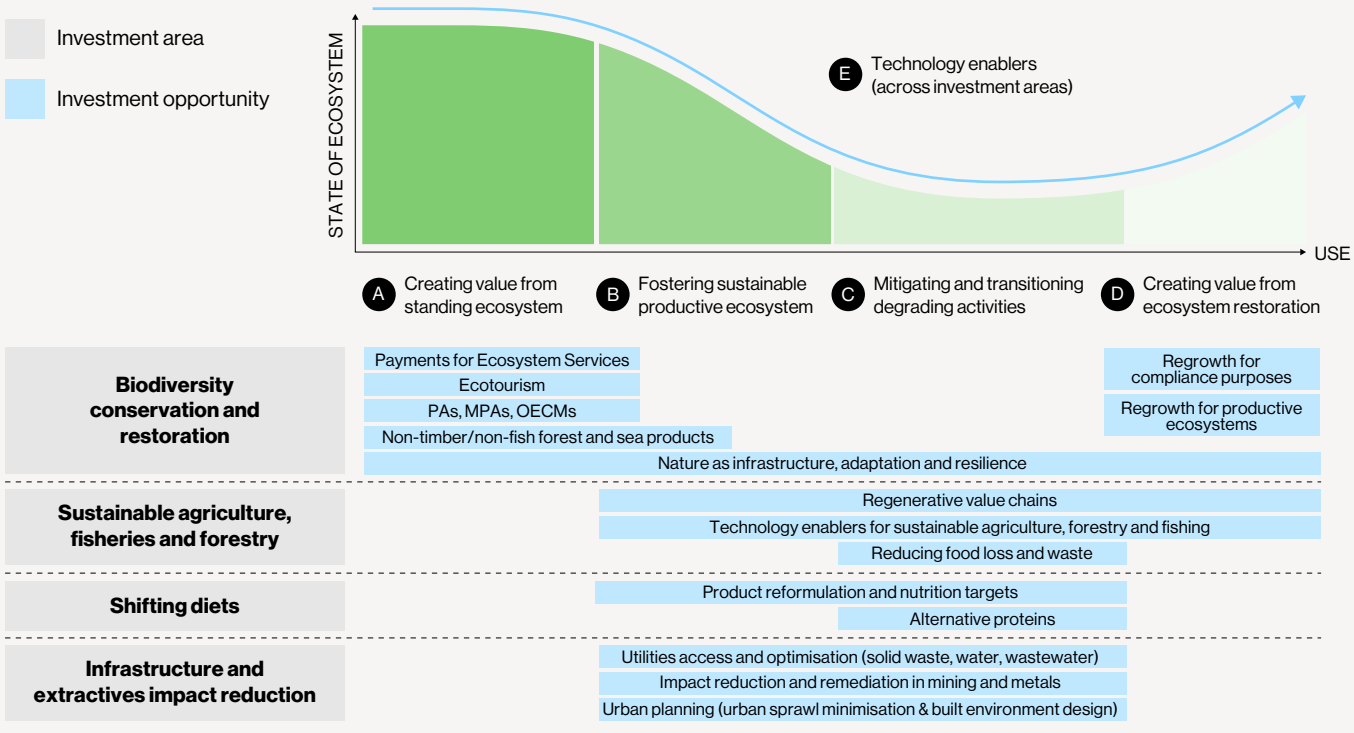
- **Ramp up development finance** by increasing DFI and MDB mandates and targets for nature finance, strengthening MDB collaboration with the private sector through Natural Capital Labs, and supporting MDBs in pioneering guarantee mechanisms, novel forms of risk insurance (including sovereign risk), and public finance support for innovation

- **Build a comprehensive sovereign debt approach to nature** by building co-investment platforms to replicate debt conversions for nature, and integrating nature covenants in debt restructuring and sovereign credit ratings

Annex 1: investment opportunities on the Nature Transition Curve

FIGURE 21

Investment solutions, broken into investment priorities, along the nature transition curve[174]



Conservation and Restoration

- **Payments for Ecosystem Services (PES) markets:** carbon and biodiversity markets, REDD+ finance, PES cash transfers.

- **Eco-tourism:** wildlife safaris, diving, trekking, and birdwatching all provide a direct financial value to the conservation of terrestrial and marine ecosystems. Revenue is generated either directly through entry fees into National Parks[255] or indirectly through hotel resorts, such as safari costs redistributed back to a National Parks Association. Tourism attracts the highest share of investment "into" nature: for example, the Mesoamerican Reef (MAR) ecosystem provides annual environmental services worth US$183 million in fisheries, US$320-438 million in coastal protection, and US$3.9 billion in tourism.

- **PAs, MPAs, OECMs:** formal protection, close monitoring, capacity support for managers and rangers, expanded network to host a diversified tourist sector, formalized benefit sharing, strengthened income multipliers, and managed human-wildlife conflict[256].

- **Non-timber forest products and non-fish ocean products:** improves local livelihoods through jobs and local income, as well as securing healthy nature. These encompass a diverse range of resources such as wild-grown fruit and nuts, forest honey, sea cucumber, rubber, medicinal plants, and resins, that are harvested in respect of the ecosystem regeneration. For example, the PT Royal Lestari Utama (RLU) project combines conservation with an inclusive rubber plantation, which transforms a heavily degraded landscape in Central Sumatra into a productive area through reforestation and sustainable rubber.

- **Nature-as-infrastructure:** nature can have an outsized role in both protecting coastal assets and forming part of the infrastructure of coastal cities. Coral reefs can reduce 90% of the kinetic energy of waves, while mangroves can be up to 50 times more cost-effective than cement seawalls at protecting coastlines[257]. The Blue Climate Initiative estimates that the largest 136 coastal cities are expected to suffer from increases of flood-related losses of US$52 billion per year by 2050[258]. Rapidly developing cities in need of climate-resilient infrastructure that can serve the needs of populations' housing, food and health is a key aspect of the sustainable development action point. Adopting a landscape approach to build revenue streams for the maintenance or improvement of critical natural assets is particularly relevant in an urban context. Beneficiaries would depend on the structure of land ownership in the urban space, but in most cases could be either municipal governments or private property owners, given they are 'intra-city' initiatives[259].

Sustainable agriculture, fisheries and forestry

- **Regenerative value chains and practices:** A broad definition of productive and regenerative models includes a set of practices that regenerate soil, reduce synthetic fertilizers and pesticides, and that go beyond the reduction of negative impacts to ensure that food systems have positive environmental effects[260]. These include agroforestry, no-tillage farming, multi-trophic aquaculture, improved nutrient and feed management, rotational grazing, pastureland rehabilitation, for example.

- **Technology enablers:** digitizing food, land and sea use systems can help producers and consumers make more informed choices and improve efficiency from production to consumption: these include bio-chemical innovation (gene editing and mapping, cultivated meat, micro-biological nutrition), technological hardware (drones, remote sensors, robotics), digital software (geospatial imaging, predictive analytics, business management tools) and financial monitoring (mobile money, crowdsourcing, cryptocurrency). While large farms in North America and Europe are driving agricultural technology adoption, precision agriculture tools are also penetrating Latin America, Africa and Asia[261].

- **Reducing food and loss waste:** A land area the size of India and Canada combined is used to grow food that goes to waste[262]. Improving efficiency through digital technologies, creating value from food waste, cold-chain solutions or by-catch reduction, for example, can relieve future pressures on land and sea for food production, bring down environmental damage, and reduce food insecurity.

Healthy diets

- **Product reformulation and nutrition targets** can help mainstream more efficient and healthy foods detailed above. Investment into this solution could help fund public policy campaigns that encourage dietary shifts and improve meals in public procurement. Policymakers could create new standards and guidance for consumption or address unfair advantages provided by polluting activities. For example, product reformulation in the European Union has led to an average 0.57 gramme reduction in salt intake, while limiting industrially produced trans fatty acids has reduced mortality from cardiovascular disease in Austria, Denmark, Costa Rica, and the United States by 4.3-6.2%[263].

- **Alternative proteins:** revenue can come from the sale of meat alternatives – which could become a market worth over US$250 billion by 2030 (from US$3 billion in 2020), with significant health-related cost savings. Many traditional vegetables, legumes, and nuts provide excellent alternatives to animal proteins and a range of alternative sources are coming to market, including plant-based meat analogues, microorganism-based nutrients, insects and worms, and lab-grown cellular meat. Private and catalytic finance should target technology R&D and scale-up infrastructure to bring the market to maturity in the next decade.

Innovation to reduce impact

- **Utilities access and optimisation:** ensuring access to utilities is a low-hanging fruit to manage and reduce pollution and the solid waste that cities and rural areas leave behind[264]. 80% of the world's wastewater is released into the environment without adequate treatment[265], driving chronic ecosystem damage. Plastic waste alters habitats, harms wildlife, and damages ecosystem services; more than 800 species are known to be affected by marine plastic pollution.

- **Urban planning:** 70% of people are set to live in cities by 2050, up from 56% today[266], meaning that we urgently need to adapt approaches to designing, building and operating the built environment. Notably, we need to optimize the use of land, space and services to reduce new buildings requirements, scale urban green spaces and nature-as-infrastructure revenue models (especially in coastal economies), and more efficiently use materials and building components, with a focus on developing circular economy models. Bringing nature back to the core of cities is also critical, to inspire active lifestyles, nurturing mental and cognitive health, connect children with the outside world, and create cohesive communities[267].

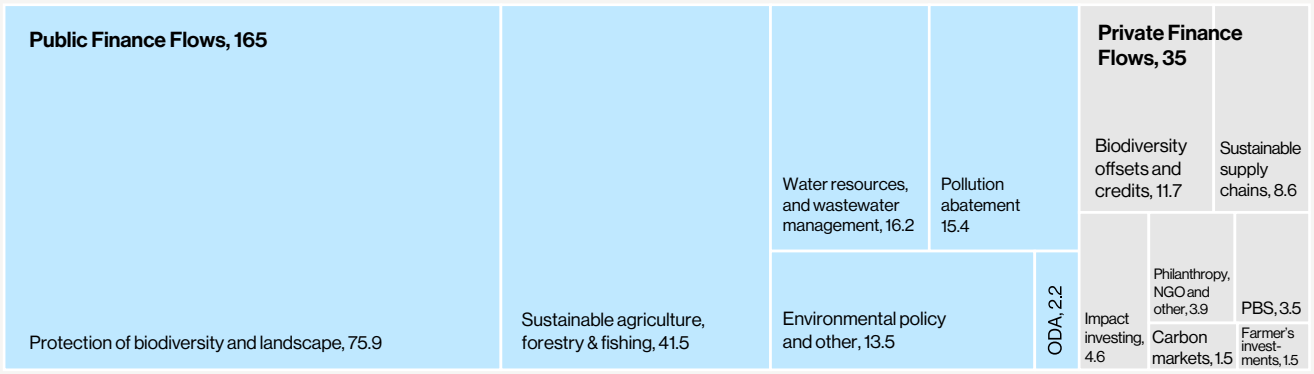
- **Impact reduction and remediation in mining and metals:** Comprehensive land management, guided by detailed spatial maps and biodiversity assessments, can limit ecosystem disruption caused by supporting infrastructure like roads and power lines. Collaborative partnerships between mining companies and relevant public sector agencies can enhance infrastructure development outcomes.

Annex 2: the current landscape of nature finance

Our estimation of current public and private financial flows to nature is directly informed by the most recent assessment, the United Nations' Environment Programme's "State of Finance for Nature, 2022"[268]. A detailed methodology can be found on the report's web page[269].

Current public and private financial flows to nature are estimated to be US$154 billion per year. Public funds make up 83% of the total, directing US$126 billion per year towards nature through government domestic expenditure and US$2 billion per year through Official Development Assistance (ODA). The private sector contributes approximately US$26 billion per year, equivalent to 17% of the total. The detailed breakdown is as follows:

FIGURE 22
UNEP estimate of public and private financial flows to nature, 2023



Sources: (OECD (2023e); IMF COFOG (2021); OECD (2023a; 2023b; 2023c; 2023d; 2023e) (ODA, Philanthropy, private finance mobilised by ODA); Financial reports from five NGOs: CI (2022), RSPB (2022), TNC (2022), WCS (2022) and WWF (2022); FAO (2018b; 2018c); Rainforest Alliance (2022a; 2022b); RTRS (2022); Solidaridad (2019); De Jong (2019); GIIN (2020); Capital for Climate NbS Funds (2023); Impact Yield (2023); Partnership for Forests (2023); Ecosystem Marketplace (2022); Kassam et al. (2019))

Annex 3: estimating the investment needs for nature by 2030

As set out in the Figure 23, we have set out four main categories of additional investments needed annually for nature by 2030 at global level:

1. Biodiversity Conservation and Restoration

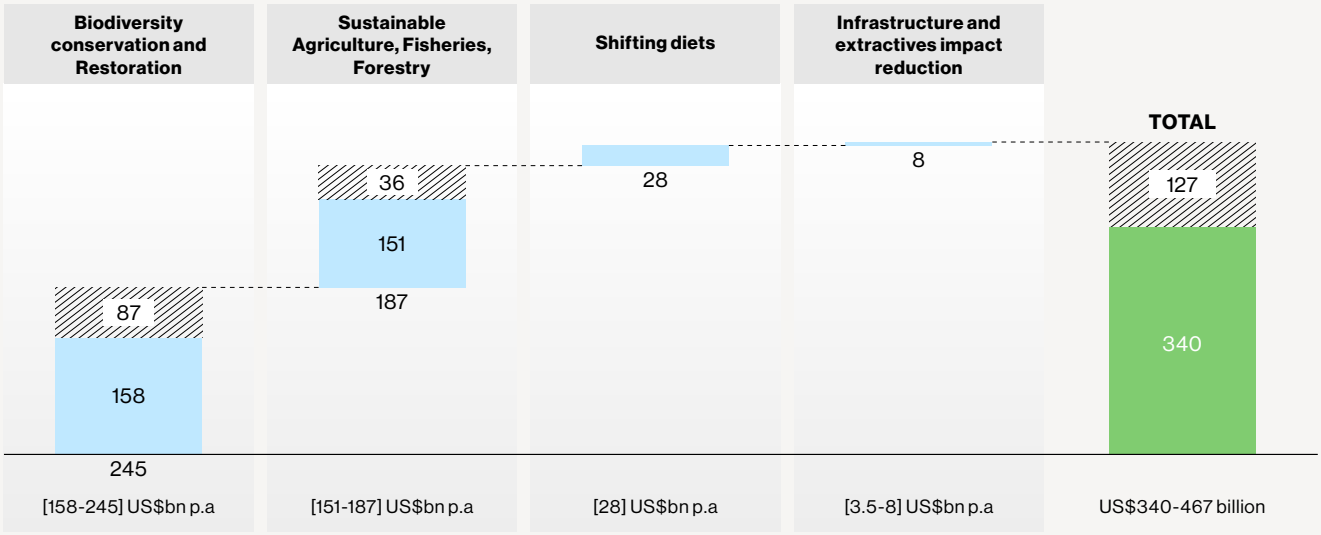
2. Sustainable Agriculture, Fisheries and Forestry

3. Shifting diets

4. Infrastructure and extractives impact reduction

Our assessment of the magnitude of these investments is based on available studies, building on Waldron et.al (2020)[270], Turner et al. (2021)[271], Bhattacharya et al. (2022)[272], and UNEP (2022). These figures focus on sustainable investments only, rather than gross investment (i.e. they do not include continued or neutral investment levels across conservation and restoration, agriculture, fisheries and forestry. **This approach results in a total investment need of US$340-467 billion. The breakdown is as follows:**

FIGURE 23
Addressing the direct drivers of nature loss requires public and private sector investments in four main investment areas (Figures in technical annex)



There have been several studies carried out on the additional investment requirements in nature. Differences in coverage and methodology explain the variation between estimates. Our range is close to UNEP on biodiversity conservation and restoration for example, as we similar underlying assumptions from Waldron et.al (2020), however, they differ in other categories, as UNEP does not include fisheries, extractives and infrastructure, nor alternative proteins; their focus is predominantly on nature-based solutions. Our range differs significantly from TNC, given they assume that sustainable agriculture will have been implemented on 100% of global cropland by 2050, while we assume a lower 50% of farmed land, in line with Turner et.al (2020) and FOLU (2019). Moreover, we focus predominantly on additional CAPEX and OPEX investments rather than income support.

Existing approaches to calculating additional investment requirements

1. IHLEG Report on Climate Finance[273]

Total requirements by 2030:
current sustainable investments not quantified
Total additional financing by 2030:
US$290-490 billion

Protect and Restore: US$70-250 billion
Sustainable, Efficient and Productive Agriculture: US$140-160 billion
Healthy Diets: US$30 billion
Rural Infrastructure: US$40-50 billion

2. UNEP State of Finance for Nature 2022[274]

Total requirements by 2030:
US$484 billion
Total additional financing by 2030:
US$330 billion

Protection: US$70 billion
Restoration: US$170 billion
Sustainable land management: US$90 billion

3. TNC Financing Nature Report[275]

Total requirements:
US$722-967 billion
Total additional financing:
US$598-824 billion

Protected Areas: US$149-192 billion
Croplands: US$315-420 billion
Rangelands: US$81 billion
Sustainable Forestry: US$19-32 billion
Sustainable Fisheries: US$23-47 billion
Coastal ecosystems: US$27-37 billion
Urban environments: US$73 billion
Invasive species: US$26-84 billion

Challenges in estimating AFOLU investment levels

Estimating current levels of investment in AFOLU raises significant challenges, including:

- Lack of consistent and comprehensive data due to overlapping datasets; stock and flow variables used interchangeably as 'investment'; and difficulties in tracking investments made by smallholder farmers in informal markets.

- Lack of publicly available aggregates of private investment into agriculture, food and land use. FAO provides estimates of Private Credit into Agriculture, Forestry and Fishing. However, there is not yet an estimate of the proportion of private credit that is used for investments versus recurring costs, or even the proportion that is saved (i.e. not invested or spent at all). Other estimates focus on sustainable investments, not into agriculture more broadly.

- Challenges in distinguishing between sustainable vs. unsustainable investments: 1) not all investments are classified and tracked as sustainable or unsustainable. Climate Policy Initiative and similar entities are able to track investments that are marked as geared towards climate or development goals. Yet many investments that enhance natural capital are not logged as such. Likewise, investments that damage nature are not necessarily tracked. 2) Many investments into AFOLU are not by definition low-carbon or high-carbon but depend on the specific context. For example, an investment into farm machinery might help to increase yields, reducing the need to expand farmland into forests and other natural ecosystems. Yet that same investment into farm machinery could increase the value of expanding farmland into natural ecosystems, as improved yields deliver higher rewards. The enabling environment for sustainable food systems is therefore critical to determine sustainable outcomes.

Breakdown of additional investment requirements

TOTAL: US$340-467 billion

Biodiversity conservation and Restoration: US$159-245 billion

- Conservation of terrestrial and marine ecosystems (US$103bn-US$178bn): management cost of terrestrial and marine protected areas, including costs for the existing system, of which only a fraction is currently spent[276].

- Forest restoration (US$29 billion): 294Mha forest and peatland restored at $1,200–2,000/ha (costs mainly dependent on labour and type of restoration intervention)

- Mangrove restoration ($0.3–1.6bn): restore global distribution to 1980 baseline by 2050. Assume flat investment 2020–50.

- Seagrass restoration ($22bn): restore coverage to 1879 baseline by 2050. Assume flat investment 2020–50.

- Saltmarsh restoration (US$4-14bn): restore to historical baseline by 2050. Assume flat investment 2020–50.

Sustainable Agriculture, Aquaculture, Fisheries and Forestry: US$151-187 billion

- Productive and Regenerative Agriculture (US$90bn-US$94bn): Regenerative farming practices on 50% farmed land, 150m low skilled farmers receive extension services and capital equipment improved across ~400m ha, Irrigation efficiency improved on 20% currently irrigated cropland in developing countries, new irrigation infrastructure for 30m ha cropland by 2030 (expanding irrigated land by ~10%), Precision agriculture machinery and tech investment, 15% urban farmed vegetables and fruits consumed in cities produced in vertical/ greenhouses, 10% inedible food composted via anaerobic digesters, R&D in ag increases from 0.7–1% global GDP, (FOLU 2019)

- Alternative Proteins (US$24bn-US$33bn): 14% plant-based meat market revenues invested p.a., 33% plant-based dairy market revenues invested p.a., Insect protein production grows to 0.7–0.9m tonnes, Additional 16m MT bivalve production, Additional 4.5m MT finfish aquaculture production, 50% of 19m aquaculture farmers receive training on sustainable production, (FOLU 2019)

- Reducing food loss and waste (US$29bn): Consumer demand management in advanced economies (<10% total investment), reducing post-harvest waste in developing countries, reducing supply-chain waste, (FOLU 2019)

- Sustainable fisheries (US$5bn-US$23bn): for the low estimate, FOLU (2019) assumes governments compensate for 20% of the estimated cost for fleet decommissioning and fishermen re-training to reduce wild catch. For the high estimate, we use TNC's figure for annual sustainable management costs, which includes scenarios using dedicated access privilege based management, (TNC 2020)

- Sustainable Timber Plantations (US$3bn): avoided emissions and enhanced sequestration from improved natural forest management, reduced-impact logging, extended harvest rotations, increased post-harvest sequestration rates, and designation of set-aside areas for protection from logging activity, (FOLU 2019)

Healthy diets: US$28 billion

- Product reformulation (US$17bn): 15% of revenues from the food processing and handling sector are spent to upgrade equipment for product reformulation; the size of the product reformulation market 2018-2030 is estimated at a compound annual growth rate (CAGR) of 5 percent, starting from a ~$45 billion 2016 market. 1% of the $2 trillion processed food market is spent on research and development (R&D) and one third is allocated towards product reformulation

- Global nutrition targets (US$4bn): annual investment needed to meet the Global Nutrition Targets of reducing stunting, female anaemia and low birth weight, halting the increase of overweight children, increasing breastfeeding and reducing wasting.

- Targeted school feeding programmes (US$5bn): 50% of 209 million school children with stunting and wasting receive targeted school feeding programmes at an average cost of $50 per child per year.

- R&D (US$2bn): Public and private R&D spending across food and land use systems grows from 0.07% of GDP (2018) to 0.1% of GDP by 2030. Total additional R&D spending 2018-2030 is $197 billion. 10% of the additional R&D spending is allocated to nutritious food for product reformulation of HFSS foods, evaluating the impact of targeted school feeding programmes and evaluating progress on nutrition targets at the national level.

Infrastructure and extractives impact reduction: US$3.5-8 billion

- Mining and metals (US$3-7.5 billion):

    - Impact reduction (US$3bn-6bn): CSIS estimates 300 new mines will enter operation by 2030[277], and we estimate 1-2% of CAPEX will be required per mine to reduce impact along entire project development life cycle, from project conception, early risk screening and Critical Habitat Assessment, though Biodiversity Action Planning, offset design and project close (between US$10m-US$20m per mine, the range accounting for differences in material mined, with the focus on large-scale industrial mines[278]).

- Rehabilitation (US$164m-1.6bn): we looked at the mining sites of the top 10 mining companies globally, which amounts to 410 sites. This does not account for small-scale mining, for which data was not readily available. A study conducted by EMA in 2011 noted that there were about 22 large scale mines decommissioned over the last 20 years. The cumulative rehabilitation cost for four large, decommissioned mines was US$32m; we selected an average rehabilitation cost of US$2m-US$20m per mine. We then assumed mine closure through to 2030 at 20% following a survey from International Council of Mining and Metals[279].

- Built Environment: (US$0.5 bn): the Nature in the Urban Century Assessment[280] found that global urban expansion will convert about 290,000 km2 of natural habitats into urban areas by 2030, and this has the potential to degrade 40% of strictly Protected Areas (PAs) globally that will be within proximity of urban areas if not managed properly. Conservation measures on 41,000– 80,000 km2 can help to protect Key Biodiversity Areas (KBAs) at risk from urban growth in 30 priority ecoregions and potentially prevent the extinction of 78% of the at-risk vertebrates. It is difficult to assess the cost of this protection of natural habitat in the peripheries of cities, especially since most PAs are protected by government purchase rather than direct purchase. In 2002 Balmford et al. reviewed conservation costs for hundreds of projects globally and gave a range of cost of effective conservation in "densely settled regions of Latin and Central America, Africa, and Asia" from US$130–5,000/km2 /yr. This gives a km2/yr figure for effectively conserving biodiversity in urban environments. To protect the amount of land proposed in McDonald et al. using these per unit area costs a range of US$14.1–544 million/yr.

Endnotes

1. Mohieldin, M. (2022). "'What is inefficient, insufficient and unfair?' and the 1% for 1.5C proposal". Climate Champions.
2. Olsen et.al., (2023). "UNEP State of Finance for Nature"
3. Olsen et.al., (2023). "UNEP State of Finance for Nature"
4. Damania, R., et.al., (2023). "Detox development: repurposing environmentally harmful subsidies". The World Bank
5. Olsen et.al., (2023). "UNEP State of Finance for Nature"
6. KBC. "Pres. Ruto: When we put all our assets together in balance sheets, you'll know Africa is wealth" [Video file]. (2023, September). Retrieved from https://www.youtube.com/watch?v=CuRX5YhgH38
7. Rockstrom, J., et al. (2023). "Carbon dioxide removal from the atmosphere." Nature, 123(456), 789-802 https://www.nature.com/articles/s41586-023-06083-8
8. IPBES. (2019). "Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services." IPBES secretariat, Bonn, Germany.
9. WWF. (2022). "Living Planet Report 2022 – Building a nature positive society". Almond, R.E.A., Grooten, M., Juffe Bignoli, D. & Petersen, T. (Eds). WWF, Gland, Switzerland.
10. Pangestu, M. (2022). "Nature's High Returns.", The World Bank.
11. Johnson, J. et.al., (2022). "The Economic Case for Nature". The World Bank.
12. Network for Greening the Financial System. (2022). "Central Banking and Supervision in the Biosphere: an agenda for action on biodiversity loss, financial risk and system stability". NGFS
13. Johnson, J. et.al., (2022). "The Economic Case for Nature". The World Bank.
14. Elderson, F. (2023) "The economy and banks need nature to survive". European Central Bank.
15. Financial Times. (2023) ECB flags stark economic risks for biodiversity". FT.
16. World Economic Forum. (2020). "New Nature Economy Report 2020". WEF.
17. The "insect apocalypse" describes the loss of 50% of insects since 1970, with a further 40% threatened with extinction.
18. OECD. 2019. Biodiversity: Finance and the Economic and Business Case for Action. Prepared by the OECD for the French G7 Presidency and the G7 Environment Ministers' Meeting.
19. Songwe, V., Stern, N., Bhattacharya, A., (2022). "Finance for climate action: scaling up investment for climate and development". Independent High-Level Expert Group on Climate Finance.
20. United Nations. (2023). "System of Environmental Economic Accounting". https://seea.un.org/
21. Natural Capital Coalition. 2016. "Natural Capital Protocol". (Online) Available at: www.naturalcapitalcoalition.org/protocol
22. Tobin-de la Puente, J. and Mitchell, A.W. (eds.), 2021. "The Little Book of Investing in Nature". Global Canopy: Oxford. https://globalcanopy.org/wp-content/uploads/2021/01/LBIN_2020_EN.pdf
23. Flynn et.al., (2019). "Prosperous Forests". The Food and Land Use Coalition. https://www.foodandlandusecoalition.org/wp-content/uploads/2019/11/FOLU-Prosperous-Forests_v6.pdf
24. United Nations Environment Programme (2022). State of Finance for Nature. Time to act: Doubling investment by 2025 and eliminating nature-negative finance flows. Nairobi. https:// wedocs.unep.org/20.500.11822/41333
25. Olsen et.al., (2023). "UNEP State of Finance for Nature"
26. Tobin-de la Puente, J. and Mitchell, A.W. (eds.), 2021. "The Little Book of Investing in Nature". Global Canopy: Oxford. https://globalcanopy.org/wp-content/uploads/2021/01/LBIN_2020_EN.pdf
27. Convention on Biological Diversity. (2022). "Target 19: Financial resources increased to $200 billion per year, including $30 billion through international finance". Webpage: https://www.cbd.int/gbf/targets/19/
28. Damania, R., et.al., (2023). "Detox development: repurposing environmentally harmful subsidies". The World Bank. https://www.worldbank.org/en/news/press-release/2023/06/15/trillions-wasted-on-subsidies-could-help-address-climate-change
29. Olsen et.al., (2023). "State of Finance for Nature, 2023". UNEP.
30. Olsen et.al., (2023). "State of Finance for Nature, 2023". UNEP.
31. Damania, R., et.al., (2023). "Detox development: repurposing environmentally harmful subsidies". The World Bank. https://www.worldbank.org/en/news/press-release/2023/06/15/trillions-wasted-on-subsidies-could-help-address-climate-change
32. Melcer, S., Zadek., "Breaking the Environmental Crimes-Finance Connection". Finance for Biodiversity Initiative.
33. Rockstrom, J., et.al., (2023). "Safe and just Earth system boundaries". Nature 619, 102-111.
34. Diaz S., et.al., (2019). "Pervasive human-driven decline of life on Earth points to the need for transformative change". Science Vol 366, Issue 6471.
35. OECD. (2019). "Biodiversity: Finance and the Economic and Business Case for Action". OECD Publishing, Paris.
36. Svartzman, R., (2021). "A "Silent Sprint" for the financial system? Exploring biodiversity-related financial risks in

France". Banque de France.
37. Damania, R., et.al. (2023). "Nature's Frontiers: achieving sustainability, efficiency, and prosperity with natural capital". The World Bank.
38. European Commission. (2009). "Nature's role in climate change". EC.
39. Griscom B.W., et.al. (2017). "Natural climate solutions". PNAS Vol 114 (44), 11645-11650
40. IISD. (2021). "Using nature in infrastructure projects could sabe USD 248 billion per year – study". IISD.
41. Wu, A., (2016). "Green versus gray infrastructure: the economics of flood adaptation in Fiji". Yale Environment Review.
42. IDB. (2014). "The 5 most cost-effective climate change adaptation measures". IDB Blogs.
43. Lieuw-Kie-Song, M., et.al., (2020). "Nature hires: how nature-based solutions can power a green jobs recovery". International Labour Organization.
44. Adams, J., et.al., (2020). "The Future of Nature and Business Policy Companion". World Economic Forum. https://www3.weforum.org/docs/WEF_NNER_II_The_Future_of_Business_and_Nature_Policy_Companion_2020.pdf
45. UNDP. (2021). "After the rain: the lasting effects of storms in the Carribean". UNDP. https://www.undp.org/latin-america/after-rain-lasting-effects-storms-caribbean
46. Johnson, J. et.al., (2022). "The Economic Case for Nature". The World Bank.
47. Feeney, J., et.al., (2023). "Action plan for the UN Decade on ecosystem restoration, 2021-2030". UNEP.
48. Bauza, V., (2023). "When protecting nature helps build peace". Conservation International.
49. Sax, S., (2023). "Pace: a new tool for reducing deforestation in the Colombian Amazon". Mongabay.
50. United Nations. (2021). "People, countries impacted by climate change also vulnerable to terrorist recruitment, violence, speakers tells security council in open debate". Security Council Meetings Coverage.
51. Sukhdev, P., Bille, R., Pirard, R., Varma, K., (2016). "Biodiversity and poverty: old debates, recent evidence and emerging controversies". Institut Veolia.
52. Abbasi, K., (2023). "Time to treat the climate and nature crisis as one indivisible global health emergency". The BMJ.
53. WHO. (2021). "Nature, biodiversity and health: an overview of interconnections". Copenhagen: WHO Regional Office for Europe.
54. Jung, M., Visconti, P., Heyl, A., (2021). "Meeting biodiversity, climate and water objectives through integrated strategies". International Institute for Applied Systems Analysis. https://iiasa.ac.at/news/aug-2021/meeting-biodiversity-climate-and-water-objectives-through-integrated-strategies
55. The biodiversity intactness index represents the fraction of naturally present biodiversity that still remains in terrestrial ecological communities in a region (Scholes and Biggs, 2005).
56. Leclère, D. et.al (2020), 'Bending the Curve of Terrestrial Biodiversity Needs an Integrated Strategy', Nature, 585(7826)
57. IPBES. (2019). "Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services". IPBES secretariat, Bonn, Germany.
58. The World Bank. (2022). "Nature and Development brief: Scaling up finance for nature". The World Bank.
59. Portfolio Earth. (2020). "Subsidising extinction: public money for public harm". Portfolio Earth.
60. Turner, J., et.al. (2021). "Investments for Green Recovery and Transformational Growth 2020-30". Grantham Research Institute on Climate Change and the Environment. https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2021/06/G7-Leadership-Technical-Note-Investments-for-Green-Recovery-and-Transformational-Growth.pdf
61. Haddad, F., (2023). "Fernando Haddad: Brazil's plans to transform our green economy". Financial Times.
62. Campaign for Nature et.al., (2023). "$20 billion tracker: a summary of commitments toward reaching the international biodiversity finance goal in Target 19 of the Kunming-Montreal Global Biodiversity Framework". Nature Finance Info.
63. Putois, C., (2023). "Du polylatéralisme pour réguler la mondialisation". Le Grand Continent.
64. New Private Markets. (2022). "HSBC-Pollination fund will deliver carbon credits rather than financial returns". New Private Markets.
65. Oxford Smith School & Swedish Energy Agency. (2023). "The role of Ministries of Finance in driving and shaping the low-carbon energy transition".
66. Elderson, F. (2023) "The economy and banks need nature to survive". European Central Bank.
67. Oxford Smith School & Swedish Energy Agency. (2023). "The role of Ministries of Finance in driving and shaping the low-carbon energy transition".
68. NGFS. (2023). "NGFS publishes conceptual framework for nature-related financial risks at launch event in Paris".
69. Business for Nature. (2023). "High-level business actions on nature". Webpage: https://www.businessfornature.org/high-level-business-actions-on-nature
70. Nature-Positive Initiative. (2023). "A Global Goal for Nature: Nature-positive by 2030". https://www.naturepositive.org/
71. African Natural Capital Alliance. (2023). Webpage: https://africannaturalcapitalalliance.com/
72. Nature4Climate. (2023). "The state of nature tech: building confidence in a growing market".
73. Convention on Biological Diversity. (2022). "Target 15: Businesses assess and disclose biodiversity dependencies,

impacts and risks, and reduce negative impacts". Webpage: https://www.cbd.int/gbf/targets/14/

74. BIOFIN. (2023). "Biodiversity mainstreamed in Zambia's newly gazzeted green loan guidelines by the Bank of Zambia". BIOFIN
75. Dasgupta, P., et.al. (2021). "The Economics of Biodiversity: The Dasgupta Review". HM Treasury.
76. Gambetta, G., Azizuddin, K., (2023). "G7 launches nature-focused initiative, backs avoided emissions measure". Responsible Investor.
77. Benitez, P., et.al., (2019). "Rwanda natural capital Accounts ecosystems". The World Bank
78. Capitals Coalition. (2023). "The Values Commission". Webpage: https://capitalscoalition.org/project/the-value-commission/
79. UNEP. (2023). "UNEP and S&P Global Sustainable launch new nature risk profile methodology". Webpage: https://www.unep.org/news-and-stories/press-release/unep-and-sp-global-sustainable1-launch-new-nature-risk-profile
80. Nature4Climate. (2023). "The state of nature tech: building confidence in a growing market".
81. Kidangoor, A., (2023). "Betting on biodiversity: Q&A with Superorganism's Kevin Webb & Tom Quigley". Mongabay. https://news.mongabay.com/2023/11/betting-on-biodiversity-qa-with-superorganisms-kevin-webb-tom-quigley/
82. TNFD, et.al., (2023). "Findings of a high-level scoping study exploring the case for a global nature-related public data facility".
83. Songwe, V., Stern, N., Bhattacharya, A., (2022). "Finance for climate action: scaling up investment for climate and development". Independent High-Level Expert Group on Climate Finance.
84. Dierickx, E., Chia, N., (2022). "Putting spatial planning on the map: how high-ambition countries are achieving nature and climate goals". SPACES Coalition.
85. Author interview
86. Perry, E., Karousakis, K., (2020). "A comprehensive overview of global biodiversity finance". OECD.
87. Haddad, F., (2023). "Fernando Haddad: Brazil's plans to transform our green economy". Financial Times.
88. FAO, UNDP & UNEP. (2021). "A multi-billion-dollar opportunity – Repurposing agricultural support to transform food systems". Rome, FAO. https://doi.org/10.4060/cb6562en
89. Ibid.
90. Damania, R., et.al., (2023). "Detox development: repurposing environmentally harmful subsidies". The World Bank. https://www.worldbank.org/en/news/press-release/2023/06/15/trillions-wasted-on-subsidies-could-help-address-climate-change
91. Convention on Biological Diversity. (2022). "Target 18: Reduce harmful incentives by at least $500 billion per year". Webpage: https://www.cbd.int/gbf/targets/14/
92. International Food Policy Research Institute. 2022. 2022 Global Food Policy Report: Climate Change and Food Systems. Washington, DC: International Food Policy Research Institute.
93. CBD. (2023). "Objective 4.2.2 – Adopt biodiversity criteria in public procurement policies to prevent biodiversity loss". CBD.
94. Bicchetti, D., Razo, C., Shirotori, M. (2021). "Trade and food security: when an agreement delayed becomes a human right denied". UNCTAD.
95. Mukpo, A., (2020). "Report: soy, cattle industries trail palm oil, timber on deforestation risk". Mongabay.
96. Petykowski, E., (2021). "Transforming trade: a reform agenda towards sustainable food and land use systems". FOLU.
97. Fernandes, A, N Rocha and M Ruta (eds) (2023), 'Beyond Trade: How deep trade agreements shape non-trade outcomes', CEPR Press, Paris & London. https://cepr.org/publications/books-and-reports/beyond-trade-how-deep-trade-agreements-shape-non-trade-outcomes
98. Convention on Biological Diversity. (2022). "Target 18: Businesses assess and disclose biodiversity dependencies, impacts and risks, and reduce negative impacts". Webpage: https://www.cbd.int/gbf/targets/18/
99. Remaking Trade for a Sustainable Future. (2023). "Villars Framework for a sustainable global trade system". Webpage: https://remakingtradeproject.org/villars-framework
100. Haddad, F., (2023). "Fernando Haddad: Brazil's plans to transform our green economy". Financial Times.
101. Mohieldin, M. (2022). "'What is inefficient, insufficient and unfair?' and the 1% for 1.5C proposal". Climate Champions.
102. Convention on Biological Diversity. (2022). "Target 19: Financial resources increased to $200 billion per year, including $30 billion through international finance". Webpage: https://www.cbd.int/gbf/targets/19/
103. Global Environment Facility. (2023). "Indigenous Peoples". Webpage: https://www.thegef.org/what-we-do/topics/indigenous-peoples
104. Key Biodiversity Areas (KBAs) house much of the world's terrestrial biodiversity; they are critical strongholds for species, ecosystem services, and climate protection
105. The World Bank. (2016). "Of maize and money: how to bring farmers into the financial system". World Bank Blogs.
106. Chiriac, D., Naran, B., Falconer, A., (2020). "Examining the climate finance gap for small-scale agriculture". Climate Policy Initiative.
107. Collins, B., (2023). "Smallholder farmers spend billions of their own income annually on adapting to climate change, nature loss". Carbon Pulse.
108. FAO. (2011). "The state of food and agriculture, 2010-2011". Food and Agriculture Organization.
109. FOLU. (2019). "Growing better: Ten critical transitions to transform food and land use". Food and Land Use Organisa-

tion.

110. Fa, J, E., et.al. (2020). “Importance of Indigenous Peoples’ lands for the conservation of Intact Forest Landscapes”. Front Ecol Environ 2020, 18(3), 135-140

111. Hernández Mares, P., (2020). “Guardians of Mexico’s community forests confront climate change”. Mongabay.

112. Kashwan, P., Karthik, M., (2023). “Time to hold powerful forestry agencies and conservation actors to account”. The Wire. https://thewire.in/environment/forest-agencies-conservation-fra

113. WWF, UNEP-WCMC, SGP/ICCA-GSI, LM, TNC, CI, WCS, EP, ILC-S, CM, IUCN. (2021). “The State of Indigenous Peoples’ and Local Communities’ Lands and Territories: A technical review of the state of Indigenous Peoples’ and Local Communities’ lands, their contributions to global biodiversity conservation and ecosystem services, the pressures they face, and recommendations for actions”. Gland, Switzerland.

114. Kashwan, P., (2017). “Inequality, democracy, and the environment: a cross-national analysis”. Ecological Economics, Volume 131, 139-151

115. Hatcher, J., et.al. (2021). “Falling short: donor funding for Indigenous Peoples and local communities to secure tenure rights and manage forests in tropical countries (2011-2020)”. Rainforest Foundation Norway.

116. Townsend, J., et.al. (2020). “Indigenous Peoples are critical to the success of nature-based solutions to climate change”. Facets Volume 5, Number 1.

117. Chami, R., et.al. (2022). “Embedding Equity in Nascent Nature Credit Markets”. Taskforce on Nature Markets.

118. Mane, A., (2023). “Maori leaders propose protecting whales in international waters at UN general assembly” Te Ao.

119. Charapa Consult. (2022). “Directing Funds to Rights: Principles, standards and modalities for supporting indigenous peoples’ tenure rights and forest guardianship”.

120. Omar, N., et.al. (2023). “Green Accountability, Better Finance”. The Blended Finance Taskforce.

121. King, J., et.al. (2023). “Accelerating finance for nature: barriers and recommendations for scaling private sector investment”. PwC.

122. Insetting refers to the financing of climate protection projects along a company’s own value chain that demonstrably reduce or sequester emissions and thereby achieve a positive impact on the communities, landscapes and ecosystems associated with the value chain. Webpage: https://www.myclimate.org/en/information/faq/faq-detail/what-is-carbon-insetting/#:~:text=Insetting%20refers%20to%20the%20financing,associated%20with%20the%20value%20chain.)

123. Global Environment Facility. (2023). “New global biodiversity fund launched in Vancouver”. Press release: https://www.thegef.org/newsroom/press-releases/new-global-biodiversity-fund-launched-vancouver

124. VCMI. (2023). “Claims Code of Practice”. Webpage: https://vcmintegrity.org/wp-content/uploads/2023/06/VCMI-Claims-Code-of-Practice.pdf

125. The Carbon Offsetting and Reduction Scheme for International Aviation was developed by the International Civil Aviation Organisation in 2016.

126. Rumble, O., Gilder, A., (2023). “African countries move to regulate domestic carbon markets and claim revenue”. African Climate Wire.

127. Collins, B., (2023). “Clean cooking developer first to issue Article 6-aligned credits”. Carbon Pulse.

128. Damayanti, I., (2023). “Indonesia launches carbon exchange to speed emission cuts”. Nikkei Asia.

129. Civillini, M. (2023). “World Bank set to take on risk of insuring carbon credits amid market upheaval”. Climate Home News.

130. Zadek, S., Herr, D., Pivin, A., et.al. (2023). “Harnessing biodiversity credits for people and planet”. Carbone4 & Nature-Finance.

131. Manuell, R., (2023). “Nature markets ‘on the cusp’ of a financial revolution, says expert”. Carbon Pulse.

132. UNDP. (2023). “Biodiversity Credit Alliance”. Webpage: https://www.undp.org/nature/our-flagship-initiatives/biodiversity-credit-alliance

133. The increase of climate- and nature-related risks is pushing financial institutions to exit markets that carry tail-end risks of nature-related financing projects. For example, AXA is currently seeking to offload the US$2 billion reinsurance arm AXA XL to cut disaster risk. When nature-related risks become salient and correlated to all aspects of businesses globally, diversification is no longer sufficient for reinsurers’ profitability. This highlights the importance of distribution markets to scale any financial product development. Without reinsurance, no large-scale insurance market can exist, which means that entire regions and business segments are becoming un-insurable, such as agriculture or real estate.

134. ADM Capital. (2017). “The Tropical Landscapes Finance Facility”. Webpage: https://www.admcf.org/wp-content/uploads/2017/02/TLFF-Introduction-20170201-Final.pdf

135. Convergence (2017). “Design of financing facility for renewable energy and smallholder livelihood projects in Indonesia”.

136. Summers, L., et.al. (2023). “The Triple Agenda: a roadmap for better, bolder and bigger MDBs”. CGDEV.

137. European Investment Bank. (2022). “COP27 Multilateral Development Banks Joint Statement”. Webpage: https://www.eib.org/attachments/press/cop27-mdb-joint-statement-en.pdf

138. Xu, J., et.al. (2021). “Mapping 500+ development banks”. Finance in Common.

139. NatureFinance (2021). “Aligning development finance with nature’s needs”.

140. Xu, J., et.al. (2021). “Mapping 500+ development banks”. Finance in Common.

141. Systemiq (2022). “Mobilising capital for nature-based solutions”. Webpage: https://www.systemiq.earth/capital-na-

ture-based-solutions/

142. Similarly, the most common forms of financing for water, waste and wastewater treatment plants in EMDEs are concessional loans and grants from MDBs and DFIs; 90% of solid waste management infrastructure in Pacific Island countries is provided by external development finance.
143. NatureFinance (2020). "Aligning development finance with nature's needs: Protecting nature's dividend".
144. Finance in Common. (2020). "Joint declaration of all public development banks in the world". Finance in Common.
145. Atteridge, A., et.al. (2022). "Assessing finance for nature-based solutions to climate change". Stockholm Environment Institute.
146. Summers, L., et.al. (2023). "The Triple Agenda: a roadmap for better, bolder and bigger MDBs". CGDEV.
147. European Investment Bank (2022). "Climate Finance: Joint report on multilateral development banks".
148. NatureFinance (2020). "Aligning development finance with nature's needs: Protecting nature's dividend".
149. UN COP26. (2021). "MDB Joint Nature Statement". Webpage: https://webarchive.nationalarchives.gov.uk/ukgwa/20230105153907/https://ukcop26.org/mdb-joint-statement/
150. DevDiscourse. (2023). "Asia-Pacific: ADB and GES introduce natural capital fund to foster environmental conservation". Webpage: https://www.devdiscourse.com/article/business/2708997-asia-pacific-adb-and-gef-introduce-natural-capital-fund-to-foster-environmental-conservation
151. AFD. (2023). "Nature et biodiversité: bilan d'activité 2022". Agence Française de Developpement
152. Beek, M., (2022). "FMO commits to forestry portfolio up to EUR 1 bln by 2030". FMO.
153. Kynge, J., (2023). "China's World Bank plans to triple climate change lending by 2030". Financial Times.
154. Jones, M., (2023). "EU's powerful lending arm eyes first 'debt-for-nature' swap". Reuters.
155. Cox, T., (2023). "IDB, Banco do Brasil announce $250-mln bioeconomy financing programme". Carbon Pulse.
156. Blarel, B., et.al., (2020). "Mobilizing private finance for nature". The World Bank.
157. Willis Towers Watson. (2021). "Willis Towers Watson designs 'world first' parametric solution to help build resilience of sovereign borrowers to climate shocks". WTW
158. Huisman, J., et.al. (2023). "Better Guarantees, Better Finance". Blended Finance Taskforce.
159. Ibid.
160. Ibid.
161. Ibid.
162. AGRI3 Fund (2023). Webpage: http://agri3.com/investment-strategy/#Instruments
163. High-level Climate Champions. (2023). "Mobilizing private capital for nature to meet climate and nature goals". Climate Champions.
164. Interviews, author analysis, The Biodiversity Consultancy. (2021). "Public development banks and biodiversity".
165. One Planet Summit. (2023). "Coalition for convergence of climate and biodiversity finance". Webpage: https://oneplanetsummit.fr/en/coalitions-82/coalition-convergence-climate-and-biodiversity-finance-191
166. Chabert, G., (2022). "Restructuring debt of poorer nations requires more efficient coordination". IMF Blogs.
167. Cara, A., Musambi, E., (2023). "Africa Climate Summit links 'unfair' debt burden with calls to make continents' green assets pay off". PBS News Hour.
168. Songwe, V., (2023). "Financing our survival". Project Syndicate.
169. FAO. (2022). "The state of the world's forests 2022". FAO.
170. IMF. (2023). "Global debt database: September 2023".
171. Butler, R., (2012). "Debt and deforestation". Mongabay.
172. Lange, G., (2010). "The changing wealth of nations". The World Bank.
173. Agarwala, M., et.al., (2022). "Nature loss and sovereign credit ratings". NatureFinance.
174. Ibid.
175. Volz, U., J. Beirne, N. Ambrosio Preudhomme, A. Fenton, E. Mazzacurati, N. Renzhi and J. Stampe. (2020). "Climate Change and Sovereign Risk". London, Tokyo, Singapore, and Berkeley, CA: SOAS University of London, Asian Development Bank Institute, World Wide Fund for Nature Singapore, and Four Twenty Seven.
176. Mudugamuwa, M., (2023). "Debt-for-nature swap: government in early stages of forming framework". The Morning.
177. The President of the World Bank Ajay Banga has supported guarantees within his reform agenda, the AfDB and EIB have entered the debt-for-nature market, while the Norad announced a US$450-million guarantee facility for renewable energy.
178. Kulenkampff, A., (2023). "More for less: scaling sustainability-linked sovereign debt". SLSD Hub.
179. UN. (2023). "Press release: with clock ticking for the SDGs, UN Chief and Barbados Prime Minister call for urgent action to transform broken global financial system". United Nations.
180. Blended Finance Taskforce. (2020). "Better Finance, Better Food: case study catalogue".
181. IPBES. (2019). "Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services". IPBES secretariat, Bonn, Germany.
182. The World Bank. (2022). "Nature and Development brief: Scaling up finance for nature". The World Bank.
183. Portfolio Earth. (2020). "Subsidising extinction: public money for public harm". Portfolio Earth.
184. Zadek, S., et.al., (2023). "Making nature markets work: shaping a global nature economy in the 21st century". Nature-

Finance
185. A more detailed summary of investment opportunities can be found in the Annex.
186. Campaign for Nature. (2023). "30x30 and Indigenous Peoples and Local Communities". Webpage: https://www.campaignfornature.org/30x30-and-indigenous-peoples-and-local-communities
187. Protected Planet. (2023). "Region: Africa". Webpage: https://www.protectedplanet.net/region/AF
188. Gill, D. et al. (2017). "Capacity shortfalls hinder the performance of marine protected areas globally", Nature 543, 665-669
189. Narain, U., et.al., (2021). "Banking on Protected Areas: promoting sustainable Protected Area tourism to benefit local communities". The World Bank.
190. De Wit, W. (2017). Not for Sale: Halting the ilegal trade of CITES species from World Heritage Sites, WWF
191. Dasgupta, S., (2017). "Marine Protected Areas suffer from lack of funds". Mongabay.
192. DeSmit, O., (2018). "Protections for African wildlife face growing threat: a lack of money". Conservation International.
193. Narain, U., et.al., (2021). "Banking on Protected Areas: promoting sustainable Protected Area tourism to benefit local communities". The World Bank.
194. Ibid.
195. Bisbey, J., (2023). "Using public policy to scale up private investment in carbon markets". IMF Blogs.
196. Convention on Biological Diversity. (2022). "Kunming-Montreal Global Biodiversity Framework global goals".
197. Lemaire, M., (2023). "Biodiversity COP15: what future for digital sequencing information?". IDDRI.
198. Basecamp Research. (2023). "The BBNJ Agreement, benefit sharing from biotechnology and Basecamp Research. Medium.
199. Van Vooren, B., (2022). "Outcome from COP15: a new global biodiversity fund paid for by life sciences companies that 'use digital sequence information on genetic resources'". Covington.
200. IRP. (2019). Land Restoration for Achieving the Sustainable Development Goals: An International Resource Panel Think Piece". International Resource Panel.
201. Eurostat. (2022). "Farms and farmland in the European Union – statistics". Webpage: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Farms_and_farmland_in_the_European_Union_-_statistics
202. Africa Regenerative Agriculture Group. (2021). "Regenerative Agriculture: an opportunity for business and society to restore degraded land in Africa".
203. GCEC (Global Commission on the Economy and Climate). (2014)."Land Use." In Better Growth, Better Climate, edited by M. Davis andG. Wynn. Washington, DC: World Resources Institute.
204. ILO, UNEP and IUCN. (2022). "Decent work in nature-based solutions, 2022". Geneva.
205. Ambler, J., (2023). "The largest mangrove restoration project in the world enters phase two". Pollination.
206. The Rise Fund. (2018). "In its second investment in Africa, The Rise Fund buys stake in leading Botswana-based ecotourism operator, Wilderness Holdings". Press release: https://therisefund.com/news/rise-fund-invests-wilderness-holdings
207. South Africa News. (2023). "Biodiversity agreements to be implemented by private rhino, lion owners in Limpopo". SA News.
208. Enterprise Asia. (2021). "Katingan Mentaya Project: PT Rimba Makmur Utama".
209. Ewer, T., et.al. (2023). "Aligning regenerative agricultural practices with outcomes to deliver for people, nature and climate". The Food and Land Use Coalition.
210. De Waal, A., (2018). "The end of famine? Prospects for the elimination of mass starvation by political action". Political Geography, Vol 62, 184-195.
211. UNCTAD. (2022). "Global Land Outlook 2". United Nations Convention to Combat Desertification.
212. Borrelli, P., et.al. (2017). "An assessment of the global impact of 21st century land use change on soil erosion". Nature Communications 8.
213. Shand, H., et.al. (2022). "Food Barons 2022". The ETC Group.
214. Dasgupta, P., et.al. (2021). "The Economics of Biodiversity: The Dasgupta Review". HM Treasury.
215. FOLU. (2019). "Growing better: Ten critical transitions to transform food and land use". Food and Land Use Organisation.
216. GIST Impact Report, 2023. "Natural Farming Through a Wide-Angle Lens: True Cost Accounting Study of Community Managed Natural Farming in Andhra Pradesh, India." GIST Impact, Switzerland and India.
217. Ibid.
218. Blended Finance Taskforce. (2020). "Better Finance, Better Food".
219. OECD. (2021). "Good blended finance practices can scale up finance for agri-SMEs", OECD Development Co-operation Directorate, Paris.
220. Ricciardi, V., (2018). "How much of the world's food do smallholders produce?". Global Food Security, Volume 17, 64-72.
221. MasterCard Foundation (2021). "Inflection point: unlocking growth in the era of farmer finance".
222. FAIRR. (2022). "Biodiversity and Nature Risks: implications for investors and policy".
223. Olsen et.al., (2023). "UNEP State of Finance for Nature"

224. Malhotra, S., (2022). “Policy seminar: repurposing agricultural subsidies can deliver better value for people, the planet and the global economy”. IFPRI.
225. Macmillan, S., (2016). “First map of smallholder farms in the developing world: they produce more than half the planet’s food calories”. ILRI Clippings.
226. FOLU. (2019). “Growing better: Ten critical transitions to transform food and land use”. Food and Land Use Organisation.
227. GBD 2017 Diet Collaborators. (2019). “Health effects of dietary risks in 195 countries”. The Lancet.
228. The EAT-Lancet 2.0 Commissioners, contributing authors. (2023). “EAT-Lancet Commission 2.0: securing a just transition to healthy, environmentally sustainable diets for all”. The Lancet.
229. FOLU. (2019). “Growing better: Ten critical transitions to transform food and land use”. Food and Land Use Organisation.
230. United Nations. (2023). “Food and climate change: healthy diets for a healthier planet”.
231. Our World in Data. (2023). “Land use per 100 grams of protein”. Webpage: https://ourworldindata.org/grapher/land-use-protein-poore
232. FOLU. (2019). “Growing better: Ten critical transitions to transform food and land use”. Food and Land Use Organisation.
233. O’Donnell, M., Murray, S., (2023). “A deeper dive into alternative protein investments in 2022: the case for optimism”. Good Food Institute.
234. Good Food Institute. (2023). “The business of alternative proteins”. Webpage: https://gfieurope.org/industry/
235. O’Donnell, M., Murray, S., (2023). “A deeper dive into alternative protein investments in 2022: the case for optimism”. Good Food Institute.
236. The World Bank. (2021). “Food Finance Architecture”.
237. EDB Singapore. (2022). “How Singapore is using alternative proteins to boost food security”. EDB.
238. Ngige, L., (2023). “Top 10 alternative protein startups brought in $1.3bn in 2022 vs $2.3bn in 2021”. AFN.
239. Vegconomist. (2022). “Danone North America plans to reformulate 70% of its milk alternatives to be healthier”.
240. Adams, J., et.al., (2020). “The Future of Nature and Business Policy Companion”. World Economic Forum.
241. Simkin, R., et.al. (2022). “Biodiversity impacts and conservation implications of urban land expansion projected to 2050”. PNAS, Volume 119, No.12.
242. Balch, O., (2023). “To get to net-zero, we will need to make mining ‘nature-positive’, says mining council chief”. Reuters.
243. WEF. (2020). “The Future of Nature and Business”. World Economic Forum.
244. ICMM. (2023). “Mining and Metals: the opportunity to contribute to the Global Biodiversity Framework”.
245. Veolia. (2023). “Mine closure management”. Webpage: https://www.veolia.com/en/climate-change/CO2-emissions/mine-closure-management
246. WEF. (2020). “The Future of Nature and Business”. World Economic Forum.
247. The World Bank. (2020). “Wastewater: a resource that can pay dividends for people, the environment, and economies”.
248. Beaumont, N., et.al. (2019). “Global ecological, social and economic impacts of plastic”. Marine Pollution Bulletin, Volume 142, 189-195.
249. Chocat, E., (2023). “Mobilizing blended finance for circular waste collection and sortation infrastructure”. Systemiq.
250. Ibid.
251. Stop Ocean Plastic. (2023). “About Project STOP”. Webpage: https://www.stopoceanplastics.com/en_gb/about/
252. Turner, J., et.al. (2021). “Investments for Green Recovery and Transformational Growth 2020-30”. Grantham Research Institute on Climate Change and the Environment.
253. Nature-as-infrastructure models are when natural capital protect assets and communities, such as mangroves avoiding flood damage costs. Source: Ring, J., et.al. (2023). “The Mangrove Breakthrough”. Systemiq.
254. Tobin-de la Puente, J. and Mitchell, A.W. (eds.), 2021. “The Little Book of Investing in Nature”. Global Canopy: Oxford. https://globalcanopy.org/wp-content/uploads/2021/01/LBIN_2020_EN.pdf
255. For example, eco-tourism contributed US$42.5 billion in benefit to the United States economy in 2021(DOI)
256. Narain, U., et.al., (2021). “Banking on Protected Areas: promoting sustainable Protected Area tourism to benefit local communities”. The World Bank.
257. Gordon, O., (2021). “Coverage: Uxolo”. Earth Security.
258. Earth Security. (2023). “M40 Cities: The Mangroves 40 Cities Network and a municipal mangrove bond fund”. Blue Climate Initiative.
259. Richards, D., (2019). “Urban ecosystems: a new frontier for payments for ecosystem services”. People and Nature, Volume 1, Issue 2, 249-261.
260. FOLU. (2019). “Growing better: Ten critical transitions to transform food and land use”. Food and Land Use Organisation.
261. Loukos, P., Arathoon, L., (2021). “Landscaping the agritech ecosystem for smallholder farmers in Latin America and the Caribbean”. IDB.
262. Dasgupta, P., et.al. (2021). “The Economics of Biodiversity: The Dasgupta Review”. HM Treasury.

263. WHO. (2022). “Reformulation of food and beverage products for healthier diets: policy brief”.
264. WEF. (2020). “The Future of Nature and Business”. World Economic Forum.
265. The World Bank. (2020). “Wastewater: a resource that can pay dividends for people, the environment, and economies”.
266. The World Bank. (2023). “Urban Development”. Webpage: https://www.worldbank.org/en/topic/urbandevelopment/overview#:~:text=Today%2C%20some%2056%25%20of%20the,people%20will%20live%20in%20cities.
267. House, E., C. O’Connor, K. Wolf, J. Israel, & T. Reynolds. (2016). “Outside our Doors: the benefits of cities where people and nature thrive”. Seattle, WA: The Nature Conservancy, Washington State Chapter, 30 pp
268. United Nations Environment Programme (2022). “State of Finance for Nature. Time to act: Doubling investment by 2025 and eliminating nature-negative finance flows”. Nairobi. Webpage: https:// wedocs.unep.org/20.500.11822/41333
269. Ibid.
270. Waldron, A., et.al. (2020). “Protecting 30% of the planet for nature: costs, benefits and economic implications”. University of Cambridge.
271. Turner, J., et.al. (2021). “Investments for Green Recovery and Transformational Growth 2020-30”. Grantham Research Institute on Climate Change and the Environment.
272. Songwe, V., Stern, N., Bhattacharya, A., (2022). “Finance for climate action: scaling up investment for climate and development”. Independent High-Level Expert Group on Climate Finance.
273. Turner, J., et.al. (2021). “Investments for Green Recovery and Transformational Growth 2020-30”. Grantham Research Institute on Climate Change and the Environment.
274. United Nations Environment Programme (2022). “State of Finance for Nature: Annex”. Nairobi. Webpage: https://wedocs.unep.org/bitstream/handle/20.500.11822/42067/state_finance_nature_annex.pdf?sequence=3&isAllowed=y
275. Deutz, A., Heal, G. M., Niu, R., Swanson, E., Townshend, T., Zhu, L., Delmar, A., Meghji, A., Sethi, S. A., and Tobinde la Puente, J. (2020). “Financing Nature: Closing the global biodiversity financing gap”. The Paulson Institute, The Nature Conservancy, and the Cornell Atkinson Center for Sustainability
276. Waldron, A., et.al. (2020). “Protecting 30% of the planet for nature: costs, benefits and economic implications”. University of Cambridge.
277. Berg, R., Ziemer, H., (2023). “The Indispensable Industry: Mining’s role in the energy transition and the Americas”. CSIS.
278. Malan, S., (2021). “How to advance sustainable mining”. IISD.
279. Brock, S., (2021). “The mine closure challenges for government and industry”. ICMM.
280. Bassi, A., et.al. (2021). “How can investment in nature close the infrastructure gap?”. IISD.

CENTER FOR
GLOBAL
COMMONS