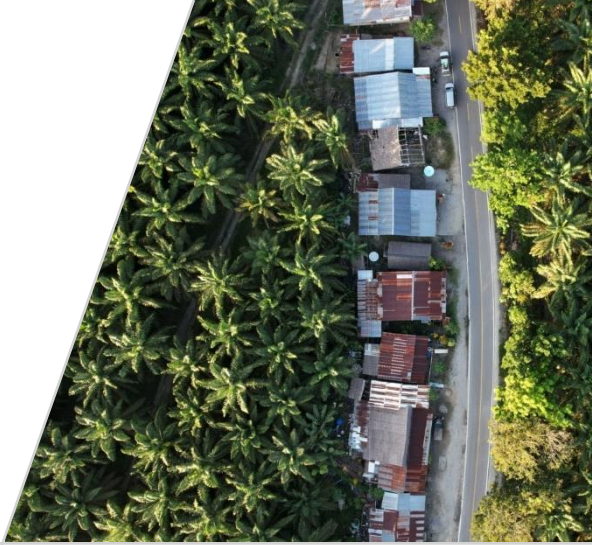
Biodiversity Finance Factbook



COP28 Edition

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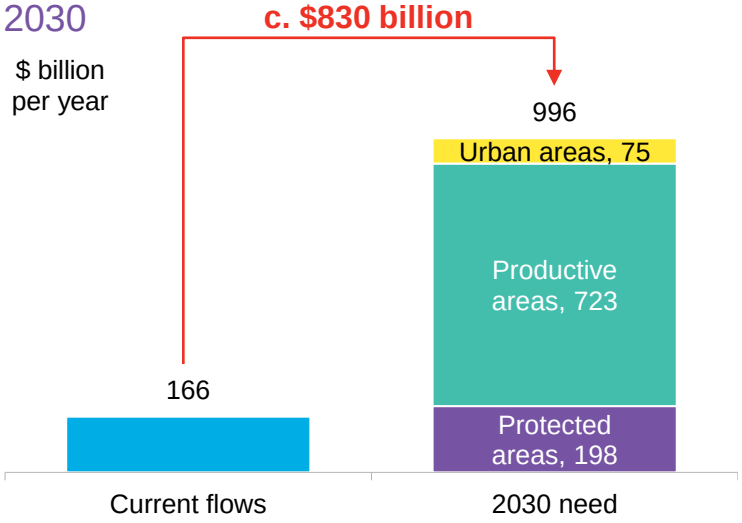
BloombergNEF

Executive summary

Finance flows into the preservation and restoration of nature have failed to rally in the year since the Global Biodiversity Framework was agreed in December 2022. Significant public and private sector funding will be required to realize the targets agreed in Montreal. This Biodiversity Finance Factbook aims to kickstart and frame discussions on current finance flows, where funding should be prioritized and how to make this happen.

- The COP28 edition of the Biodiversity Finance Factbook updates our initial analysis released in 1H 2023. Where possible, data has been updated to show progress made in 2023.
- Current biodiversity financial flows amount to some $166 billion per year, with the lion's share comprising domestic government spend. A six-fold increased is needed by 2030, according to estimates.
- The required spend is roughly one seventh the annual cost of building a net-zero emissions energy system and is far less than the anticipated economic costs of biodiversity loss: conservative estimates see global GDP trimmed by $2.7 trillion a year by 2030.
- Some 73% of the sum needed by 2030 is to sustainably manage productive land- and seascapes, with the biggest amount allocated to transitioning the agricultural sector to conservation practices in croplands.

Current annual biodiversity finance flows vs biodiversity conservation funding needs by 2030



Source: Taskforce on Nature Markets, 2022; UNEP, 2022; Paulson Institute, Nature Conservancy, and Cornell Atkinson Center for Sustainability, 2020; BloombergNEF. Note: Figure uses upper range of estimates adjusted for inflation to 2021.

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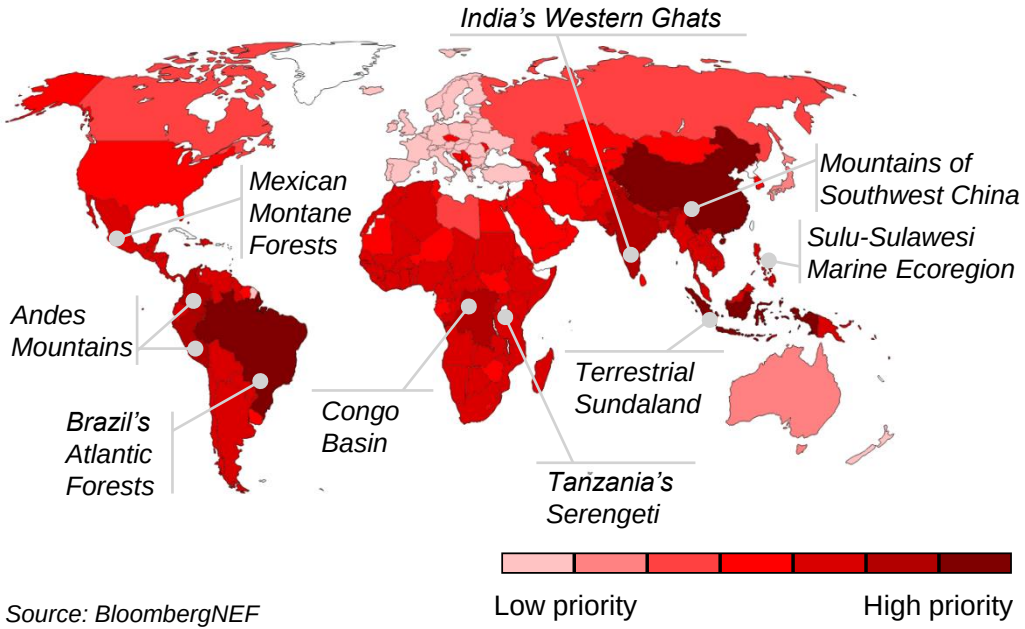
Executive summary *(continued)*

- BloombergNEF has developed a weighted framework to guide biodiversity restoration and preservation funding priorities to maximize impact. It is founded on the principle that funding is required where biodiversity is plentiful, providing value, and at risk.
- The highest funding priorities are large middle-income countries such as Brazil, China, Indonesia, and India. They perform well on biodiversity presence and threat. But their high ranking is driven by the value of ecosystem services provided by nature, due to their large economies or land mass.
- These are followed by a longer second tier of small, middle- and low-income nations. Their value scores are lower, although these are partly offset by high threat scores in some cases.
- Despite sharing common characteristics, the biomes and species in need of protection vary greatly across the priority regions. They encompass terrestrial and marine resources, plants and animals.

BloombergNEF biodiversity funding priority regions and target ecosystems



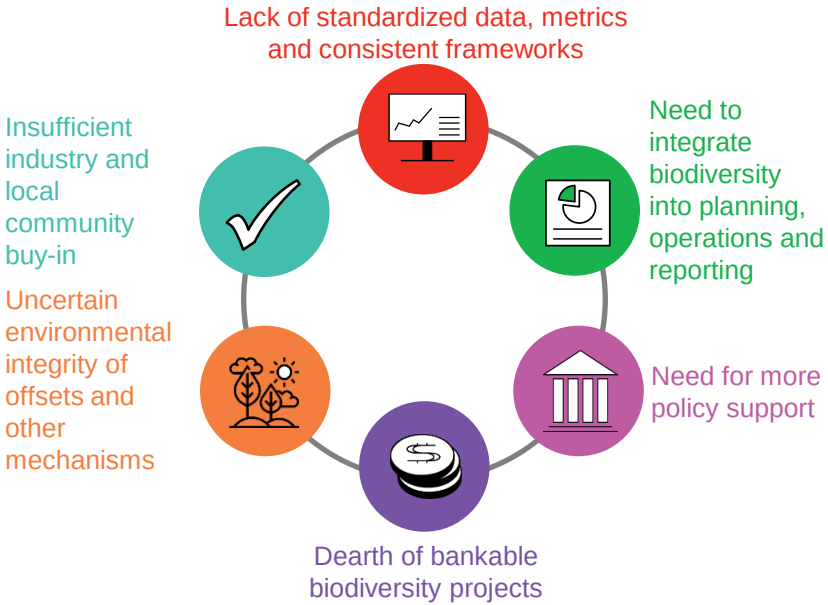
Source: BloombergNEF

BloombergNEF

Executive summary *(continued)*

- Scaling up biodiversity finance will require overcoming a range of challenges, which can be split into six main categories (see figure). Governments, companies and financial institutions need to integrate biodiversity into their risk assessments, planning processes, policies and investments.
- This poses an opportunity for the private sector to take the lead, but regulation may be required. More detailed data is needed as well as a consistent set of metrics and frameworks.
- Government should identify the abundant environmentally harmful subsidies, and repurpose these funds for nature-positive actions. New biodiversity incentives are needed, especially market-based schemes placing an economic value on nature.
- All players can support initiatives to improve the environmental rigor of offset programs, sustainable finance instruments and green commitments.
- The private sector and development financial institutions should collaborate on initiatives to promote the standardization and replicability of biodiversity projects. Blended finance has a role to play, as well as risk-mitigation mechanisms.

Principal challenges in scaling up biodiversity finance



Source: BloombergNEF

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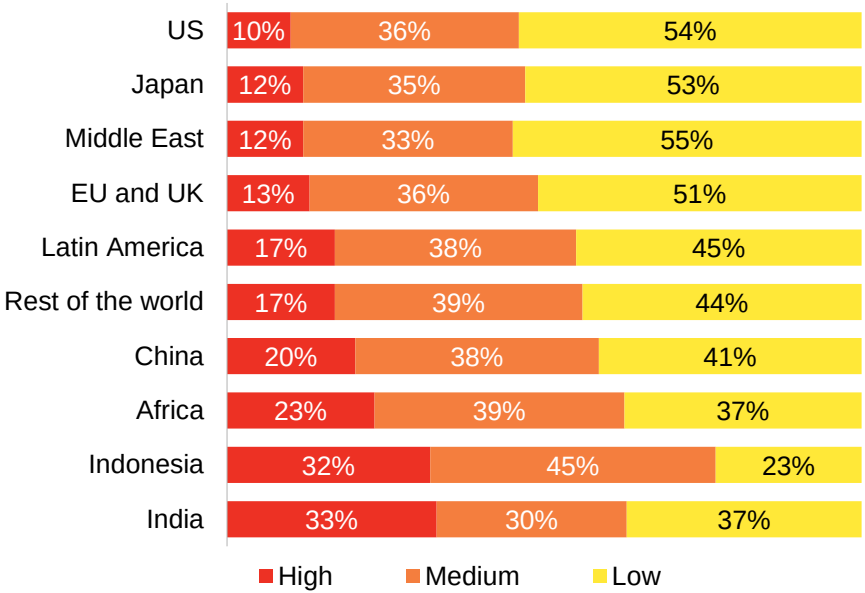
Importance of biodiversity finance

The global economy at risk

Biological diversity underpins life on Earth but is shrinking faster than at any point in human history

Distribution of nature dependency by market



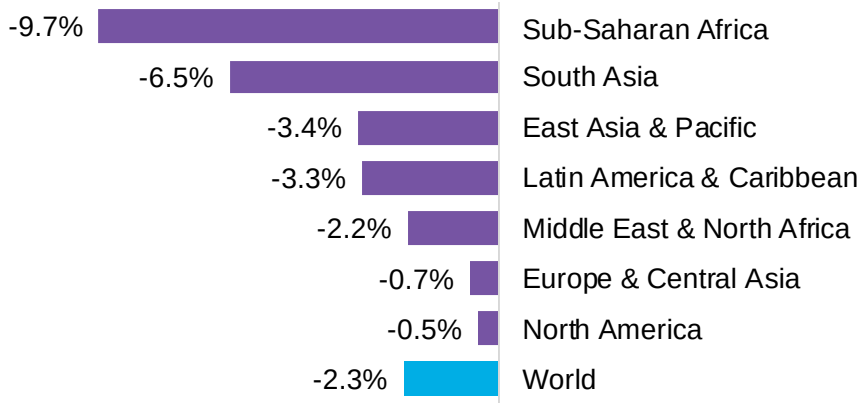
Source: World Economic Forum, Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy, 2020.

- Over half of the global economy is highly or moderately dependent on the *ecosystem services* provided by nature, according to the World Economic Forum: The totality of economic value generation is dependent on nature to some degree.
- Global GDP growth is underpinned by a reliance on the stock of natural capital and the ecosystem services that flow from it. Some of the fastest-growing economies are the most exposed to nature loss, such as India and Indonesia.
- Indeed, more than half of the world's economic output – $58 trillion of economic value generation – is exposed to material nature risk without immediate action, according to updated estimates released by PwC in April 2023.
- However, biodiversity is shrinking faster than at any point in human history, according to the peak scientific agency tracking nature, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. If we continue on the current trajectory, 30-50% of all species may be lost by mid-century.

Biodiversity loss will result in significant economic costs, even by conservative estimates

$2.7 trillion drop in global annual GDP by 2030 under partial ecosystem collapse

Change in 2030 real GDP under partial ecosystem collapse versus no-tipping-point scenario

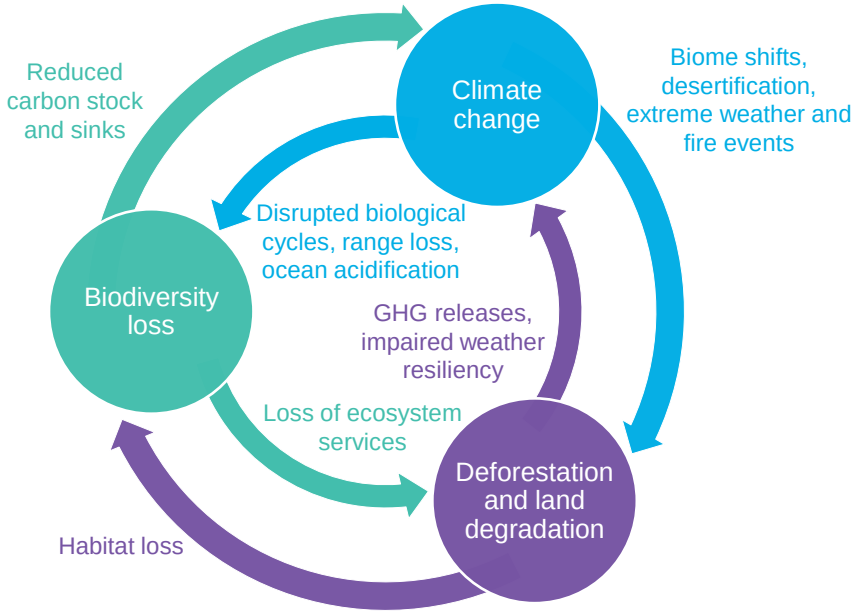


Source: World Bank, The Economic Case for Nature, 2021.

- The loss of selected services like wild pollination, provision of food from marine fisheries and timber from native forests could mean global GDP in 2030 is $2.7 trillion lower than projected levels, even by conservative estimates of only a partial ecosystem collapse. The impacts are especially severe in lower-income countries.
- As a result, nature loss is fourth in the ranking of risks with the most severe potential impact over the next decade, according to the World Economic Forum's *2023 Global Risks Perception Survey*. The related threats of climate change, natural disasters and extreme weather events make up the top three.
- For business, biodiversity loss brings physical risks with financial repercussions, such as supply-chain disruptions and price volatility, and destruction of real assets due to erosion or wildfire, for example. Companies also face transition risks such as higher costs spurred by tougher regulations to mitigate biodiversity loss, denial of permits and reputational harm, together with consumer, media and supply-chain scrutiny.

Climate change cannot be mitigated without addressing the biodiversity crisis

Biodiversity loss and climate change are inextricably linked

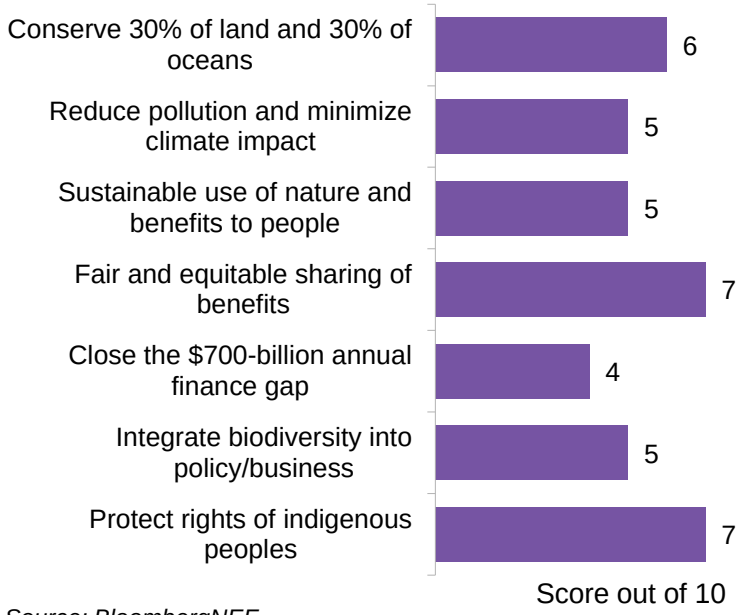


- Biodiversity loss, climate change, and land degradation are inextricably linked such that the worsening of one exacerbates the others. Conversely, addressing each individual threat lessens the dangers posed by the others.
- Biodiversity loss results in reduced organic carbon stocks and a loss of ecosystem services, both of which release GHG emissions and impair climate resiliency.
- Climate change disrupts the breeding and migration cycles of fauna and flora, alters which ecosystems are habitable, and presents threats through extreme weather and fire events.
- Climate change is one of the five core drivers that have caused over 90% of nature loss in the last 50 years. In order of impact, these are: land- and sea-use change, climate change, natural resource use and exploitation, pollution and invasive alien species.
- Most climate solutions also benefit biodiversity. However, they can present additional threats through land use change, resource extraction, establishment of monocultures and over-exploitation of natural capital.

Source: BloombergNEF, UNEP. Note: GHG refers to greenhouse gases.

Global Biodiversity Framework creates roadmap for nature restoration and preservation

BNEF's evaluation of COP15 based on seven key indicators for a meaningful outcome



Source: BloombergNEF

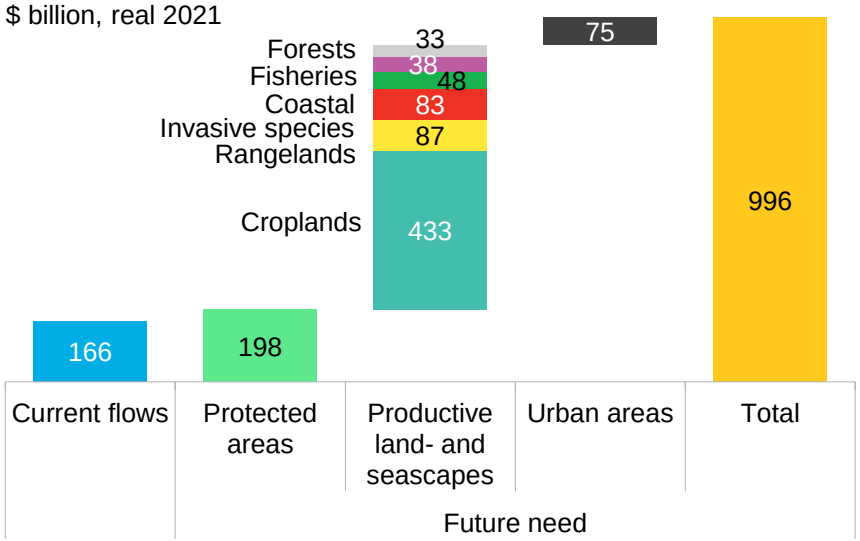
- December 2022 saw 195 nations agree on a Global Biodiversity Framework at COP15. The deal contains 23 targets for 2030 as part of a strategic pathway to 2050. Overall, BNEF rated the success of the summit at 6 out of 10 based on seven indicators. The GBF is the boldest deal on biodiversity to date and sets an overall level of ambition. But it is not legally binding – countries must implement their own policies to realize the goals.
- Parties agreed that the biodiversity funding gap is to be bridged with a combination of additional payments and the phasing out of environmentally harmful subsidies. For the first time they agreed on a quantitative target for $200 billion of total biodiversity funding per year by 2030, with $20 billion of international finance by 2025 and $30 billion by 2030.
- In addition, UN member states agreed on March 4, 2023, to a High Seas Treaty, creating a legal framework for the establishment of protected marine areas. Covering almost two-thirds of the world's oceans, the deal outlines mechanisms to conserve, sustainably use, and share the monetary and non-monetary benefits of marine biodiversity.

Finance flows

Insufficient sources of biodiversity funding

There is a gap of roughly $830 billion between current annual biodiversity financing and what's needed by 2030

Current annual biodiversity finance flows vs biodiversity conservation funding needs by 2030



Source: Taskforce on Nature Markets, 2022; UNEP, 2022; Paulson Institute, Nature Conservancy, and Cornell Atkinson Center for Sustainability, 2020. Note: Figure uses upper range of estimates adjusted for inflation to 2021.

- Current biodiversity financial flows amount to $166 billion per year, with over three-quarters ($126 billion) provided by governments. The private sector contributes just 17% through payments for ecosystem services ($10 billion), sustainable supply-chain finance ($8 billion), environmental markets ($6 billion) and impact investing ($5 billion).
- Up to $996 billion ($ 2021) per year is needed by 2030 to sustainably manage biodiversity and maintain ecosystem integrity, based on the 2020 report by the Paulson Institute, Nature Conservancy and Cornell Atkinson Center for Sustainability. This was equivalent to 0.7-0.9% of global GDP in 2022.
- Some 73% of the future funding need is to sustainably manage productive land- and seascapes, with the biggest sum allocated to transitioning the agricultural sector to conservation practices in croplands by 2030.
- The upper estimate for future funding needs yields a gap of some $830 billion per year. Note that these are initial estimates, based on the limited data available, reporting inconsistencies and assumptions required. Read more on data challenges.

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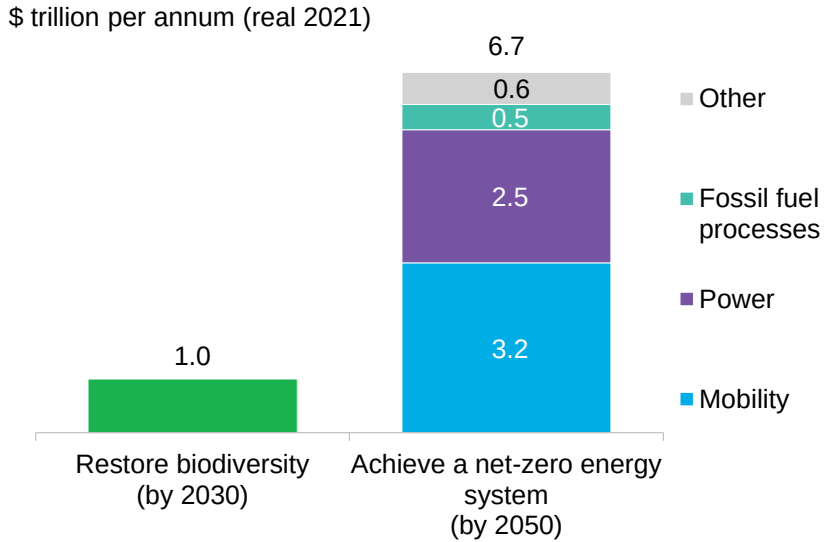
Restoring biodiversity is one-seventh as costly as building a net-zero emissions energy system

Annual expenditure required to achieve environmental outcome



Source: BloombergNEF Note: Energy system investment requirements taken from the 'Net Zero Scenario' of the BloombergNEF New Energy Outlook 2022 (web | terminal).

- Investment in measures to avert biodiversity loss and climate change both need to increase by a factor of five times or more. Biodiversity funding needs to reach roughly the same level that's currently being invested to decarbonize the energy system, based on BloombergNEF data and analysis.
- The annual funding required to restore and preserve biodiversity is equivalent to approximately 15% of the investment needed to achieve a net-zero emissions energy system. In scale, it compares to the $1.2 trillion per annum investment in renewable generation that is required by 2050, and the $0.7 trillion per annum required to ensure power grids can manage a net-zero emissions system.
- Restoring biodiversity requires less than a third of the annual spend required to achieve net-zero mobility emissions, and less than half the investment needed to build a net-zero power sector.
- The funding objectives are complementary. Actions taken to lower emissions will in most cases be positive for biodiversity: Nature preservation will typically provide a climate or climate-resilience benefit.

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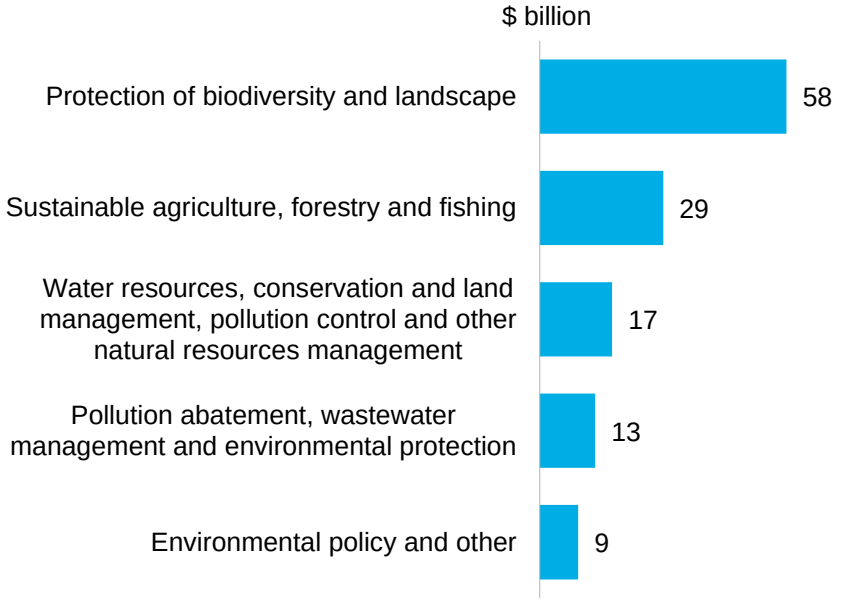
Government support for domestic projects accounts for almost three-quarters of biodiversity finance

Breakdown of current public finance into biodiversity

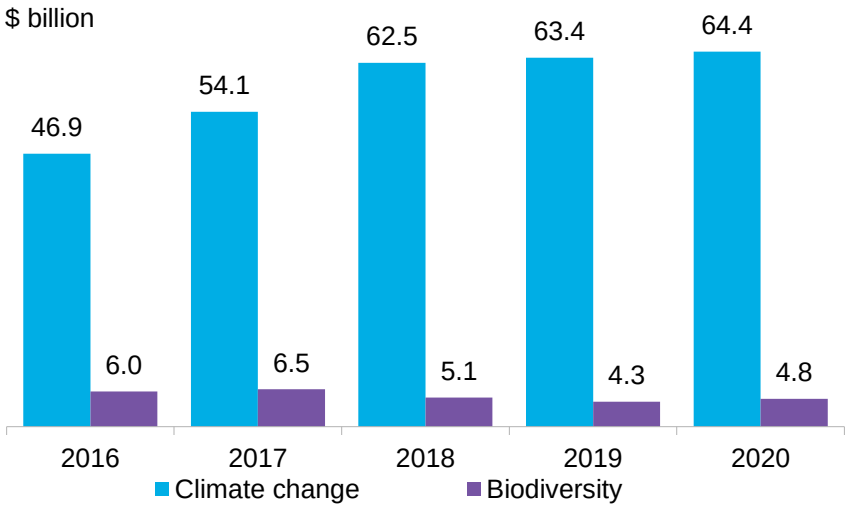


Source: UN Environment Programme, State of Finance for Nature 2022.

- Public finance – that is government spending and tax breaks – drives most biodiversity conservation. Almost 98% of this support is spent domestically, with only 2% going to official development assistance (ODA).
- The $126 billion total is the mid-point between upper and lower bounds, based on UNEP's 2022 *State of Finance for Nature* report. Almost half comprises public support explicitly allocated to biodiversity protection. The remainder will fund projects that will likely mitigate biodiversity loss – for example in sustainable agriculture and wastewater management.
- Almost half of the total is spent on the protection of biodiversity and landscapes, with investment into sustainable practices in agriculture, forestry and fishing accounting for a quarter.
- This figure is comparable to other estimates: for example, a 2020 report by the Paulson Institute, Nature Conservancy and Cornell Atkinson Center for Sustainability had an estimate of some $104 billion in 2019, including domestic budgets, tax policy and public grants and contracts for watershed protection.

Government funding for overseas climate projects is 11 times higher than biodiversity-related support

International public finance for climate change and biodiversity

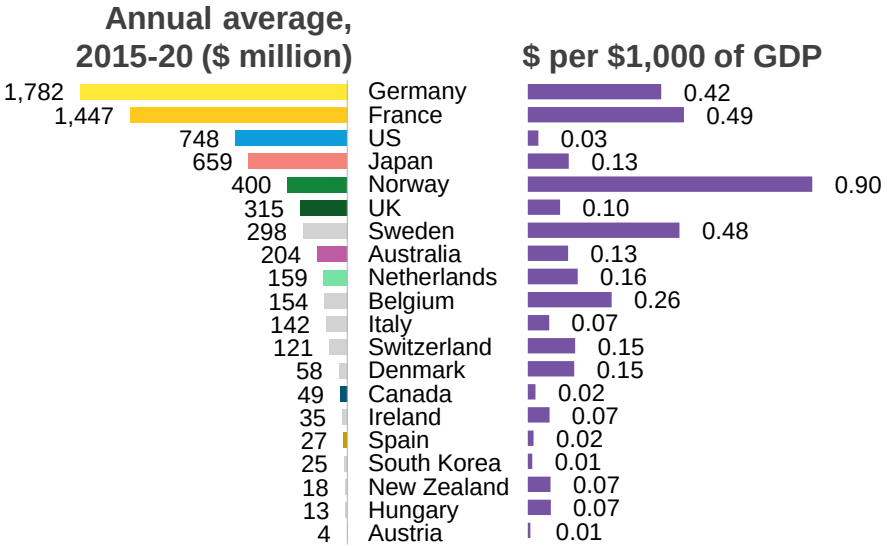


Source: OECD data. Note: Biodiversity finance comprises ODA under UN Sustainable Development Goal indicator 15.a.1 minus revenue from biodiversity-related economic fees, charges and taxes from the OECD PINE database. Given that biodiversity loss and climate change are related fields, there may be some overlap in the data.

- Biodiversity-related official development assistance (ODA) averaged some $5.3 billion per year over 2016-20, based on OECD data. This is only a slight (8%) increase on the average for the preceding five-year period. Global ODA across all sectors totalled some $161 billion in 2020.
- Climate change attracts significantly more international public finance than biodiversity: Climate-related bilateral and multilateral funding averaged $58 billion over 2016-20.
- Developed countries have been under increasing pressure to deliver on their target agreed in 2009 for $100 billion per year of climate finance by 2020. In contrast, countries only agreed to their first quantitative finance target for biodiversity at COP15 last year.
- More broadly, climate change is seen as a bigger risk by companies (see above) and the public, and attracts much greater media coverage.

Germany, France and the US are the biggest donors of international public finance

Biodiversity-related official development assistance by donor

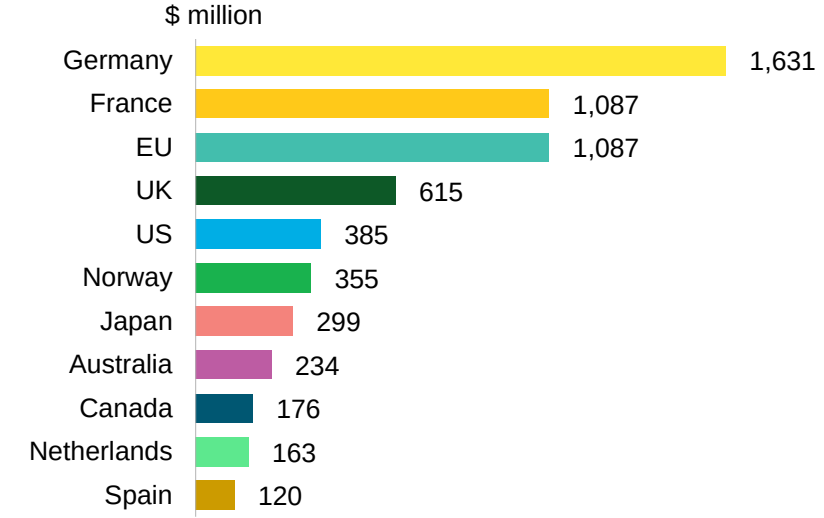


Source: OECD data. Note: Biodiversity finance comprises ODA under UN Sustainable Development Goal indicator 15.a.1 minus revenue from biodiversity-related economic fees, charges and taxes from the OECD PINE database.

- Biodiversity donors come from a relatively small pool: five countries (Germany, France, US, UK and Japan) accounted for three-quarters of 2016-20 funding.
- However, other nations are bigger donors compared with the size of their economy: Norway, for example, allocated $0.90 to biodiversity overseas for each $1,000 of GDP. This compares with $0.03 for the US and $0.10 for the UK.
- In contrast, funding is distributed to a much wider range of countries, although many are located in biodiversity-rich emerging markets like Asia, Latin America and Africa.
- At the top comes Colombia, which attracted 8% of public finance for developing countries on average over 2016-20. India follows with 5%, and Brazil and Indonesia each had 3%.
- Data reflecting changes since the Global Biodiversity Framework was agreed have not yet been made available.

New government pledges and main UN funding facility fall well short of $20 billion target

Bilateral international public finance for biodiversity announced in joint donor statement

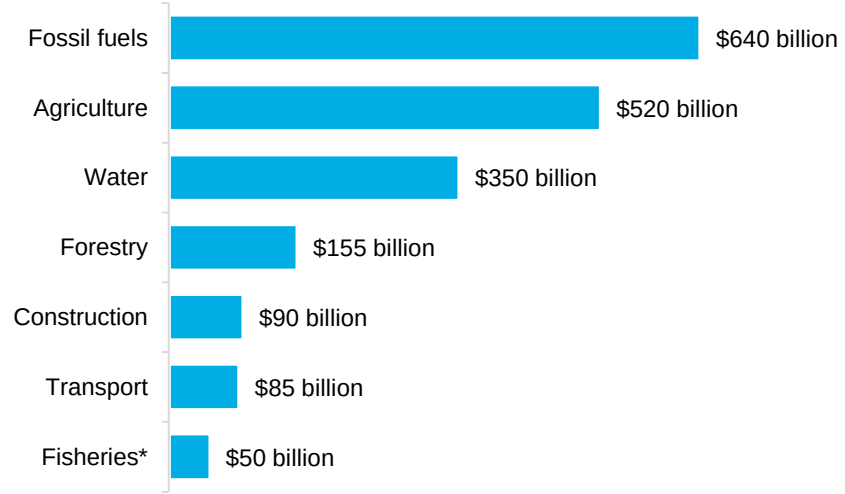


Source: Governments' joint donor statement. Note: Includes bilateral finance only. Assumes funding is split into equal annual increments over the relevant period. Norway said it would "significantly increase" nature finance but did not specify an amount so the figure assumes it maintains current levels of support.

- In Montreal last year, parties agreed to reach $20 billion in annual international finance for biodiversity by 2025 and $30 billion by 2030. Any nation can be a donor, but developed countries will likely be expected to provide the lion's share.
- Indeed, during COP15 some developed country governments announced new pledges for international biodiversity finance totalling some $6.2 billion in a joint donor statement.
- For nations such as the UK, Australia and the Netherlands, their pledges would mean a higher or similar level of support than recent years. However, for others like Germany, France, Japan and the US, their new commitments would mean a reduction compared with the 2016-20 average (see above).
- The $20 billion target for 2025 includes multilateral funding such as the UN's existing biodiversity financing mechanism, the Global Environment Facility (GEF) with $1.9 billion allocated for 2022-26.
- In August 2023, the GEF announced the launch of the Global Biodiversity Framework Fund following the combined commitment of over $200 million by Canada, Germany and the UK.

At least $1.8 trillion per year is spent on subsidies that accelerate the production or use of natural resources or undermine ecosystems

Environmentally harmful government subsidies (per year)

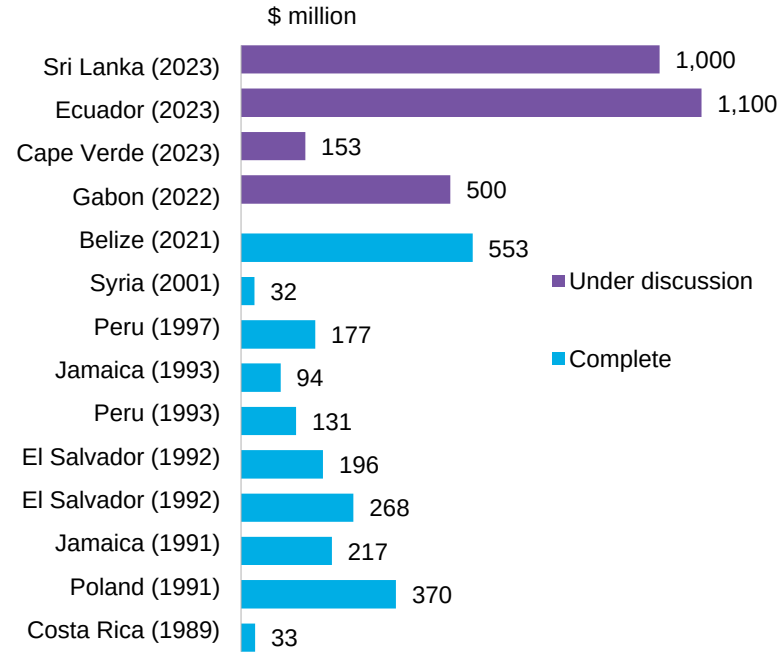


*Source: Koplow, D. and Steenblik, R., Protecting Nature by Reforming Environmentally Harmful Subsidies: The Role of Business, February 2022; BloombergNEF. Note: *Marine capture fisheries. Figure excludes subsidies for hard rock mining as the sum is unknown.*

- A significant source of funding could come from repurposing government support that is harmful to nature. Parties agreed in Montreal to identify such subsidies by 2025 and “eliminate, phase out or reform” them by 2030, with an overall goal to cut the spending by at least $500 billion per year by 2030.
- Estimates of subsidies harmful to biodiversity vary. Agriculture alone stands at some $520 billion per year, rising to $1.8 trillion when taking account of support for fossil fuels and other environmentally harmful subsidies.
- Scrapping such subsidies would free up government funding for nature-positive projects and weaken negative externalities, although subsidy reform can be politically challenging. While the G-20 countries agreed in 2009 to phase out “inefficient” fossil-fuel subsidies, they have made limited progress to date. One reason is that nations have yet to define “inefficient” and “subsidies”, giving governments wiggle room to interpret the commitment as they wish. Without clarification of what is meant by “subsidies harmful for biodiversity”, the GBF target will also be at risk of self-determined interpretations.

Almost $2 trillion of foreign debt could be eligible for restructuring to boost biodiversity investment

Debt-for-nature swaps made since 1989

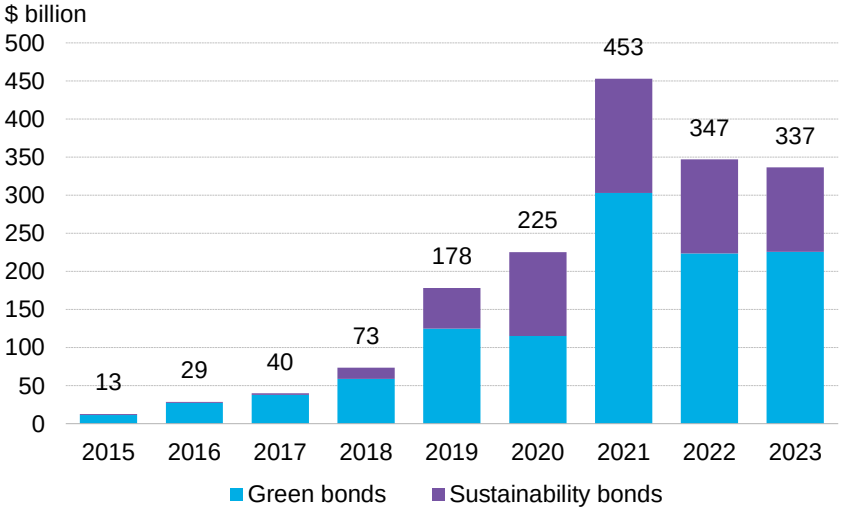


Source: BloombergNEF, African Development Bank Group.

- Debt-for-nature swaps typically allow an emerging economy to restructure debt at a lower interest rate or longer maturity, with the proceeds being allocated to conservation or green projects. As much as $2 trillion of developing country debt may be eligible for this kind of restructuring, according to a rough estimate by The Nature Conservancy.
- A flurry of such deals was announced in the 1980s and 1990s, followed by a hiatus until a few years ago. The recent resurgence in interest has been due to deals arranged by The Nature Conservancy as well as a debt crisis for developing nations catalysed by the Covid-19 pandemic, the fallout from Russia's invasion of Ukraine, and rising interest rates.
- However, there are concerns of potential greenwashing where the lion's share of the proceeds are not spent on environmental projects. Such cases are not prohibited on legal grounds, but they do raise reputational risk. Other barriers to debt-for-nature swaps are the need for robust preparation and monitoring, as well as high transaction costs. It is also not clear that such deals achieve long-term financial stability for the developing country.
- In 2023, there have been updates to debt-to-nature swaps under discussion. Estimated debt swaps with Ecuador and Cape Verde increased, whilst Gabon's swaps decreased.

Biodiversity-related bond issuance remains subdued in 2023

Green and sustainability bond issuance with biodiversity-related use of proceeds

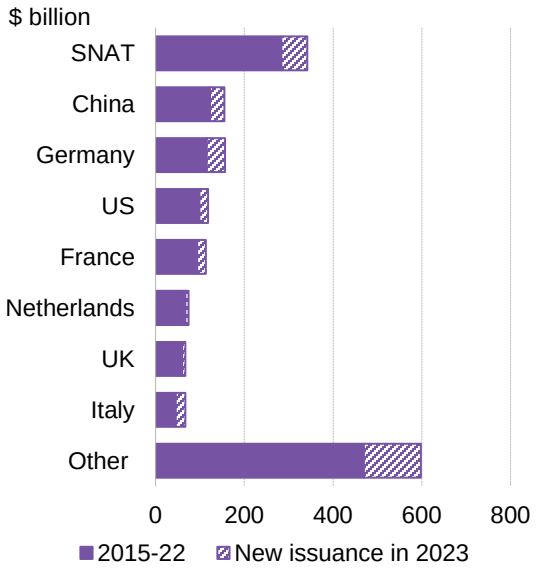


Source: BloombergNEF, Bloomberg Terminal. Note: Figure is based on use-of-proceeds data and therefore represents a maximum that could be allocated to biodiversity activities. Data through to October 2023.

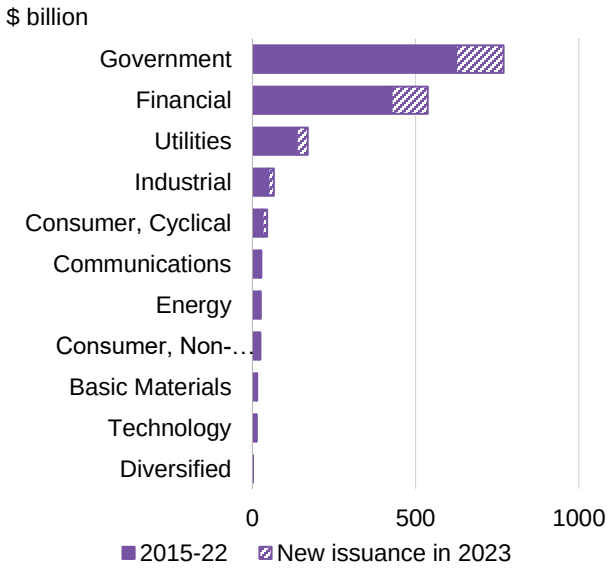
- Sustainable debt has surged in recent years thanks to the climate transition. For more detail on how sustainable finance is tracked, see the Appendix. Nearly $1.7 trillion of green and sustainability bonds over 2015-23 were earmarked for biodiversity activities as potential use of proceeds, such as forest conservation and nature-based solutions. This equates to almost half of green and sustainability bond issuance over the period, although a much smaller share was likely spent on biodiversity in practice.
- During 2023 biodiversity-related bonds have stabilized across sustainable debt markets, although levels are still over $100 billion below 2021. This decline was driven by factors including the general global economic downturn, high interest rates and increased scrutiny and skepticism around “greenwashing”.
- In addition, 2021 had seen an unprecedented increase in sustainable finance, with the rise of net-zero targets and momentum around COP26 in Glasgow.

Supranational organizations and governments continue to leaders in biodiversity bonds

Share of biodiversity-related bond issuance by country



Share of biodiversity-related bond issuance by industry

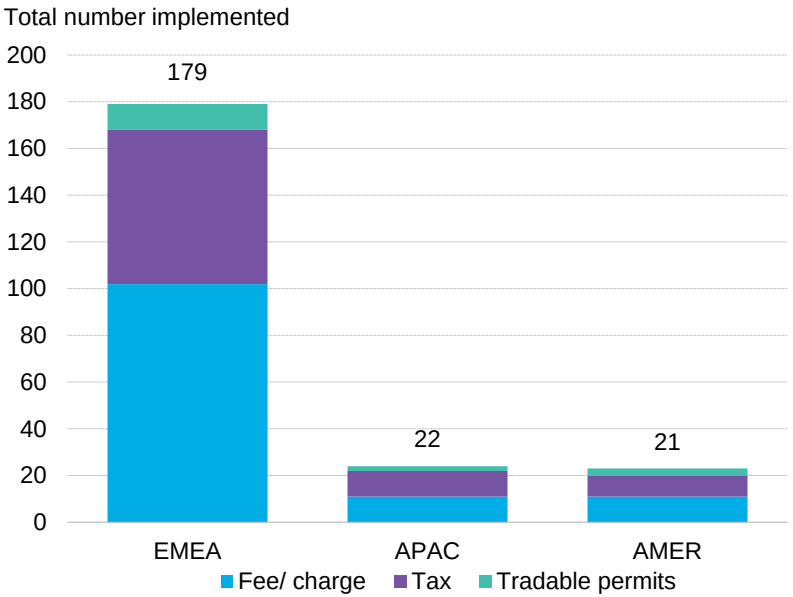


Source: BloombergNEF, Bloomberg Terminal. Note: SNAT refers to supranational organizations, e.g. UN and EU. Consumer (non-cyclical) sectors will continue to do well even during an economic downturn. Consumer (cyclical) sectors rely heavily on the economic conditions.

- A small number of nations dominate biodiversity bond issuance. Most are developed countries with strong climate credentials and mature financial markets.
- Issuance among top countries in 2023 is in line with their levels in previous years. Supranational organizations (SNAT) – which issue debt in order to lend to other organizations – accounted for the largest share of biodiversity-related bond issuance.
- The market is diversifying. Other nations issued 38% of new biodiversity-related bonds in 2023.
- Governments issued 45% of biodiversity-related bonds over 2015-23, followed by the finance sector (32%). This is partly because it is easier for such players to earmark large sums for biodiversity-related projects. These sectors led again in 2023, together issuing 81% of bonds.

A total of 52 countries have implemented 222 national-level biodiversity taxes, fees/charges and tradable permit schemes

Regional biodiversity-relevant economic instruments

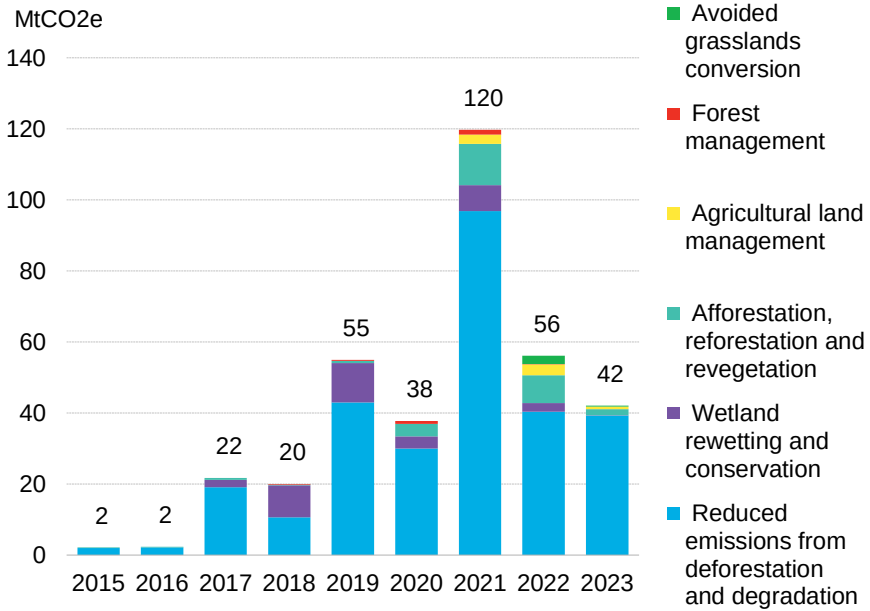


- Governments are introducing economic instruments to promote more sustainable use of biodiversity and raise revenue for nature conservation. The most common are fees/charges on, for example, entry to parks, hunting licenses and sewage discharge, accounting for 73% of the schemes. With an 18% share, taxes can be applied to pesticides, fertilizers and forest products, for example. Tradable permit schemes limit the amount of a natural resource that can be exploited (through activities like fishing and hunting).
- In most countries, these programs are implemented by the national government, with EMEA governments administering 75% of all biodiversity-related taxes. But some countries – notably the US, Canada, Australia, Belgium and Germany – also have a range of state-level programs. Biodiversity-relevant taxes across all countries in the PINE database generated an average of $8.9 billion per year over 2017-19, although this was less than 1% of all environmentally-relevant fiscal revenue.

Source: OECD PINE database, BloombergNEF.

Carbon offset supply from projects with biodiversity co-benefits has fallen by 23% in 2023

Carbon offsets issued from projects with potential biodiversity co-benefits

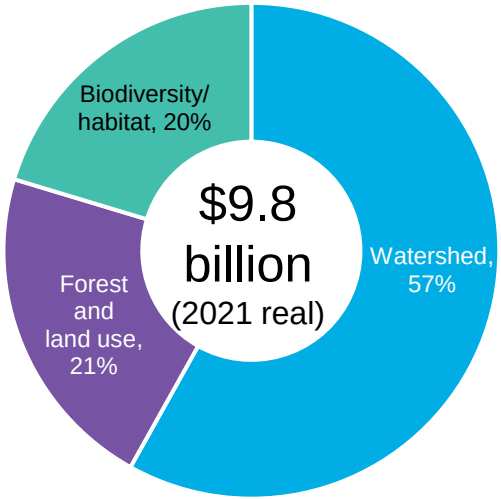


Source: BloombergNEF, Verra. Note: Includes offsets from projects allocated to Biodiversity Gold/Silver or CCB Gold/Silver.

- A growing number of agriculture, forestry and other land use (AFOLU) projects bring "co-benefits" – that is, advantages in addition to decarbonization, such as nature conservation and restoration. One of the four major offset registries, Verra, has created the Climate, Community and Biodiversity Standards to earmark projects with these co-benefits. Some 356 million such offsets have been issued since 2011 – equivalent to Poland's annual greenhouse-gas emissions.
- Projects with such co-benefits tend to be valued higher: the highest-priced reforestation projects – located in markets like China and Tanzania – all have Verra's CCB verification. The largest number of REDD+ offsets in 2023 (4,072,513) came from the Cordillera Azul National Park REDD Project, which aims to support all efforts to avoid deforestation and forest degradation.
- Such offsets could provide a significant source of biodiversity finance for developing countries. However, today these projects are heavily concentrated in certain nations: two-thirds of offsets with biodiversity co-benefits came from projects in Brazil, Cambodia, China, Peru, and Colombia.

Payments for ecosystem services attract significant funding globally but are poorly tracked

Global annual flows into payments for ecosystem services



Source: BloombergNEF; total figure – OECD, A Comprehensive Overview of Global Biodiversity Finance, 2021; breakdown is based on upper estimates of Salzman, J., Bennett, G., Carroll, N., Goldstein, A. and Jenkins, M., 'The Global Status and Trends of Payments for Ecosystem Services', Nature Sustainability, 2018; OECD, 2020 .

- Under a payment-for-ecosystem (PES) program, the user or beneficiary of an ecosystem service pays the resource owner or manager to change their land-management practices. While in some cases governments pay on behalf of citizens (indirect beneficiaries), the private sector is increasing its role in PES schemes.
- These comprise the largest share of private financial flows in our estimate of biodiversity funding above. This uses the $9.8 billion per year estimate based on OECD research of 153 PES schemes in 37 countries. However, other estimates are far higher: a 2018 overview counted 550 active PES programs, comprising $36-42 billion in annual transactions.
- PES relating to watersheds (areas of land that drain water into a specific water body) account for the most funding, followed by forest and land-use carbon. However, ecosystem services are often not well defined and there is a lack of data and international standards on PES costs and benefits. Other challenges are payment volatility, equity, insecure land and resource tenure, high project costs and red tape.

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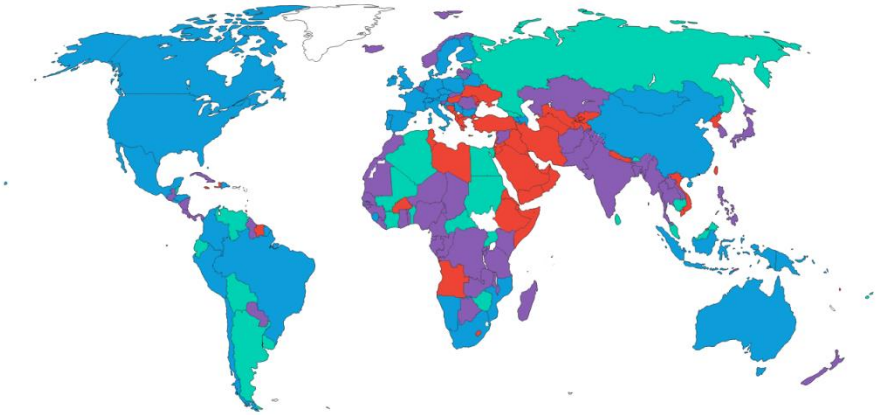
Biodiversity offsets markets attract $6-9 billion in annual financing, and are expected to reach over $160 billion by 2030

Regional biodiversity offset policies

Over 100 markets have laws or policies requiring offsetting in place, though many are poorly defined, enforced and tracked.



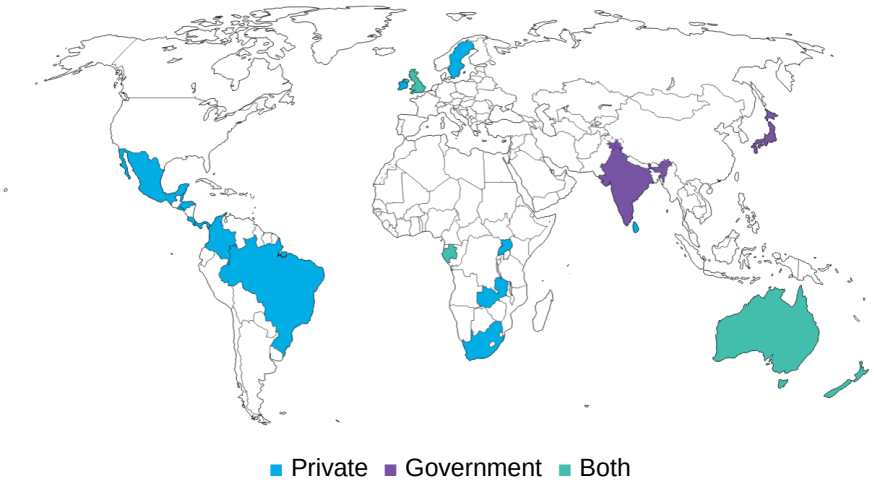
Source: BloombergNEF, IUCN Global Inventory of Biodiversity Offset Policies

- Finance mobilized by biodiversity offsets is estimated at $6-9 billion per year, with most from projects such as wetland and stream mitigation banks. These are areas that are preserved, restored, created or enhanced, to compensate for unavoidable impacts elsewhere, like the loss of streams and wetlands.
- Offsets are part of the mitigation hierarchy, which is meant to help users to lessen their negative impacts on nature. These certificates are purchased to compensate for unavoidable biodiversity loss in development projects, while credits are tradable units of biodiversity with a nature-positive outcome.
- Despite the global prevalence of this instrument, biodiversity offsets face criticism for several reasons, notably their lack of effectiveness. Many schemes have failed to achieve so-called no net loss or biodiversity net gain (BNG), in part due to difficulties in determining equivalence between biodiversity loss in one area and uplift in another location.
- Research from the International Union for the Conservation of Nature (IUCN) suggests that of countries claiming to have offsetting regulation in place, 77% do not properly enforce it.

Biodiversity credit markets and certificates are becoming more established, but do not yet account for a major source of finance

Biodiversity credit and certificate schemes

Private and government-led schemes have been created in over 20 regions in the last two years

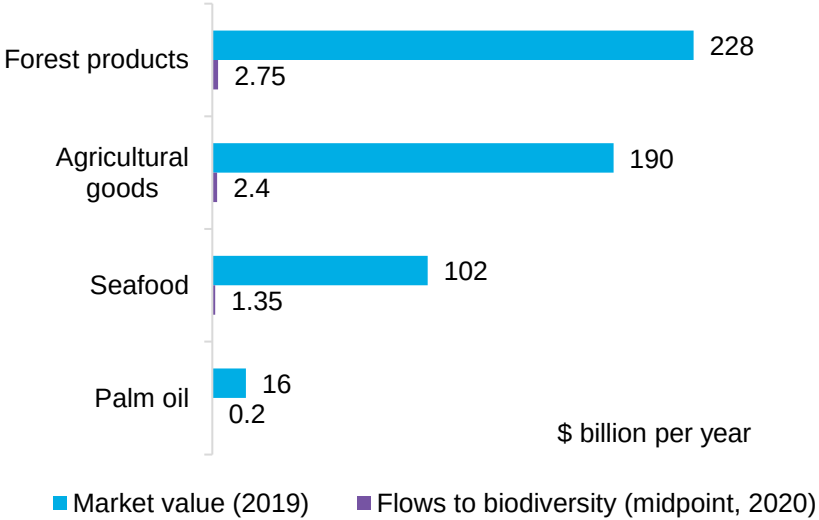


Source: BloombergNEF. Note: Includes existing and proposed schemes as of November 2023.

- Biodiversity credits are distinct from offsets and have different conservation outcomes. Also called biocredits, biodiversity certificates, and nature credits, each is a voluntary unit created to generate biodiversity uplift. They are mentioned explicitly in target 19 of the Global Biodiversity Framework as a means of increasing private finance flowing into conservation.
- While credit supply is flourishing, driven by schemes in Latin America, few buyers have committed to purchases despite rising interest. Over the longer term, supply may be the limiting factor due to scaling challenges, measurement, transparency and monetization. In addition, investment in biodiversity certificates could cannibalize investment in carbon markets.
- A lack of consistency between schemes, including unit size, conservation period, and monitoring and reporting rules, is slowing the market from scaling.
- In October 2023, progress on a flagship government-enabled market in Australia slowed after the senate committee requested an extension until 2024. Several other governments are assessing the viability of similar systems.

At some $8 billion a year, sustainable supply-chain investment comprises a large share of current private-sector biodiversity finance

Market value and financial flows associated with sustainable supply-chain management allocated to biodiversity

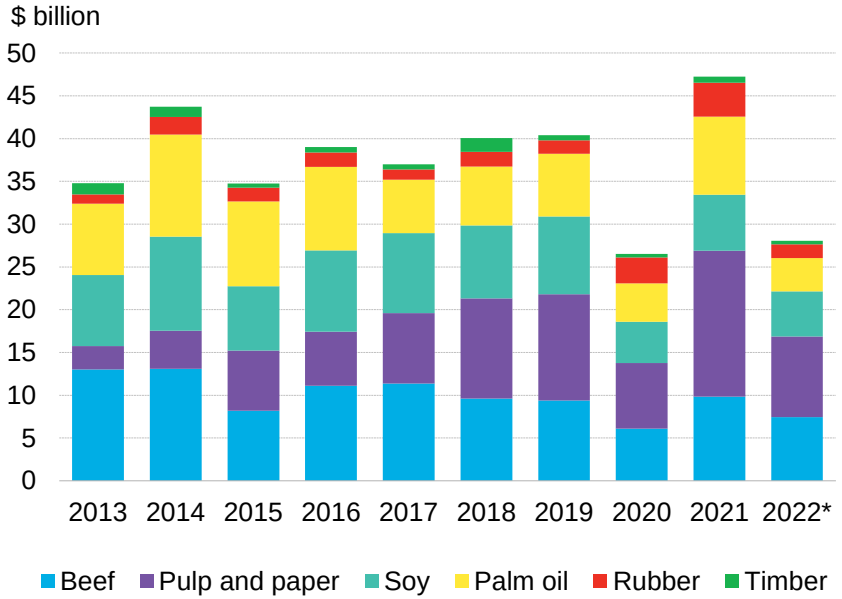


Source: BloombergNEF; the Paulson Institute, the Nature Conservancy, and the Cornell Atkinson Center for Sustainability, 2020.

- Global supply chains have generally had a negative effect on nature. Some $8 billion (in 2022 US dollars) in supply-chain investment may be allocated to biodiversity, according to UNEP. But this is growing slowly and pales into insignificance compared with overall market value for those products.
- Companies have varying levels of influence and resources to invest in sustainable supply chains. Involved in 80% of global trade, multinational corporations have significant sway over the suppliers and producers in their supply chains.
- But few companies take account of their nature-related impact and dependencies via supply chains. Some have made sustainable commitments (mostly related to deforestation). However, implementation of these pledges is hindered by the lack of guidance, reporting and monitoring frameworks.
- Companies have four main mechanisms to improve supply-chain impacts on nature: improved corporate policies, standards and implementation, third-party sustainability standards, sustainable jurisdiction and landscape-level sourcing, and conservation-focused management of naturally sourced ingredients.

Exposure to deforestation-linked commodities is an emerging risk for banks

Debt finance exposed to deforestation risk, by commodity type



*Source: BloombergNEF, Forests & Finance. Note: *Data as of September 2022.*

- Banks face increasing pressure to help address environmental harm, and in turn minimize transition risk exposure of their institutions, shareholders and clients. To date, banks have been focused on climate change. Nature loss is a newer and less developed theme.
- Banks enabled debt finance totaling over $370 billion in the decade to 2022 to companies operating in six commodity sectors responsible for around 70% of deforestation – beef, pulp and paper, soy, palm oil, rubber and timber. These commodities are considered at-risk of driving deforestation by the non-governmental organization Forests & Finance.
- Provision of debt finance that was exposed to deforestation risk averaged above $34 billion per year, with a slight upward trend over the period, excluding the Covid-19-induced slowdown in 2020 and incomplete data in 2022.
- Pulp and paper companies saw the largest increase in at-risk finance provision over the period. While deforestation risk exposed debt finance to beef, soy and palm fell slightly over the period, it continues to constitute a substantial share of at-risk financial flows.

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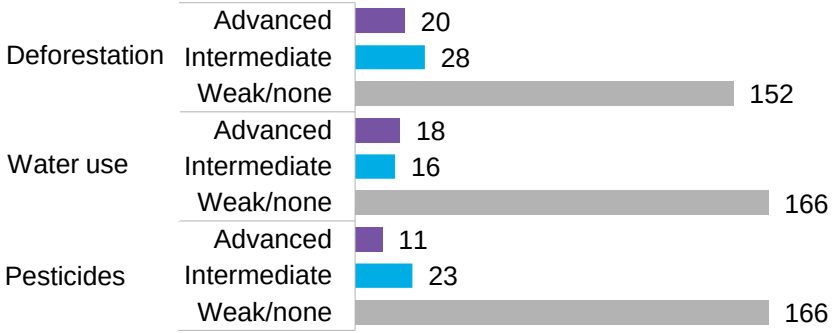
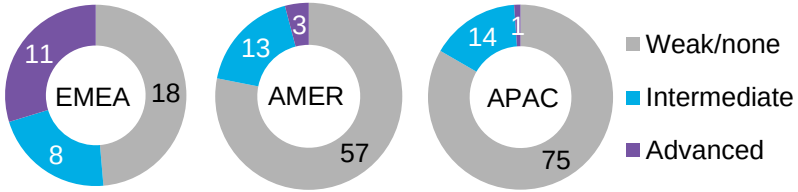
Three quarters of banks have weak or no policies to limit lending that could be harmful to nature

Lending policies of the 200 largest providers of debt finance to at-risk sectors



Bank lending policy stringency by region



Source: BloombergNEF, bank documents, Forests & Finance. Note: Top 200 banks by financing of consumer staples.

- Over the past decade, leading banks around the world have begun to develop a variety of lending policies to manage and reduce their exposure and lending to environmentally detrimental activities. These environment policies target some (but not all) of the drivers of nature loss.
- The majority of policies seek to reduce deforestation, protect water quality, and lower the use of pesticides. Policies that seek to reduce the over-exploitation of resources, pollution, and invasive alien species are less common.
- BloombergNEF analysis of the largest 200 lenders to at-risk sectors shows that over three quarters have no, or only weak environmental lending policies across the three key risk areas of deforestation, water use and pesticides. An overwhelming majority have very weak or non-existent policies in at least one area, with only 8.2% of all policies assessed attaining an ‘advanced’ rating.
- While policies are lacking in all three areas, banks are beginning to consider deforestation in positioning statements. More institutions receive ‘advanced’ or ‘intermediate’ grades for deforestation policy than for water use and pesticides. There are clear differences between regions.

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Funding priorities

Where to direct finance for maximum impact

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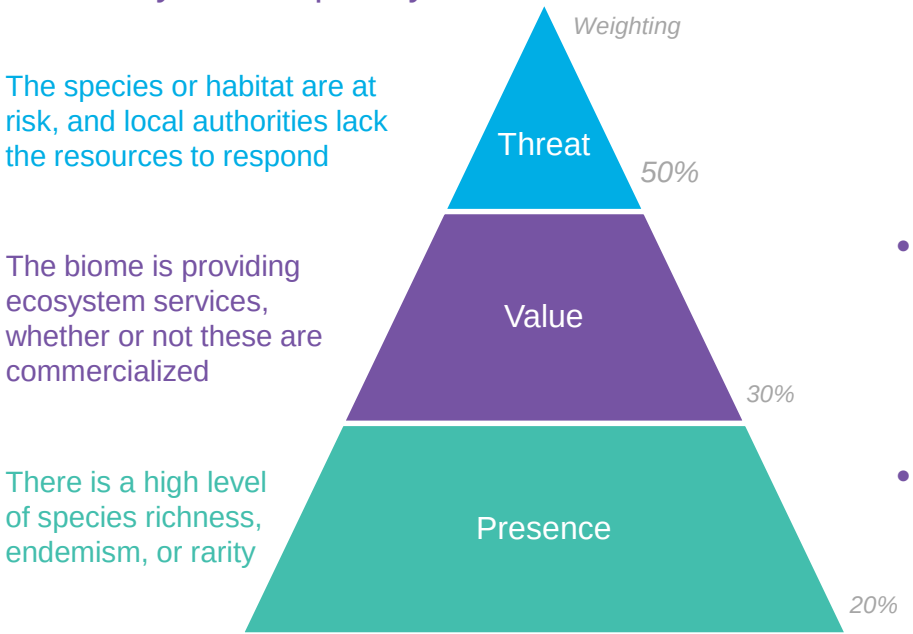
Funding is required where biodiversity is plentiful, providing value, and at risk

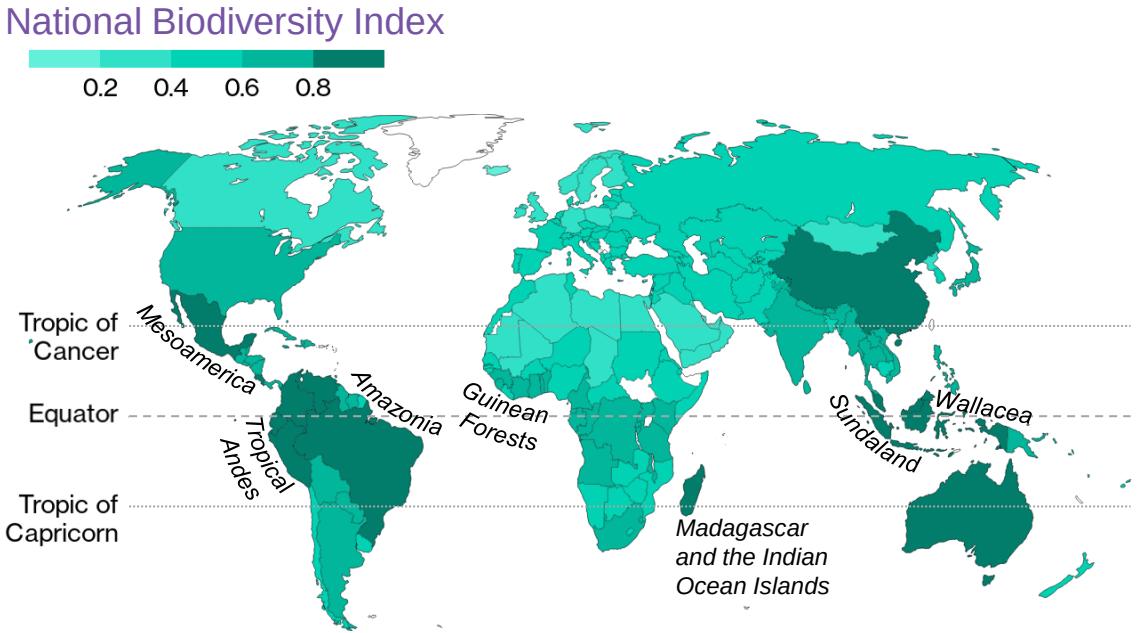
Biodiversity finance priority indicators



Source: BloombergNEF

- BloombergNEF has developed a weighted framework to guide biodiversity restoration and preservation funding priorities to maximize impact. This framework comprises three indicators of countries that would benefit from external funding and intervention: the *presence* of biodiversity, *value* of ecosystem services provided by nature, and degree to which these resources face *threats* which can be overcome by support or intervention.
- A biodiversity funding priority region will have a high degree of species richness, endemism, or rarity providing unvalued or under-valued ecosystem services that support the local and global economy. It is located within a jurisdiction that lacks the financial means or authority to protect the resource from human population pressures, extractive and agricultural industries, or illegal trade.
- Lower funding priorities include regions lacking biodiversity, where the ecosystem services do not support economic activity, where the host nation has sufficient financial resources to manage the nature loss themselves, or where funding outcomes could be diluted by corruption.
- The weighted scores were last updated in 1H 2023.

Biodiversity hotspots indicate species richness and endemism

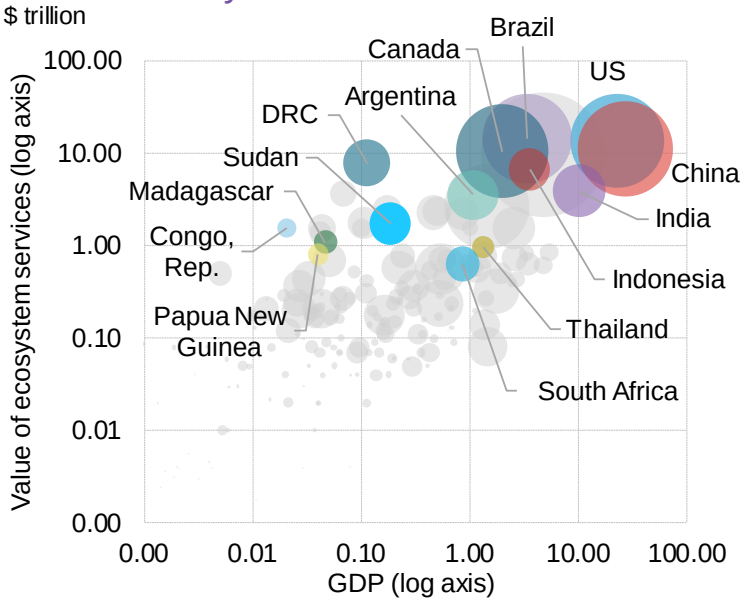


Source: BloombergNEF, CBD. Note: Index based on estimates of country richness and endemism in four terrestrial vertebrate classes and vascular plants; vertebrates and plants are ranked equally; index values range between 1.000 (maximum: Indonesia) and 0.000 (minimum: Greenland). The National Biodiversity Index includes some adjustment allowing for country size. Countries with land area less than 5,000 square kilometers are excluded. Overseas territories and dependencies are excluded.

- Biodiversity increases around the tropics where the environment causes increased selection pressure, forming new species (such as Brazil and the Amazonia).
- Biodiversity hotspots can also occur in isolated habitats like islands, mountains and valleys, forcing species to diverge (such as Indonesia and Wallacea).
- Low index scores suggest a region's conditions either do not promote diversity (Middle East, Scandinavia) or have anthropogenically damaged their biodiversity (Western Europe).
- The biodiversity index is a function of the number of species in a location (richness) and the number found *only* in that location (endemism).

Nature provides unvalued or under-valued services to the local and global economy

Value of ecosystem services vs GDP



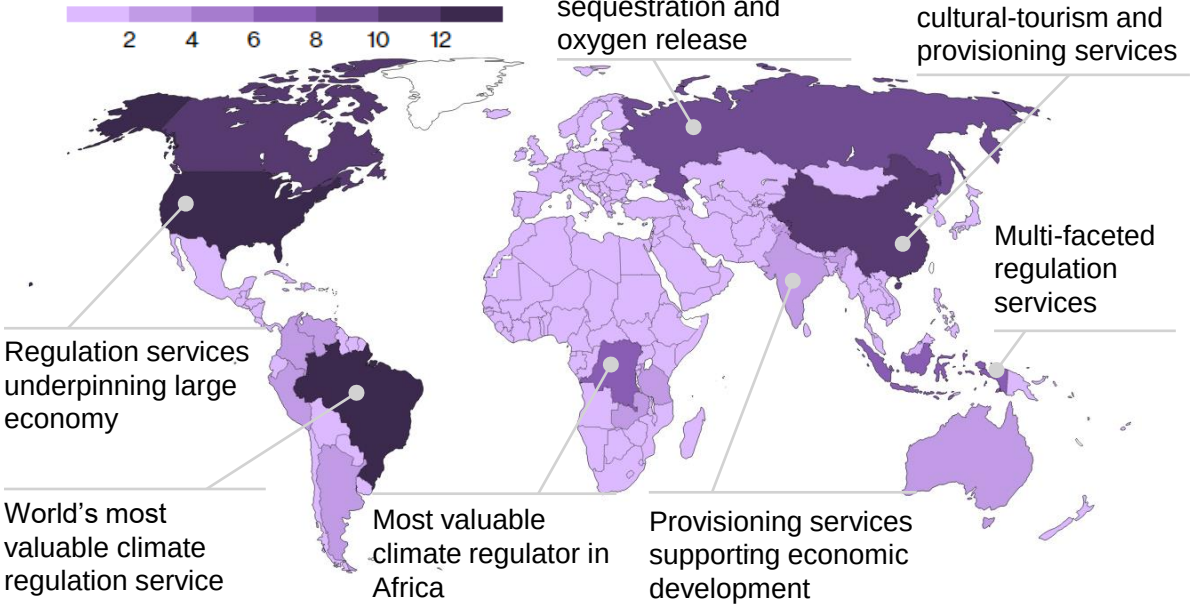
Source: BloombergNEF, Jiang et al, 'Mapping Global Value of Terrestrial Ecosystem Services by Countries', Ecosystem Services, 52, 2021. Note: DRC = Democratic Republic of Congo, Congo, Rep. = Republic of Congo

- Ecosystem services provided by nature underpin many economic activities. These services include *provisioning services* of material and energy extracted from nature, *cultural services* that support recreation, tourism, art and health, and *regulating services* that maintain air and soil quality and protect against natural disasters and disease. *Supporting services* provide habitat for plants and animals that supply the other three services.
- Many ecosystem services are not directly commercialized. This is especially true of regulating and supporting services, which tend to be the most valuable provided by nature. In most countries, climate regulation is the most valuable ecosystem service.
- Ecosystem services tend to be more valuable when they support a large economy across a vast land-mass. The larger the economy and land area, the more valuable the services provided by nature, regardless of how much economic value is explicitly extracted from nature.
- This dynamic may also be due to a lack of data and studies demonstrating value in less-developed nations. The value provided by ecosystem services should be considered in partnership with the presence of biodiversity as an indicator of potential value.

Preserving ecosystem services will also help address climate change

Estimated value of ecosystem services

$ trillion



Source: BloombergNEF, Jiang et al (2021) Mapping global value of terrestrial ecosystem services by countries. Ecosystem Services. 52. 101361. 10.1016/j.ecoser.2021.101361.

- The value of ecosystem services is highest in the world's largest economies and land masses.
- However, several hotspots provide value disproportionate to their host nation's wealth. Many ecosystem services transcend national borders.
- Global preservation priorities should include the climate-regulation services provided by Brazil, the Democratic Republic of Congo, and Indonesia, along with the carbon sequestration and oxygen release services provided by Russia.
- Biodiversity in countries with less valuable ecosystem services should not be foregone. It tends to represent a greater share of GDP in these countries and will rise as economies develop.

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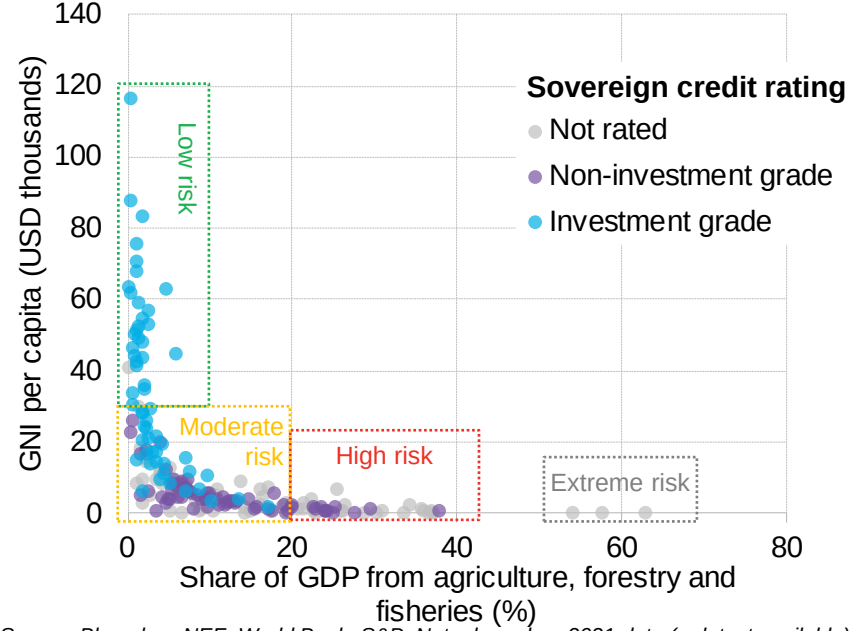
Highest-risk areas are economically dependent on exploiting nature

National wealth versus reliance on nature-exposed industries



Source: BloombergNEF, World Bank, S&P Note: based on 2021 data (or latest available)

- Biodiversity is under the greatest threat in low-income economies where a greater share of economic activity is derived from nature-exposed industries such as agriculture, forestry and fisheries. These resources may be over-exploited to drive economic development and improve living standards.
- Agrarian nations lack the economic resources to support biodiversity initiatives themselves. They may also lack robust environmental protection laws and authorities, and credible policing and legal systems to address illegal farming, fishing, land-clearing, or wildlife trade.
- Many low-income and agrarian nations are not investment-grade, leading to limited foreign private investment. Investors across varying risk tolerances are needed to address biodiversity threats in non-investment-grade and unrated economies.
- Biodiversity possessed by higher-income countries is less at risk. It is exploited to a lesser degree, and wealthy countries tend to possess the financial, regulatory and legal systems to address any threats internally.

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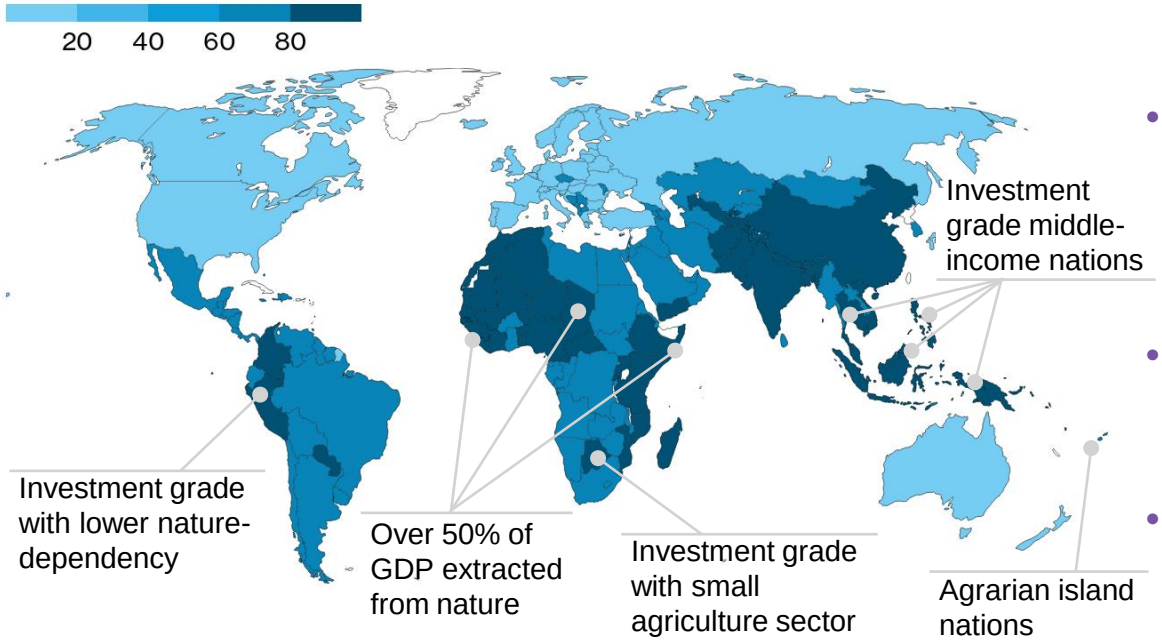
The developing world faces threats to nature that can't be addressed domestically

Biodiversity threat index



- Much of the world faces a very high level of threat to biodiversity, as nations are unlikely to sacrifice economic activity in nature-exposed industries without support.
- Relatively few of these high-risk areas will attract private investment. Western governments, agencies, NGOs and philanthropic organizations will be key to protecting biodiversity in countries that are not investment grade.
- The private sector may be attracted to investment-grade nature preservation destinations across Southeast Asia, China, India, Peru, and Botswana.
- The biodiversity threat index considers the GNI per capita, the value of agriculture, forestry and fisheries as share of GDP, and the actual or shadow sovereign credit rating.

Source: BloombergNEF. Note: Biodiversity threat index scores range from 0 to 100. Based on 2021 data (or latest available)

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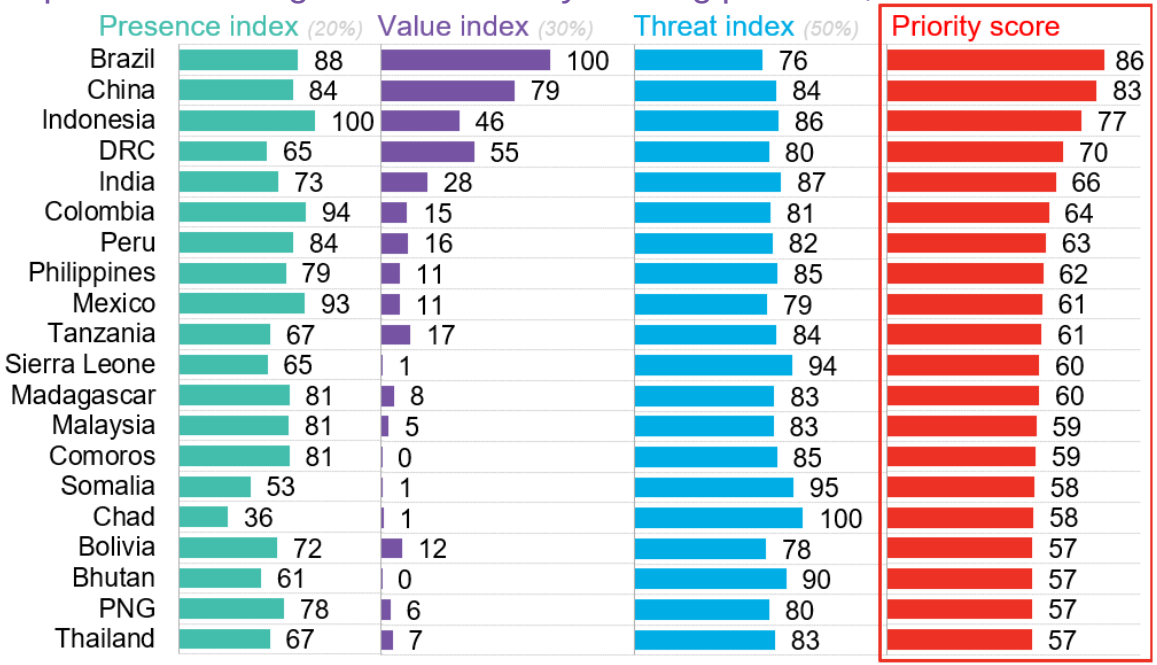
Funding priority regions are geographically diverse

Top-20 BloombergNEF biodiversity funding priorities, 2023



Source: BloombergNEF, CBD. Note: DRC = Democratic Republic of Congo, PNG = Papua New Guinea

- Funding should be prioritized for the biodiverse, valuable and threatened biomes across the developing world.
- The BloombergNEF biodiversity funding priority scores derived from the weighted presence, value and threat indices suggest that Brazil is the world's top biodiversity funding priority.
- Brazil sits atop a shortlist of vast middle-income countries that are the highest funding priorities. These are followed by a longer second tier of small, low- and middle-income nations.
- The top-20 funding priorities are geographically diverse. They include five Latin American countries, seven African, and eight in the Asia-Pacific region.
- These scores were last updated in 1H 2023.

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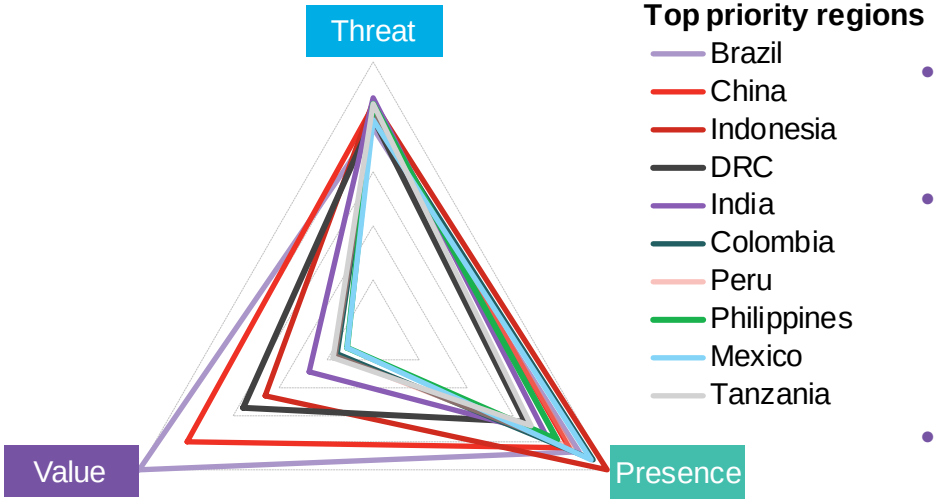
Biodiversity funding priorities fall into two groups

Characteristics of biodiversity funding priority regions, 2023

Index scores

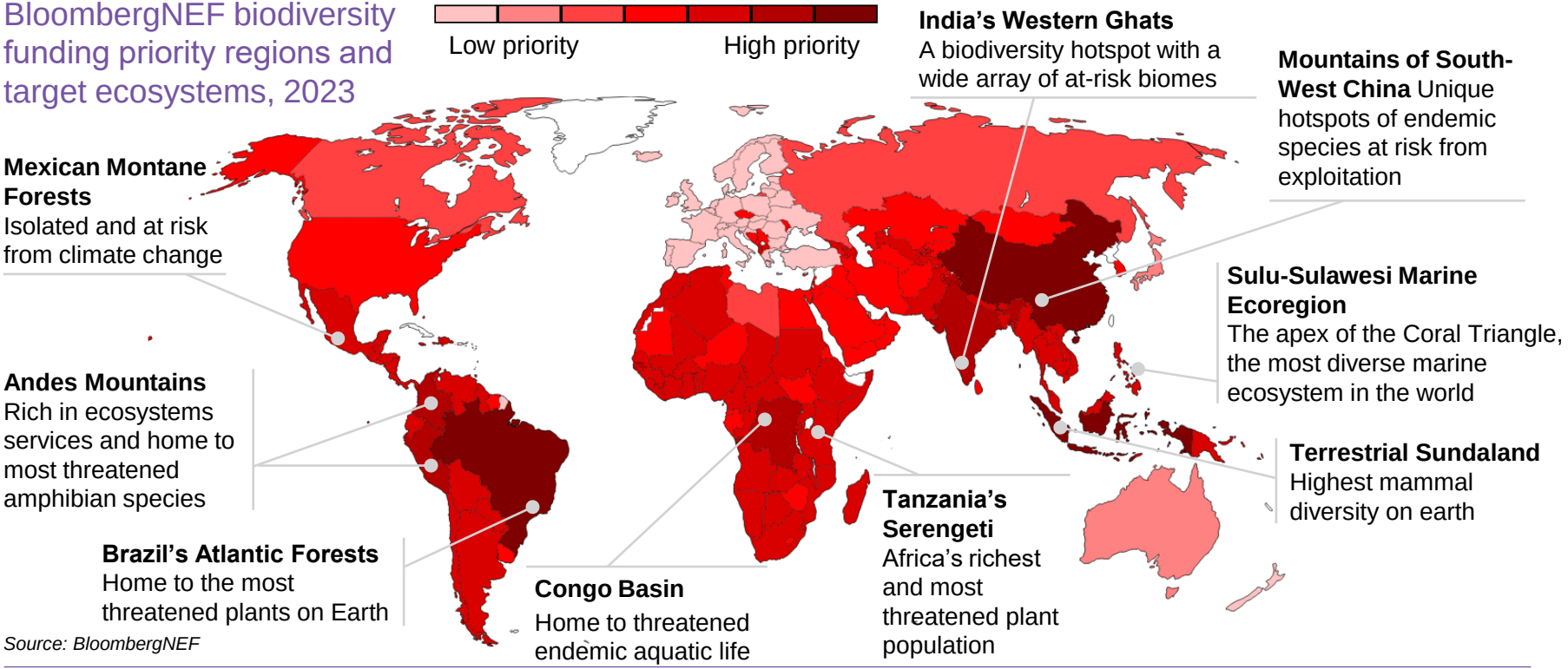


- The biodiversity funding priority regions share common characteristics. The top-five priorities receive high scores on all three metrics. They all perform well on biodiversity presence, ranging from 65 (DRC) to 100 (Indonesia), and threat, with scores from 76 (Brazil) to 87 (India).
- Most notably, the top-five nations achieve the highest ecosystem service value scores of all developing nations, between 28 (India) and 100 (Brazil), owing to their large economies or land masses.
- The second tier of smaller, lower-income countries make up the top-20 priority regions. They possess far lower ecosystem service scores – in some cases rounding to zero value. This is partly offset by very high threat scores, between 78 (Bolivia) and 100 (Chad). Biodiversity presence scores are varied, between 36 (Chad) and 94 (Colombia).
- Despite sharing common characteristics, the biomes and species in need of protection vary greatly across the priority regions. They encompass terrestrial and marine resources, plants and animals.

Source: BloombergNEF Note: All axes show scores ranging from 0 to 100. Contours at 20 points.

Each priority region possesses a unique resource in need of protection

BloombergNEF biodiversity funding priority regions and target ecosystems, 2023



Source: BloombergNEF

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Challenges and key actions

The changes needed to deploy funds effectively

The challenges to scaling up biodiversity finance are multifaceted but the most urgent can be split into six categories

This section presents the main challenges and a sample case study from the initiatives to tackle these barriers. It then highlights key actions that could be taken to mitigate these challenges. Each action has one or more actors (governments, public- or private-sector financial institutions, public- or private-sector companies) and an indicative timeframe.

	Lack of standardized data, metrics and frameworks	Need to integrate biodiversity into key decision-making	Absence of effective policy support	Dearth of bankable biodiversity projects	Uncertain integrity of offsets and other mechanisms	Insufficient industry and local community buy-in
Challenges						
Key actions	- Data collection and sharing - Harmonized frameworks and metrics to enable clearer assessment, management and financing capability	- Efforts and policies to integrate biodiversity into risk assessments, planning processes, corporate reporting, policies, investments and supply chains	- Subsidy reform - New financial and fiscal incentives, especially market-based mechanisms - International finance - Better regulatory oversight	- Replicable business models and project structures - Concessional funding and technical support	- Initiatives to develop high-integrity carbon and biodiversity markets - Avoid ‘green washing’ around sustainable finance - Science-based targets and actions	- Enabling environment - Communication and incentives to engage industry and local communities - Just transition

Standardized data and frameworks

Challenge explained

Biodiversity is difficult to measure and quantify, with no agreed metrics akin to emissions for climate change or comprehensive target framework like the 1.5 and 2° Celsius targets. Currently over 3,000 metrics are used to measure how much a company affects or relies on nature.

Without a smaller set of standard metrics, it is difficult to compare potential returns from multiple biodiversity projects with disparate contexts, players and objectives. It is also hard to quantify required financing to tackle biodiversity loss and demonstrate efficacy of sustainable financial flows.

Overall, there is a dearth of comprehensive, granular and up-to-date data, hindering rigorous analysis and forecasting. Standards are evolving. But there is little consensus on how to solve the intractable measurement issues and the dissemination of multiple frameworks raises challenges around alignment. The availability of such information, available in a consistent manner, is key to ensuring more accurate nature-risk assessments.

Case study: Taskforce on Nature-related Financial Disclosures

In September 2023, the TNFD released its recommendations for companies and financial institutions on how to report and disclose their interactions with nature and assess the resulting risks and opportunities.

Designed to complement the more established climate-related framework created by the TCFD, the TNFD's recommendations follow a similar structure and are attracting significant business attention.

The Taskforce comprises 40 members with over $20 trillion in assets under management, supported by over 1,300 corporate, academic and civil organizations.

Biodiversity is a key part of much of the disclosure guidance, which is centered around four key pillars: governance, metrics and targets, strategy, and risk management. In the medium term, several G-20 governments are expected to introduce disclosure regulations that align with the framework.

Standardized data and frameworks *(continued)*

Government
Financials
Companies

Short-term (2023-25)
Medium-term (2026-30)
Long-term (2031-)

Key actions to mitigate challenges

		Actor(s)	Time
Data and metrics	Scale up funding for initiatives to collect more granular biodiversity-related data and to develop and deploy technology to improve data quality and availability	Government, Financials	Short-term (2023-25)
	Developed countries and DFIs to support data collection in emerging economies	Government, Financials	Short-term (2023-25)
	Together with NGOs and academia, develop methodologies and platforms for sharing biodiversity data	Government, Financials	Medium-term (2026-30)
	Undertake and publish spatial landscape planning to identify areas of crucial habitat, to support planning of offset and credit projects	Government	Medium-term (2026-30)
Consistency across frameworks	Together with NGOs and academia, publish research and agree at a cross-country level on what is an environmentally harmful subsidy	Government, Financials	Short-term (2023-25)
	Devise common frameworks and metrics for assessing and managing biodiversity impacts and dependencies, including supply chains	Government, Financials, Companies	Medium-term (2026-30)
	Establish a harmonized system for tracking and reporting biodiversity finance, making use of existing processes and systems	Government, Financials, Companies	Medium-term (2026-30)
	Adopt natural capital accounting or reach to enable information to be collected in a standardized manner, for example the UN standard (System of Environmental Economic Accounting)	Government	Long-term (2031-)

Integration into decision-making

Challenge explained

To effectively tackle biodiversity loss, governments, companies and financial institutions need to integrate or “mainstream” biodiversity into their risk assessments, planning processes, policies and investments.

Parties took a step in the right direction at Biodiversity COP15 by agreeing for the first time to “encourage and enable, and in particular to ensure that large and transnational companies and financial institutions” report their dependencies and impacts on biodiversity. But this was not mandatory disclosure, as advocated by some business lobby groups.

Still, effectively integrating biodiversity into decision-making is a time-consuming and challenging task, requiring specific expertise and the standardized data, metrics and frameworks outlined above. Complex supply chains with disparate actors make it difficult to accurately understand biodiversity impacts and dependencies, particularly for multinational corporations.

Case study: ASN Bank

Biodiversity is one of the three pillars of ASN Bank’s sustainability strategy, together with climate and human rights. It was the first financial institution to set a long-term biodiversity goal for all its investments and loans to have a net positive effect on nature by 2030.

To understand its impact on biodiversity, it helped devise the Biodiversity Footprint Financial Institutions (BFFI) in 2015. While the accuracy of the footprint calculation is limited, it enables the bank to identify changes in impact, relative contribution of asset classes and main impact drivers.

In 2020, ASN Bank and five other Dutch financial institutions founded the Partnership for Biodiversity Accounting Financials (PBAF), which is developing a ‘standard’ to enable financial institutions to assess and disclose impact and dependencies on biodiversity of loans and investments. As of December 2022, PBAF totals 47 partners and supporters from across the world.

Integration into decision making *(continued)*

Government | Financials | Companies

Short-term (2023-25) | Medium-term (2026-30) | Long-term (2031-)

Key actions to mitigate challenges

		Actor(s)	Time
Nature-related reporting and risk management	Publish guidance on biodiversity-related disclosures (potentially in line with TNFD recommendations)	Government	Short-term (2023-25)
	Include biodiversity within generic ESG disclosure policies and regulations, as well as mandatory environmental impact assessments	Government	Short-term (2023-25)
	Take a leading role in understanding nature impacts and dependences; improving biodiversity risk management practices; using screening tools, standards and policies to avoid harmful investments; and implementing biodiversity-related ESG and financial disclosures	Financials, Companies	Short-term (2023-25)
	Request central banks to integrate biodiversity risks into routine stress-testing	Government	Medium-term (2026-30)
	Devise a standardized investment taxonomy for biodiversity (or integrate into an existing framework), with clear definitions	Government	Medium-term (2026-30)
	Central banks to request other financial institutions to integrate biodiversity risks into routine stress-testing	Financials	Medium-term (2026-30)
	Public and multilateral financial institutions to take the lead by aligning portfolios with the Global Biodiversity Framework	Financials	Medium-term (2026-30)
	Mandate biodiversity risk disclosure for broader set of companies in line with international frameworks like TNFD, requiring companies to measure and report risks from, and impacts on, biodiversity loss	Government	Long-term (2031-)
	Adapt definition of 'fiduciary duty' beyond economics and price in impact of biodiversity loss into risk-management practices, investment and lending activities	Government, Financials	Long-term (2031-)

Integration into decision making *(continued)*

Government
Financials
Companies

Short-term (2023-25)
Medium-term (2026-30)
Long-term (2031-)

Key actions to mitigate challenges

		Actor(s)	Time
Biodiversity in planning	Pledge to reach net-zero emissions by 2050 and release plan on how to achieve goal	Government, Companies	Short-term (2023-25)
	Align National Biodiversity Strategies and Action Plans with the GBF, including national finance plans, and highlight the role of the private sector	Government	Short-term (2023-25)
	Integrate biodiversity into climate Nationally Determined Contributions (NDCs), together with emission targets on AFOLU sector and dedicated support for nature-based solutions	Government	Short-term (2023-25)
	Align efforts to tackle climate change and biodiversity loss, and prioritize crossover initiatives/projects	Government, Financials, Companies	Medium-term (2026-30)
	Consider nature impacts when devising policies, including for infrastructure, natural resources, economic development, energy and poverty reduction, and planning for private sector and state-owned enterprises	Government, Financials	Medium-term (2026-30)
	Implement internal performance metrics that spur the offering and use of biodiversity-related financial products	Financials, Companies	Long-term (2031-)
	Commit to no more nature-negative investment and release plan to shift portfolio towards 100% nature-positive	Financials, Companies	Long-term (2031-)
Sustainable supply chains	Evaluate and report on biodiversity impact of supply chains, and release plans on how to switch to sustainable supply chains	Companies	Short-term (2023-25)
	Support voluntary initiatives on greening supply chains like certification by the Forest Stewardship Council	Financials, Companies	Short-term (2023-25)
	Governments and large companies, especially AFOLU players, to leverage purchasing power through their procurement strategies, to incentivize suppliers to avoid and minimize biodiversity loss	Government, Companies	Medium-term (2026-30)
	Leverage financial contributions to projects by demanding nature-positive practices through value chain	Financials	Medium-term (2026-30)
	Implement regulations that enforce sustainable supply chains (such as ban on imports from deforested areas)	Government	Long-term (2031-)

Lack of effective policy

Challenge explained

The COP15 deal means countries now have a stronger policy framework at international level. But few governments provide domestic support that effectively promotes conservation, restoration and sustainable use of nature.

Abundant subsidies distort prices and incentivize environmentally harmful activity. But subsidy reform can be politically challenging, as seen for example by opposition to efforts to revamp fossil-fuel support. Such attempts have also floundered due to a lack of agreement on what constitutes a subsidy, giving governments leeway to interpret commitments as they wish.

As well as environmentally harmful subsidies, governments offer insufficient support to tackle biodiversity loss. Crucially policy can be used to frame nature as an asset, spurring companies to integrate the value of nature in their decision-making (see Standardized data and frameworks). Governments also have a role to play in ensuring that the “enabling environment” is conducive to investment, especially in emerging economies.

Case study: Forest Biodiversity Program for Southern Finland

In southern Finland, the government only provides forestry subsidies for sustainable timber production, maintaining biodiversity protection and ecosystem-management activities.

In addition, it introduced the Forest Biodiversity Program for Southern Finland, known as METSO, which aims to reach some 96,000 hectares of forest established as permanent or temporary nature reserves.

Forest owners volunteer to submit tenders, with the winners selected based on biological criteria and the offer price. They may also be paid to maintain or improve the biodiversity of the forest.

Overall, forest protection relies on cooperation networks involving local government, NGOs and other stakeholders. This collaboration is meant to boost buy-in of local communities. By end-2021, the program had reached 88% of its 2025 target. Due to its success, the government has decided to extend it to 2026-30.

Lack of effective policy *(continued)*

Government | Financials | Companies

Short-term (2023-25) | Medium-term (2026-30) | Long-term (2031-)

Key actions to mitigate challenges

		Actor(s)	Time
Subsidy reform	Identify environmentally harmful subsidies based on clear and transparent definitions	Government	Short-term
	Repurpose support for nature-positive actions, taking account of impact on vulnerable groups and achieving the GBF target for a $500 billion annual decrease by 2030. *See: Actions to improve industry and local community buy-in*	Government	Medium-term
	Review and disclose plans to transition away from reliance on environmentally harmful subsidies	Financials, Companies	Medium-term
New financial and fiscal incentives, and other support	Implement new financial and fiscal incentives for biodiversity, especially market-based mechanisms that place an economic value on nature, such as offset/credit and payment-for-ecosystem schemes. Promote schemes where biodiversity is a complementary revenue stream (like a co-benefit - see above) to avoid investment cannibalization	Government	Short-term
	Introduce or ramp up tradeable permit systems, fees, charges and taxes on nature-related activities such as hunting, fishing, and use the revenue to fund new biodiversity incentives	Government	Short-term
	Raise finance for coastal and marine areas, to ensure 30% by 2030 preservation goal is met for oceans *and* land	Government, Financials	Medium-term
	Expand the scope of publicly sponsored financing facilities like green banks to biodiversity	Government, Financials	Medium-term
International finance	Scale up international public finance for biodiversity each year, to meet the finance-specific targets of the GBF and focus on biodiversity-rich and/or least developed recipient countries	Government, Financials	Short-term
	Developed countries and DFIs to provide support to emerging economies, for subsidy reform and policy design	Government, Financials	Short-term
Regulations, mandates	Establish exploitation-proof, nature-positive wildlife trade regulations at national level to complement international policy (like CITES), remove loopholes and create sustainable trade models	Government	Medium-term
	Implement voluntary and then mandatory labeling standards for nature-positive products, to build consumer demand	Government	Medium-term

Biodiversity project characteristics

Challenge explained

A crucial set of challenges to raising biodiversity finance relates to characteristics of the projects themselves: most are smaller than financial institutions would typically fund. They are also highly localized due to the nature of biodiversity; solutions need to be tailored to individual conditions, making it difficult for the private sector to identify appropriate opportunities and finance biodiversity projects at scale.

In addition, projects rarely have easily monetizable cash flows, as biodiversity is a public good whose true value is not captured in economic transactions. This poses a challenge to attracting private financing and matching investor profiles despite growing interest.

Financial returns are often low or below market hurdle rates. The risky and untested nature of biodiversity investment often requires a blended approach of concessional and commercial finance.

Case study: Rewilding Europe Capital

Rewilding Europe Capital (REC) is a microfinance institution that provides commercial loans to nature-focused companies in the region. It seeks to help tackle the challenge of small project size, and bridge funding gaps between restoration actions and finance availability. In its first phase (2013-16), it focused on small businesses mainly operating in nature tourism. It offered loans up to €80,000 ($86,176) and provided 18 loans totaling €520,000 ($560,144).

In 2017, Rewilding Europe signed an agreement with the European Investment Bank, through the new Natural Capital Financing Facility, for a new loan facility of €6 million ($6.5 million). In this second phase, it scaled up to a maximum of €600,000 ($646,320) per loan.

Rewilding is the large-scale restoration of nature to the point it can take care of itself.

Biodiversity project characteristics *(continued)*

Government
Financials
Companies

Short-term (2023-25)
Medium-term (2026-30)
Long-term (2031-)

Key actions to mitigate challenges

		Actor(s)	Time
Replicable business models and project structures	Improve “enabling environment” for investment such as long-term nature targets, transparent and enforced regulatory frameworks (including on land rights), streamlined project-permitting processes, and overall policy stability	Government	Short-term (2023-25)
	Support and develop initiatives to promote project standardization and replicability like the Coalition for Private Investment in Conservation’s blueprints	Government, Financials, Companies	Short-term (2023-25)
	Increase the use of blended finance for biodiversity projects, develop innovative financing mechanisms and introduce risk-mitigation and revenue-stabilization instruments like guarantees and insurance products	Government, Financials	Short-term (2023-25)
	Pool developers, projects, investment vehicles or initiatives at a sector or geographic level (potentially into cooperatives, via application of sector standards), to overcome the challenge of small-scale, local projects	Financials, Companies	Medium-term (2026-30)
	Publish clear guidelines on factors that make projects more appealing to investors, akin to the CFLI Investment Readiness Guidelines for climate	Government, Financials	Medium-term (2026-30)
Concessional funding and technical support	Accelerate the implementation of new fund for the Global Environment Facility and talks on a separate facility	Government	Short-term (2023-25)
	DFIs to help establish a track record for investment, partner with banks and asset managers to co-finance projects, facilitate regulatory change needed for investment and develop a pipeline of bankable biodiversity projects	Financials	Short-term (2023-25)
	Developed countries and DFIs to provide technical support for emerging economies to develop enabling environment	Government, Financials	Short-term (2023-25)
	Invest in, or partner with, local project developers or other companies to facilitate new market entry	Financials	Medium-term (2026-30)
	DFIs and government to devise guidelines for blended finance to avoid long-term reliance on concessional capital, which can prevent the transition to commercial, undistorted markets	Government, Financials	Long-term (2031-)

Environmental integrity of mechanisms

Challenge explained

Some mechanisms with the most potential to scale biodiversity finance have courted controversy, with a key example being offsets. The voluntary carbon markets have been criticized for not delivering genuine, permanent emission reductions and deterring companies from cutting their direct greenhouse-gas output.

Some carbon offset projects are also not “additional”, meaning they do not drive new added decarbonization that would not have otherwise occurred without the offset revenue. Note too that investment in carbon offsets likely cannibalizes investment in biodiversity offsets/credits, and vice versa.

Initiatives like the Integrity Council on Voluntary Carbon Markets should improve the environmental integrity of these markets and the results can also be used to enhance the fledgling biodiversity offset and credit markets. But progress is slow and in the meantime companies have become warier of the reputational risk from using carbon offsets. Concerns of greenwashing accusations and transaction fees have also hindered the sustainable debt markets.

Case study: Integrity Council for the Voluntary Carbon Market

The voluntary carbon market has come under increased scrutiny due to the surplus of low-quality projects. One initiative that aims to improve the environmental rigor of the market is the Integrity Council for the Voluntary Carbon Market.

It released draft ‘Core Carbon Principles’ in 2022, outlining the criteria that offsets need to meet in order to be considered high quality. While just a draft, these principles will go a long way to standardizing carbon offsets and have already driven the creation of futures products. The final version is due to be released in March 2023.

However, two of the four major voluntary carbon offset registries Verra and Gold Standard have criticized the principles for duplicating their own efforts. In addition, other groups like the Carbon Credit Quality Initiative are also working on guidance and tools to improve the quality of carbon offsets. The release of multiple, slightly different guidelines could lead to confusion.

Environmental integrity of mechanisms *(continued)*

Government | Financials | Companies

Short-term (2023-25) | Medium-term (2026-30) | Long-term (2031-)

Key actions to mitigate challenges

		Actor(s)	Time
'High quality' offset/credits	Support and accelerate initiatives to develop high-integrity carbon and biodiversity markets	Government, Financials, Companies	Short-term (2023-25)
	Push for agreement on robust new carbon market mechanisms in Article 6 negotiations and accelerate roll-out	Government	Short-term (2023-25)
	Adhere to, promote and eventually enforce the mitigation hierarchy by prioritizing purchase of credits and then avoidance, minimization and restoration of negative biodiversity impacts before offsetting. Developing countries and DFIs to support emerging economies in this area	Government, Financials, Companies	Medium-term (2026-30)
	Implement biodiversity credit programs and incentives to promote high-quality offset purchases	Government, Companies	Medium-term (2026-30)
	Allocate a growing share of offset purchases to high-quality units and credits	Companies	Medium-term (2026-30)
	Require project developers to undertake long-term monitoring and reporting on carbon and biodiversity projects, to ensure credibility, and establish a recourse mechanism	Government, Financials	Long-term (2031-)
Science-based targets for nature	Participate in, and follow the guidance of, the Science Based Targets Network in devising measurable, actionable and time-bound nature-related targets, such as the goals in the Terra Carta charter	Financials, Companies	Short-term (2023-25)
	Devise plans to meet these targets, including interim targets for deforestation, land and freshwater use and ecosystem integrity (if applicable), starting with companies in the AFOLU sector	Financials, Companies	Short-term (2023-25)
Sustainable finance	Back initiatives to define "green washing" and "sustainable investment", to mitigate criticism and lack of credibility. See also: *Actions to facilitate integration into decision making*	Government, Financials, Companies	Short-term (2023-25)
	Scale up issuance of sustainable/green bonds and loans and debt-for-nature swaps	Government, Financials, Companies	Short-term (2023-25)
	Set aside certain share of funding or proceeds from green/sustainability bonds, loans and swaps to spend on biodiversity projects	Government, Financials	Medium-term (2026-30)

Industry and local community buy-in

Challenge explained

“Transformative change” will be required to move “away from the current, limited paradigm of economic growth”, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services wrote in a 2019 global assessment. Indeed, companies are showing more interest in prioritizing biodiversity loss. However, some industry groups have shown less willingness, while greenwashing has stymied progress on nature, introduced additional uncertainty into markets and hindered sustainable finance.

Local communities are also critical players in tackling biodiversity loss. The GBF notes that indigenous peoples are the best stewards of nature, comprising only 5% of humanity but protecting up to 80% of the world’s biodiversity. Many of the GBF targets reference the need to recognize and protect their rights. But with indigenous peoples continuing to face abuse and forced eviction, the challenge now is to ensure that these commitments translate into action.

Case study: Botswana

A key way to promote buy-in among local communities is via initiatives that protect or create jobs. Botswana, for example, was an early adopter of ecotourism. The sector accounts for a significant share of employment and is the second-biggest source of income.

In 2002, the government released an ecotourism strategy, to conserve natural resources and wildlife, and in 2009, it implemented the Ecotourism Certification System to promote responsible environmental, behaviour by tourism companies.

Over 40 camps and lodges have achieved the top two ratings. In addition, the Community-Based Natural Resource Management (CBNRM) program aims to achieve biodiversity conservation as well as rural development.

Most CBNRM projects are based on a joint venture whereby the community-based organization sub-lets a concession area in return for rental income and employment opportunities. These are especially valuable as the projects are often in remote regions.

Industry and local community buy-in *(continued)*

Government | Financials | Companies

Short-term (2023-25) | Medium-term (2026-30) | Long-term (2031-)

Key actions to mitigate challenges

		Actor(s)	Time
Engagement	Ensure that the enabling environment encourages local communities and indigenous peoples become involved in biodiversity markets, projects and initiatives, and raise their awareness about how to participate	Government	Short-term
	Clarify uncertainties over land tenure rights and introduce predictable, fair and easily accessed dispute resolution frameworks, to resolve disagreements between local community groups, investors and project developers	Government	Short-term
	Prioritize new support measures that can create jobs and revenue streams for local communities like eco-tourism	Government	Medium-term
	Allocate a share of public finance for biodiversity to indigenous peoples	Government	Medium-term
	Provide guidance for companies in the land sector on how they can obtain government support, and create opportunities for players to share best practices	Government	Medium-term
	For companies wishing to use natural resources, allocate a share of the financial benefits from their use to local communities or contribute to the protection and restoration of these resources. Make this a condition for your lending and investment activities and/or supply chain	Financials, Companies	Long-term
Just transition	Plan how to achieve a just transition for the land sector sufficiently early, and look to coal and industrial sectors for lessons. Create forums for all stakeholders to participate in the planning process, including family-owned farms which account for almost 75% of global agricultural land, indigenous peoples and local communities	Government, Financials	Short-term
	Consider effects of subsidy reform on vulnerable groups and companies in the land sector. *See: Actions to mitigate lack of effective policy.*	Government	Medium-term
	Support workers and local communities affected by the nature-positive transition, for example through social protection programs, training schemes and economic diversification	Government	Long-term

Appendix

Biodiversity financial flow estimates

The estimates of current biodiversity financial flows (see above) are based on the following four sources, adjusted for inflation to 2021 US dollars:

- OECD, Official Development Assistance database, data for 2021.
- Taskforce on Nature Markets, *Global Nature Markets Landscaping Study*, 2022.
- The Paulson Institute, Nature Conservancy and Cornell Atkinson Center for Sustainability, *Financing Nature: Closing the Global Biodiversity Financing Gap*, 2020.
- UN Environment Programme, *State of Finance for Nature 2022.*

The estimate for biodiversity conservation needs by 2030 was based on the 2020 report by the Paulson Institute, Nature Conservancy, and Cornell Atkinson Center for Sustainability

Sources for current biodiversity financial flow estimate

Type	Sub-type	Estimate ($ billion 2021)	Source
Public domestic	Government spending and tax policy	126	UNEP
Public international	Overseas development assistance	6	OECD
Private	Sustainable supply chain finance	8	UNEP
	Payments for ecosystem services	10	Taskforce on Nature Markets
	Impact investing, NGOs	5	Taskforce on Nature Markets
	Offsets/ credits	6	Taskforce on Nature Markets
Any	Green finance	5	Paulson Institute et al

Source: BloombergNEF

Green financial products

Due to data availability, this Factbook focuses on activity-based sustainable debt, specifically green and sustainability bonds (see above), based on information from Bloomberg Terminal. In total, green bonds comprise the largest sustainable debt market, with a market size of $2.4 trillion. Sustainability bonds, which can be used to finance environmental and/or social projects, total some $615 billion. Altogether these instruments account for some 53% of the sustainable debt market.

Sustainable debt explained

Sustainable debt comprises borrowing activity via loans and bonds that is used to promote environmental or social improvement. These can take two forms:

- **Activity-based debt:** these instruments, encompassing green bonds, social bonds, sustainability bonds and green loans, are used to raise money to finance new, or refinance existing, green projects or activities. The money raised must be used for these activities, which can be for environmental benefit, social benefit, or both. The profile of the issuer (the borrower) is not important, as long as the activities – such as greenhouse gas emission reductions or biodiversity conservation – are eligible. In 2022, activity-based sustainable debt totaled $986 billion based on BloombergNEF data, with more than $4.3 trillion issued since 2007.
- **Behavior-based debt:** these instruments, encompassing sustainability-linked loans and bonds, are used to raise money for general purposes. The activities performed with the raised money are not what earns behavior-based debt types their ‘sustainability’ label. Behavior-based debt is dubbed ‘sustainable’ when tied to a sustainability target for the issuer, requiring it to modify its behavior. This could be an emission reduction goal, a quota for worker diversity, or many other types of behavior. In 2022, behavior-based debt totaled more than $504 billion, with $1.5 trillion issued since inception in 2017.

BloombergNEF biodiversity funding priority scores

The BloombergNEF biodiversity funding priority scores are the weighted product of three indices capturing presence, value and threat.

This quantitative assessment considers the biodiversity present within a nation, the estimated value of ecosystem services it is providing (whether or not commercialized), and the government's financial and jurisdictional ability to protect the resource from human population pressures, extractive and agricultural industries, or illegal trade.

Threat scores have been risk-adjusted by the sovereign credit-worthiness – an indicator of the likelihood that funding will flow efficiently through to projects.

The scores were last updated in 1H 2023.

	Index methodology	Data source
Presence	*National Biodiversity Index* expressed as a percentile *(Indonesia = 100)*	Convention on Biological Diversity, *Global Biodiversity Outlook 1* (2011)
Value	National gross ecosystem product value expressed as a percentile of global maximum (Brazil = 100)	Jiang et al, 'Mapping *Global Value of Terrestrial Ecosystem Services by Countries'*, Ecosystem Services, 52 (2021)
Threat	Weighted product of: • Reverse percentile of GNI/capita (50%) • Share of GDP from agriculture, forestry, and fishing (30%) • Trading Economics credit-worthiness score (20%) Proxies used where deemed appropriate	• World Bank, *GNI per capita, Atlas method (current US$)*, December 2022 update • World Bank, *Agriculture, Forestry, and Fishing, Value Added (% of GDP)*, December 2022 update • Trading Economics, Government Credit Rating
Priority	Weighted product of presence (20%), value (30%) and threat (50%) indices	

Source: BloombergNEF

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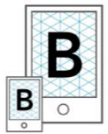

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