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Biodiversity finance

This report is a primer on biodiversity finance and trends towards pro-biodiversity activities.

1. Key Takeaways

- There is **high global dependence on natural ecosystems**, especially from major value chains such as food and fashion. Significant economic and societal impacts would arise if natural ecosystems were to collapse.

- **Greater awareness of increasing nature risks by investors and governments** are spurring action in biodiversity finance to meet biodiversity targets by 2030.

- Economic instruments for biodiversity finance include payment for ecosystem services, bonds, loans and impact investing. There is a **large global biodiversity funding gap** estimated at US$598 – 824 billion per year to combat irreversible biodiversity loss by 2030.

- Progress is expected in areas such as **biodiversity credits, the nature tech market and restoring nature in urban spaces** moving forward.

2. Global dependence on biodiversity

The World Economic Forum (WEF) estimated that more than 50% of the world's economic output is at least moderately or highly dependent on natural ecosystems. There would be significant economic and societal impacts if natural ecosystems were to collapse. Based on WEF's 2023 Global Risks Report, 'biodiversity loss and ecosystem collapse' was listed as one of the top five global risks of the next decade.

Four major sectors depend heavily on biodiversity, namely (i) food and beverages, (ii) infrastructure and mobility, (iii) energy and (iv) fashion. These sectors account for approximately 90% of pressures placed on biodiversity (Figure 1).

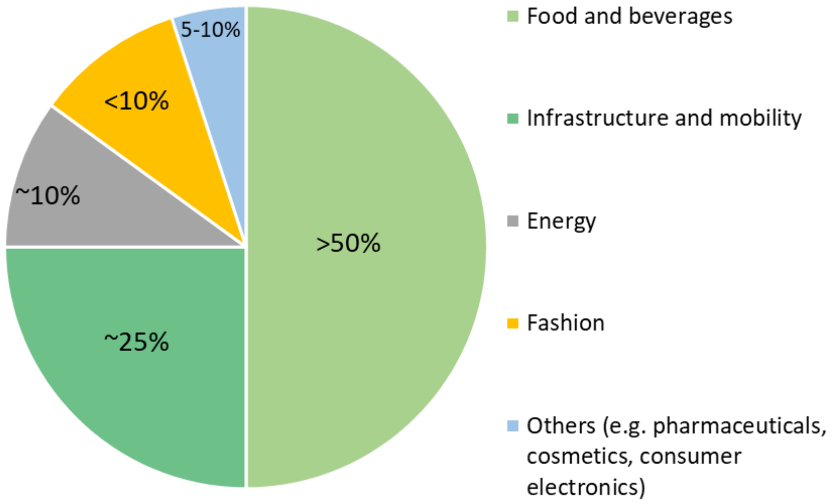
i. **Food and beverages**: Agricultural output such as food crops rely on natural pollinators such as birds and insects, while seafood output relies on aquatic ecosystems. Across the value chain, some pressures on biodiversity come from the conversion of habitats to farmland, overfishing, pollution and degradation of natural habitats.

ii. **Infrastructure and mobility**: Housing and vehicles put pressure on biodiversity through the clearance of natural habitats for housing and public infrastructure development, as well as the extraction of minerals required for automobile production e.g. iron and nickel.

iii. **Energy**: Oil, gas and coal extraction can disrupt terrestrial and deep-sea ecosystems. Deep-sea mining for metals critical to renewable energy technologies, such as wind turbines, causes destruction to ocean floor habitats and wildlife, that could have a knock-on impact on fisheries and food security.

iv. **Fashion**: The fashion industry relies heavily on biodiversity, as approximately 25% of textile fibres and more than 50% of apparel are cotton-based. Leather and fur-based products may also involve overexploitation of species involved. The production of fabrics consumes high volumes of freshwater and can pollute aquatic ecosystems from chemicals involved in the process of dyeing fabrics.

Figure 1: Estimated share of major sectors in total pressure on biodiversity



Source: BCG, OCBC

3. Greater momentum in biodiversity finance

Investors are becoming more aware of increasing nature risks because of global dependencies on natural capital, together with growing interest in biodiversity finance. An increasing number of companies are setting net-zero goals, with some making commitments on nature. Some corporate strategies are also encouraging greater pro-biodiversity investments as a climate solution.

As defined by the United Nations Development Programme Biodiversity Finance Initiative (UN BIOFIN), biodiversity finance is defined as 'raising and managing capital and using financial incentives to support biodiversity management'. It can stem from both public and private sources and be delivered through various financial instruments e.g. biodiversity offsets, grants, debt. This contributes to effectively managing natural capital and conserving global biodiversity, with a goal to ensure a sustainable flow of ecosystem services such as provision of water, food and medicine, that can also act as carbon sinks (i.e. a service that absorbs more carbon from the atmosphere than it releases).

The United Nations Biodiversity Conference (COP15) wrapped up in Montreal, Canada, on 19 December 2022 with an agreement to guide global action on nature through 2030. The Kunming-Montreal Global Biodiversity Framework (GBF) was adopted, aiming to address biodiversity loss and restore ecosystems through 23 targets to achieve by 2030. According to the United Nations Environmental Programme (UNEP), some targets include:

- Restoring 30% of terrestrial and marine ecosystems
- Mobilising at least US$200 billion per year from public and private sources for biodiversity-related funding
- Raising international financial flows from developed to developing countries to at least US$30 billion annually.

4. Biodiversity finance flows

Biodiversity financing instruments can stem from various public and private sources, including those listed in Table 1.

Table 1: Biodiversity financing instruments

Public	Public and/or private	Private
Direct government expenditure/ subsidies	Payment for ecosystem services (PES)	Impact investing
Debt-for-nature swaps	Bonds, loans, equity	Philanthropy
		Biodiversity offsets

Source: OECD, OCBC

According to the UNEP, investments in nature-based solutions are estimated at US$133 billion per year at present (using 2020 as base year), comprising 86% from public funds and 14% from private finance. The estimated global biodiversity funding gap is at US$598 – 824 billion per year by 2030, and US$4.1 trillion by 2050. Investments would need to increase by three-fold and four-fold by 2030 and 2050 respectively from current levels to meet biodiversity and climate targets.

5. Trends towards pro-biodiversity activities

With greater awareness of biodiversity finance to close the funding gap, trends to look out for in this space include the following:

1. **Biodiversity credits**: The biodiversity credit market is still nascent but initiatives to develop this market are underway. Unlike carbon or biodiversity offsets, biodiversity credits are an economic instrument used to finance activities that deliver net-positive biodiversity gains that fund longer-term nature restoration activities e.g. protection of critical habitats. Going forward, we can expect progress in methodologies and governance for emerging biodiversity credit markets to ensure high integrity and transparency. It is also important to apply the lessons learnt from drawbacks in carbon markets to biodiversity credit markets.

2. **Nature tech market**: Nature technologies are technologies that can accelerate or scale up nature-based solutions. Some examples include drone technology for reforestation and interventions to support farmers in boosting agricultural crop yield. In many cases, commercial deployment of nature-based solutions requires sustained funding and do not have well-defined paths to monetisation. In the last year, there has been an increase in nature tech investing, with an average sector growth rate of 52% per year since 2018. The current nature tech market size is approximately US$2 billion and is estimated to grow to US$6 billion in less than a decade. While it is no silver bullet, the nature tech market may require significant levels of investment to keep climate and biodiversity goals within reach.

3. **Restoring nature in urban spaces**: An increasing number of governments are ramping up initiatives to restore nature in urban environments for benefits such as restoring biodiversity populations, improving air quality and reducing the urban heat island effect (an area that has temperatures higher than surrounding rural areas due to man-made structures and human activities). For example, Singapore’s National Parks Board (NParks) has published Bird-Safe Building Guidelines to reduce bird-building collisions. This is because birds may collide with buildings due to the reflection of greenery on glass building surfaces. Moving forward, more governments may look into incorporating sustainable land use to complement green infrastructure and transport.

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