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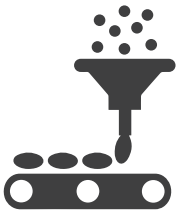
Allianz Global Investors

Biodiversity: a strategic priority for investors?

Understanding biodiversity loss as the undervalued environmental issue of our time and what investors could stand to gain from backing nature-based solutions

January 2023

Snapshot of biodiversity risks and opportunities



Food production has caused 80% of deforestation and 70% of biodiversity loss on land

(World Wide Fund for Nature (WWF International), 2020)

Soil degradation has cost 10% of annual global GDP in lost ecosystem services

(United Nations Convention to Combat Desertification 'Global Land Outlook', 2022)

Only 3% of global climate finance is currently spent on nature-based solutions

(National Geographic, 2020)

Investments in ecosystem restoration provide on average 3.7 times as many jobs as oil and gas production investments

(World Resources Institute, 2021)

Nature-positive solutions will create USD 10.1 trillion in business opportunity and 395 million jobs through key sector transition

(World Economic Forum, 2020)

Introduction

Few would dispute that we are living in a time of climate emergency which poses devastating risks for society and business. However, it is only recently that the biodiversity crisis has begun to gain serious attention on the world stage.

Nature degradation and biodiversity loss – which conjure vivid images of deforestation and bleached coral reefs – mean that one million species are now threatened with extinction.[1] Ecosystem damage also underpins and exacerbates many of the emergencies seen around the world today, from droughts to flooding, pandemics, food insecurity, and severe supply chain disruption.

Despite the severity of its impacts, the reality of biodiversity loss is in many cases not so immediate or visible, meaning its consequences have remained more obscure and detached from everyday life and decision-making.

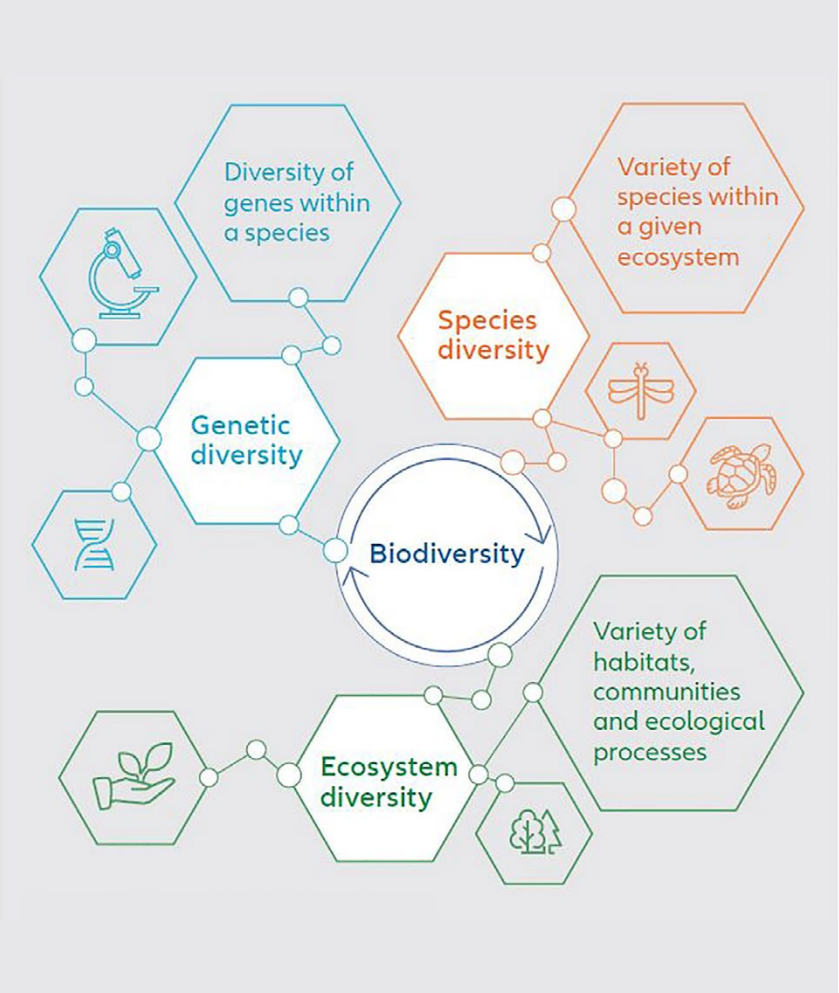
For investors, however, their long-term outlook gives them greater reason to be concerned about the risks posed by nature degradation. As Mélissa Bourassi, Sustainability Research Analyst at Allianz Global Investors affirms, "Our role [as investors] is to monitor the ways financially material risks like biodiversity may impact the returns of the companies we invest in."

For many, the material value of nature and the risks and opportunities associated with its sustainable management is a "new phenomenon" – according to Marco Lambertini, WWF International Special Envoy, who recognises that this marks a turning point from the purely "moral duty to co-exist with and respect the natural world" that previously drove environmental action. Climate and biodiversity are now increasingly factored into investment decisions, both to minimise damage and to build back better. But greater attention is needed to ensure consolidated action across companies and continents.

This paper will outline how developing an understanding of the interdependencies of human and natural systems can reveal risks and potential opportunities for the global investment community. With biodiversity as a focus, we consider ways to adopt a sustainable approach to investing that can help to mitigate risks and foster solutions to some of today's most fundamental challenges.

Into the “danger zone”: understanding the importance of biodiversity and planetary boundaries

Figure 1: What is biodiveristy?



Source: Allianz Global Investors, October 2021

Biodiversity produces healthy natural systems that regulate temperatures, purify air, maintain soil health, keep pathogens in check, and provide other vital ecosystem services such as clean water, which essentially make the earth habitable (see Figure 1).

Human activity is destabilising the natural world and affecting its capacity to provide these essential regulating functions. Through land use conversion, over-consumption of natural resources, pollution, and the release of greenhouse gases into the atmosphere, our healthy natural systems have been significantly damaged and depleted. The consequences of our unsustainable ways of living are clear in the WWF’s 2022 “Living Planet Report”, which “confirms the planet is in the midst of a biodiversity and climate crisis”, highlighted starkly by “the average 69% decline in the relative abundance of monitored wildlife” from 1970 to 2018.[2]

We can also look to the nine “planetary boundaries”[3] which designate safe operating spaces for life on earth to understand which areas need critical attention. The latest assessment found that the freshwater boundary has now been pushed past safe limits and five other planetary boundaries are also in the ‘danger zone’, including climate, biosphere integrity, and land-system change. This granular analysis of planetary health could indicate priority areas for investor and policymaker action (see Figure 2).

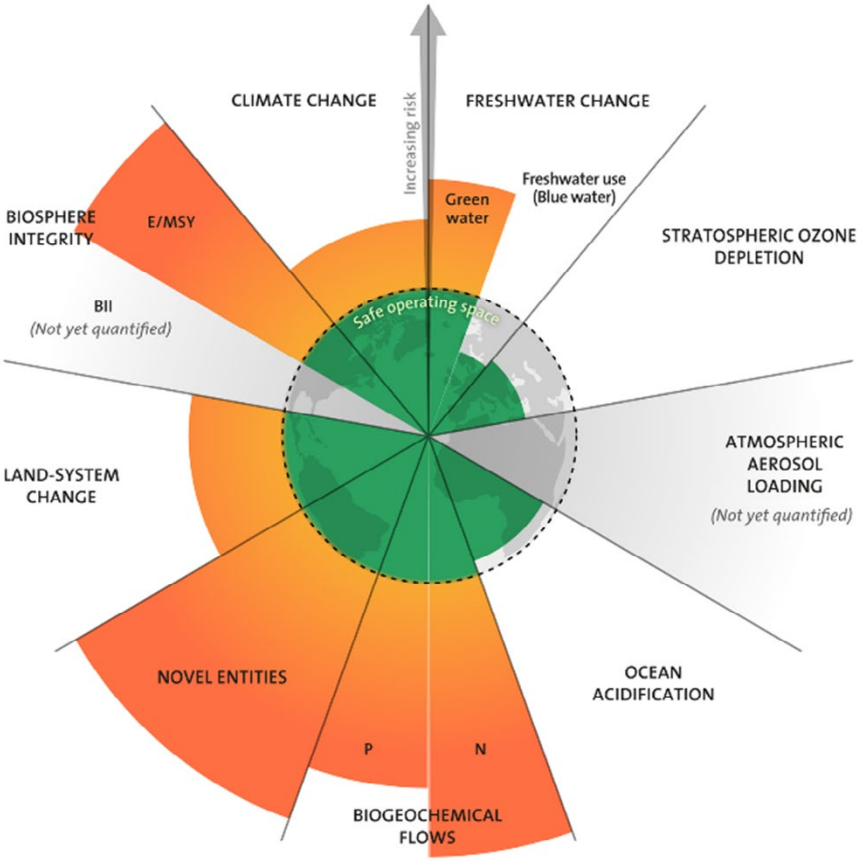


Figure 2: The nine planetary boundaries

Source: Stockholm Resilience Centre, January 2015

Biosphere integrity, the biodiversity boundary is divided into 2 components:

BII means Biodiversity Intactness Index and assesses change in population abundance as a result of human impacts

E/MSY represents the species extinction rate (extinctions per million species per year)

The Biochemical flows include: Phosphorus (P) and Nitrogen (N) cycles.

Biodiversity and business: putting a price on the natural world

Biodiversity loss has diverse and immediate impacts on the economy – as the World Economic Forum states, 50% of global GDP is dependent on nature (though the reality of this figure may be much higher).[4] Most severely threatened sectors (specifically agriculture, fishery, forestry, and energy) are being placed at risk by issues such as degradation of soil health, depletion of fish stocks, and increasing scarcity of natural resources. However, as all life on earth depends on ecosystem goods such as food, water, and clean air, biodiversity loss is a priority for everyone (see Figure 3).

The value of nature's goods and services has historically been excluded from economic models – a glaring omission considering their integral role in value generation for societies and economies. Today, efforts are underway to rectify how these costs have been externalised as environmental damage. With materiality front of mind for investors, some have stepped up to lead the charge.

Setting the strategic agenda: making biodiversity an international priority

In terms of international action on biodiversity, the December 2022 in-person meeting of COP 15 (the UN conference of the parties to the UN Convention on Biological Diversity) was a key moment for the establishment of a post-2020 global biodiversity framework, building on the Strategic Plan for Biodiversity set out from 2011 to 2020. The Kunming-Montreal Pact signed by 196 countries marked a watershed moment for biodiversity action, including an agreement to conserve 30% of the Earth for nature by 2030.[5] There is widely shared hope that these clear and measurable targets for collective efforts to protect the world's ecosystems may fill the void that has "prevented investments from aligning with concrete and actionable global and regional biodiveristy pathways", as Ludovic Subran, Chief Economist at Allianz SE, perceives.

Initially, the UN Climate Change Conference (COP 26) in November 2021 cemented nature as a key priority in the climate conversation, securing agreement to 'reverse biodiversity loss by 2030', as outlined in the Leader's Pledge for Nature.[6] Eva Mayerhofer, Senior Environment and Biodiversity Specialist at the European Investment Bank (EIB), indicates that, as COP 26 has a higher profile than its biodiversity counterpart, there was a huge significance to biodiversity commitments being secured there. A recent report by Goldman Sachs tells a similar story, noting the COP's fundamental role in 'encourag[ing] company-level commitments and indicat[ing] to the markets the speed of the transition.'[7]

In 2022, a total of 111 financial institutions – including Allianz Group – representing 20 countries and over EUR 16.3 trillion in assets signed the Finance for Biodiversity Pledge.[8] Signatories committed to making a positive contribution to biodiversity through their investments and activities, calling on other financial institutions and world leaders to join them in helping to reverse nature loss this decade. This growing momentum, which has to date relied on voluntary action, is set to produce greater rules and regulations such as mandatory disclosures.[9] Nature conservation is now enshrined in the EU Nature Restoration Law. Companies and investors must prepare for an evolving operating environment, ready to keep pace with the rate of change and capitalise on the potential growth opportunities it represents.

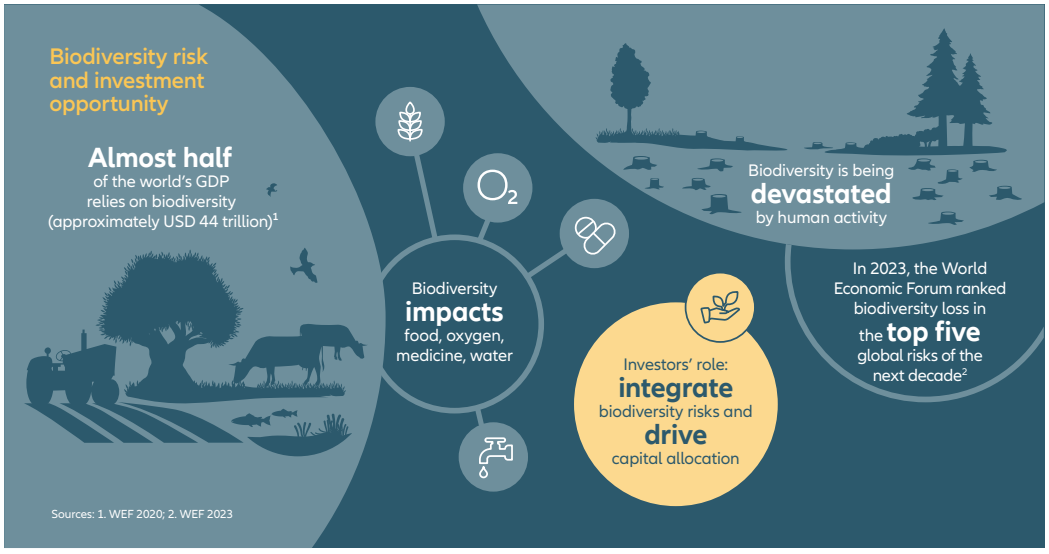


Figure 3: The significant role of biodiversity

Source: Allianz Global Investors, June 2022

From restoration to resilience: nature as a protective shield against climate disasters

As societies flourish in healthy and productive natural environments (and are more vulnerable without them), caring for Earth's ecosystems builds in essential value and resilience. The benefits of positive action for nature contribute to the achievement of the majority of the 17 United Nations Sustainable Development Goals (UN SDGs)[10] – including (but not limited to) no hunger, access to safe water, clean energy, health and wellbeing, and climate action (see Figure 4).

Figure 4: United Nations 17 Sustainable Development Goals

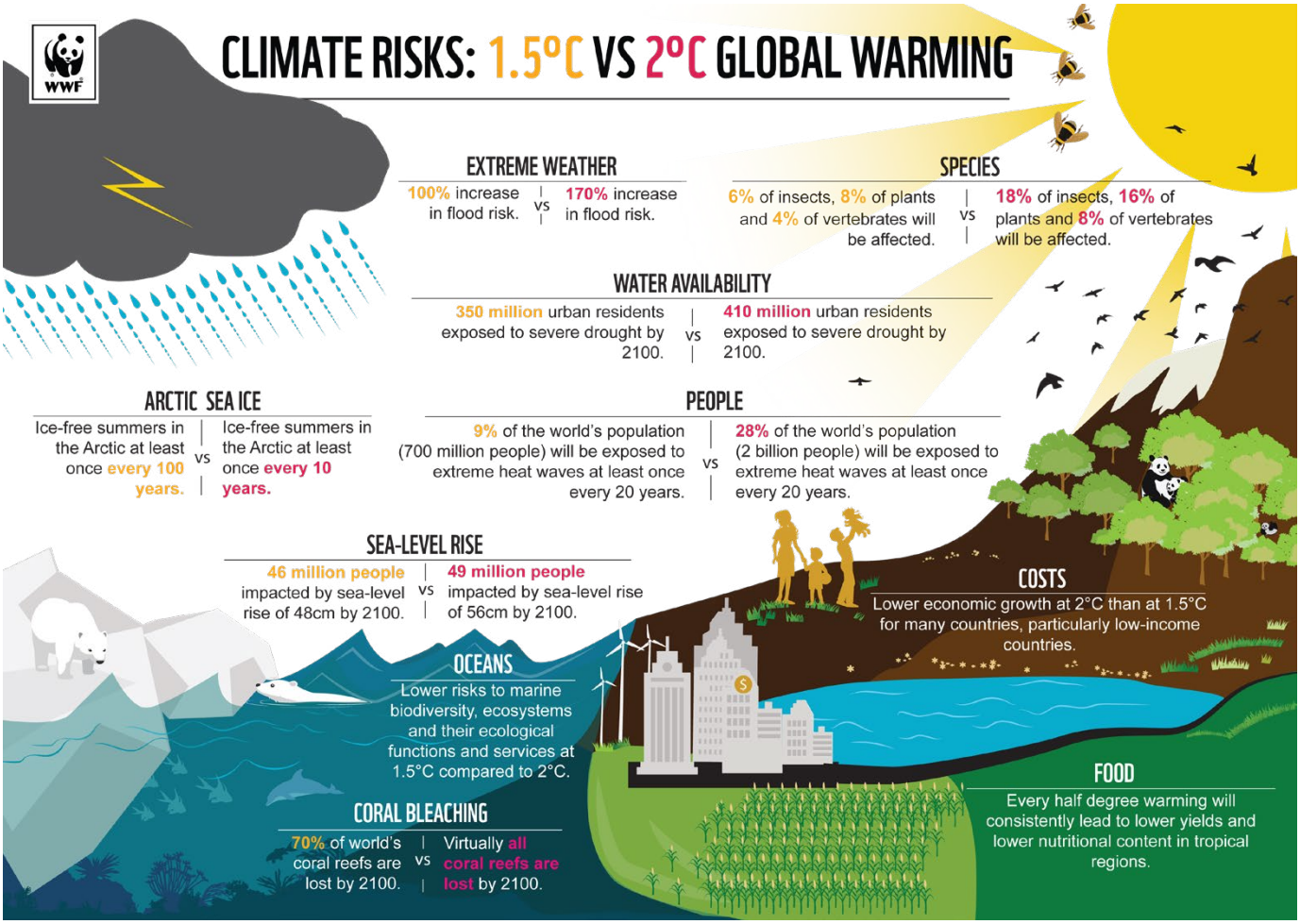
Source: United Nations Sustainable Development Goals, September 2015

The years 2021 to 2030 represent the UN Decade of Ecosystem Restoration, with the stated aim to "prevent, halt and reverse the degradation of ecosystems on every continent and in every ocean" in a way that will make it possible to "end poverty, combat climate change and prevent a mass extinction."

Nature's capacity to bounce back and play a key role in reshaping a more sustainable future makes biodiversity a rich area of opportunity for all key decision-makers.

The equivalent of the net-zero emissions climate goal for biodiversity is 'net positive' – which means firstly halting further damage to ecosystems, and then facilitating the restoration of nature, thereby generating positive value. In the view of Marco Lambertini (WWF), "this net-positive principle, working hand-in-hand with carbon neutrality, will make it possible to advance the goals of a global sustainability agenda." Indeed, climate mitigation is a crucial benefit of biodiversity as land and oceans are the primary sources of carbon sequestration – the process by which CO2 is absorbed from the atmosphere and safely stored. The value of biodiversity's role in tackling the climate crisis cannot be overstated, and nor should the positive impacts of reduced global warming on different elements of the biodiversity ecosystem in turn (see Figure 5).

Figure 5: The intersection between climate mitigation and biodiversity protection



Source: The World Wide Fund for Nature (WWF International), September 2018

Fostering healthy ecosystems offers nature-based solutions to climate change; the more expansive and healthier forests and oceans are, the more carbon they can take in. Restoring not only rainforests but also wetlands, grasslands, seabeds, and vital natural habitats is an essential way to tackle the climate crisis.

Ecosystem restoration also ensures better resilience to climate emergencies and impacts, preventing future pandemics, protecting water sources, and making the land more productive. Gernot Laganda, Director of Climate and Disaster Risk Reduction at the United Nations World Food Programme (UN WFP) makes this point, considering nature a "protective shield" for climate disasters.

The impacts of such disasters are often first and most acutely felt in developing countries, where people have stronger direct dependencies on nature and fewer protective systems in place. Nevertheless, the protective shield of nature restoration offers crucial benefits to all economies. Impacts of the climate emergency are also apparent in developed regions such as Europe, where access to freshwater – for example threatened by the combined effects of drought, unpredictable rainfall, and melting glaciers – is likely to become the next big environmental issue.

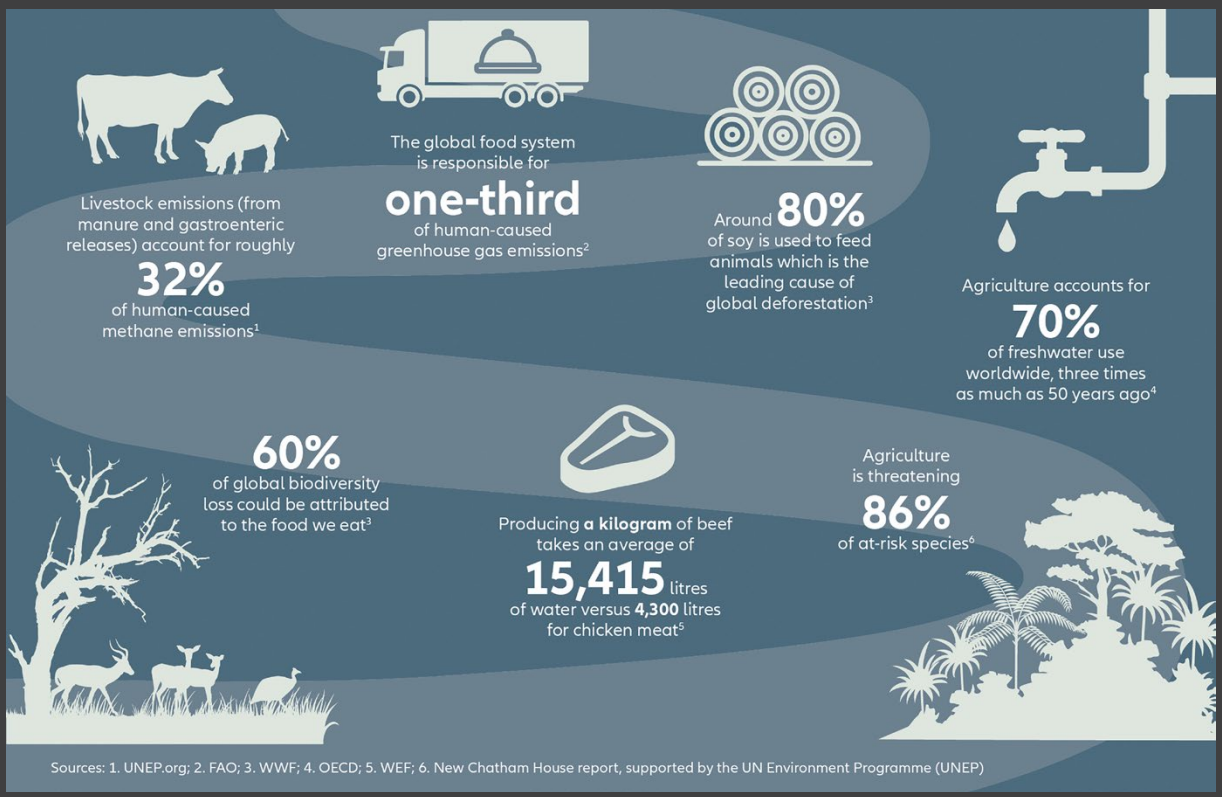
Focus area: food, farming, and community-responsive implementation

Biodiversity is central to food security. While there are estimated to be 50,000 edible food species,[11] today just 15 crops provide 90% of the world's food energy intake, with rice, maize and wheat making up two-thirds of this total.[12]

External shocks – such as crop failures and the war in Ukraine – have endangered a significant portion of this food supply. With 40% of plant species currently at risk of extinction[13] and global diets heavily dependent on domesticated species of crops which are more vulnerable to disease and failure, the future of food is precarious.

The modern food system, which cultivates monocultures through highly industrialised processes, also carries a huge environmental impact. Aside from producing excessive waste and emissions, intensive farming degrades the soil to the point that it becomes a waste product itself. This harmful cycle puts more pressure on healthy ecosystems to be converted into agricultural land, and so the cycle of nature degradation continues.

Figure 6: Feeding the world is taking a toll on the planet



Source: Allianz Global Investors, June 2022

Biodiversity: a strategic priority for investors?

A more sustainable food system would seek to meet the demands of the current population while also ensuring future generations' access to food. To achieve this, biodiversity preservation and restoration is essential. Eliminating fertilisers and pesticides, using regenerative agricultural methods, diversifying crops, and protecting wild species and pollinators all serve to enhance biodiversity while also improving long-term food security.

Agricultural land offers a direct interface with people, especially where it is farmed and cultivated by hand. Being integral to livelihoods, land is not only a commodity, but something that holds wider social, cultural, and ecological value. In the view of Allan Pearce, Director of Food and Forests at Ceres, "a centering of people is missing from the biodiversity conversation" as it currently stands.

While biodiversity is under threat globally, so are indigenous communities and rural, small-scale farmers who also play a vital role in conserving nature and preserving vital knowledge of healthy natural systems.

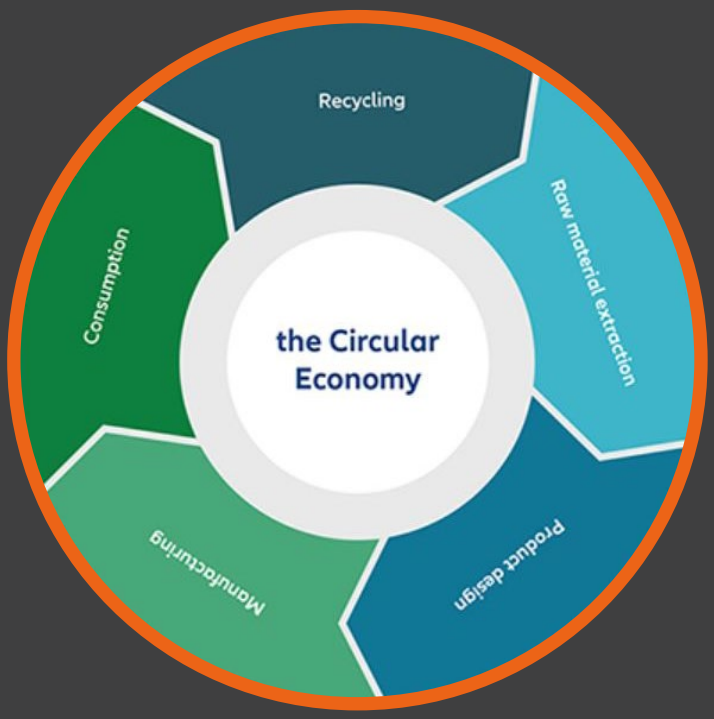
There is, in this, a crucial gender dimension that cannot be overlooked in the social consideration of biodiversity issues, as Mélissa Bourassi (Allianz Global Investors) cautions. Women – especially those in the agricultural sector – are often more vulnerable to the dual impacts of climate change and biodiversity loss given their central role in managing the natural world and widespread exclusion from ownership and decision-making processes.

In any consideration of the social aspects of the biodiversity debate, 'people' cannot be a gender-blind term. Indeed, in the spirit of 'inclusive capitalism', gender-responsive implementation is set to be an essential part of effective policymaking in the long term.

Focus area: towards a sustainable, circular economy

Food scarcity and insecurity is just one example illustrating our resource constraints and the need to use those resources far more efficiently. "Any business model that depends on a resource that is continuously depleted or diminished cannot be sustained in the long run" – Allianz SE's Chief Economist, Ludovic Subran, warns – "it doesn't matter if the business itself depletes the resource or if some third party does it [...] Circularity is the base for all sustainable economic activity." Any nature-based solution seeking to serve the needs of people and planet cannot provide lasting impact if the processes it utilises are not self-replenishing and sustainable. The 'circular economy' (see Figure 7) is a helpful concept in this regard, providing a model for redesigning business practices to enable them to remain safe operating spaces for nature and the communities it sustains. The circular economy refers to shifting from a make-take-waste way of consumption towards a reduce-resuse-recycle approach.

Figure 7: The circular economy
Source: Allianz Global Investors, April 2022



Aiming to mirror the circularity of natural process, reducing and reusing materials, and recycling or repurposing waste products in production cycles which are powered by renewable energy sources, can minimise their environmental impact and diminish the need for offsetting measures – an unsatisfactory solution, as far as Eva Mayerhofer (EIB) is concerned. Creating damage in one place and seeking to negate it in another does not address the crux of the problem – to use the metaphor of circularity, the lines of the curve do not join up. As biodiversity is local and reliant on a specific set of conditions and circumstances, it must be treated as such.

The compelling arguments for circularity raise a broader issue that deeply embedded global consumption patterns are outpacing nature's ability to replenish what is being consumed. 'Earth overshoot day', which marks the date by which human activity has used up all the biological resources that the earth can generate in one year, fell on 28 July in 2022 and has been coming earlier each year. Slowing (and eventually reversing) this trajectory with self-replenishing systems is vital to preserving nature and all it offers for generations to come.

Tools for tackling biodiversity risks and dependencies: practical guidance for investors

Integrating data on biodiversity risk at the company level allows investors to see and understand the material costs of nature degradation "sometimes for the first time", according to Eva Mayerhofer (EIB). In line with the "LEAP" (see footnote for elaboration)[15] guidance set out by the Taskforce for Nature-Related Financial Disclosures (TNFD), investors can start assessing nature-related risks by enacting the following:

- **Identify sources of environmental risk, including the ecosystem services that operations depend on**
- **Eliminate high-risk assets from portfolios**
- **Explore and evaluate supply chains**
- **Set and follow established standards**
- **Embed principles internally**
- **Push for wider change**

From the investor perspective, capturing information on the environmental profile of entities and assets could be vital for supporting risk management and sustainable investment decision-making. For example, by integrating biodiversity data into company analysis, Allianz Global Investors identified newfound sources of risk in investee companies in multiple sectors including chemicals, mining, and food & beverage.

While this data can be used to apply exclusion criteria, it is also essential for opening a focused and productive line of communication with portfolio companies to push for change via engagement, which forms part of the Allianz Global Investors commitment to active stewardship.

In one such case, Allianz Global Investors used this new biodiversity information to urge an agriculture and food company in the US to bring forward its target date of assured zero deforestation in its supply chain (specifically relating to soybeans sourced from Brazil). Zero deforestation by 2030 is a global target to which 146 countries have pledged their support[16]. Originally set for 2025, implementation of this company's accelerated target is already underway in 2022.

Although the measurement of nature-based risks and dependencies is often the vital first step for investors, there is not yet an established industry-wide consensus on the metrics and criteria to use. But frameworks and reporting standards continue to be optimised and aligned.

The TNFD, following the earlier climate equivalent of the Taskforce on Climate-related Financial Disclosures (TCFD), aims to release the next iteration of its guidelines in 2023, supporting companies to measure and disclose the nature-related environmental risks they face. Similarly, the Science-based Targets initiative (SBTi) – a global advisory body for business emissions reduction – now identifies nature as part of climate action. The initiative recently launched guidance specifically for land-intensive sectors with targets prioritising the ending of deforestation and enhancing of carbon sinks which absorb more carbon from the atmosphere than is released.

Eva Mayerhofer (EIB) reminds us that despite the data gaps which are inevitable in a field as complex and emerging as biodiversity, there is a good understanding of the direction investors need to move in: "Data does not have to be comprehensive or granular to indicate the broad trends and need for change", as she puts it. Time is also a consideration, as Allan Pearce (Ceres) warns: "If we wait as long as we have done for the language, tools, and frameworks to develop for biodiversity as we have for climate change, many systems will be beyond repair."

Investing in nature-positive solutions: progressing a just transition

Underscoring the need for measuring, reporting, and reforming elements of businesses' biodiversity action plans, there is huge scope for investment in potential solutions to the biodiversity crisis. The financing gap to tackle nature loss is estimated at USD 711 billion per year, making investment via capital markets both necessary and full of opportunity.[17]

Nature-based solutions, such as afforestation, can provide 37% of the required emissions reductions to reach net zero by 2030,[18] constituting a cost-effective approach of keeping in line with the Paris Agreement.

However, such solutions are consistently under-utilised and under-represented in the net-zero plans of investors, governments, and global corporations. Only 3% of the finance needed for nature-based solutions is currently being met.[19]

Investment in nature restoration adds between EUR 8-38 in economic value for every EUR 1 spent, due to benefits to food security, ecosystem resilience, climate mitigation, and human health.[20] Ecosystem restoration also provides over three times as many jobs as oil and gas production per dollar,[21] thus offering a vital route for furthering the principles of a 'just transition' which protects people and planet simultaneously.[22]

Investors can have an impact by supporting the sustainable transformation of sectors with the highest environmental impacts, including food, land and ocean use, infrastructure and the built environment, and extractives and energy.[23] As Ludovic Subran (Allianz SE) points out, when it comes to investor action, "the agri-food-chain seems to be a natural starting candidate. Its materiality is clear because of scale and because of impact [...] it links biodiversity to our daily lives as we all eat."

Indeed, many financial institutions are already introducing nature-focused programmes to protect and restore land, oceans, freshwater, and the atmosphere in order to build resilience and mitigate the effects of climate change that are currently being felt today.

As Gernot Laganda (UN WFP) reports, ecosystem-based adaptation strategies can work alongside emergency relief to build resilience into communities through restoration and capacity-building. For instance, a UN WFP 'food assistance for assets' initiative[24] works with farmers in food-insecure places on landscape rehabilitation programmes such as tree planting, reforestation, irrigation, erosion prevention, and slope stabilisation.

Figure 8: Land rehabilitation is a vital step towards community resilience

Source: Szabolcs Toth (photographer)

Introducing biodiversity into such landscapes means that vulnerable or disaster-stricken communities can develop security and autonomy beyond the receipt of emergency assistance. As the UN WFP's work reminds us, ecosystem-based adaptation projects must factor in social considerations to have a chance of survival, addressing a range of threats and deprivations from poverty to conflict to ensure that communities can continue to care for their environment and rebuild their livelihoods in doing so.

According to Gernot Laganda (UN WFP), "integrated solutions are the order of the day". Existing humanitarian networks can be used to channel funding directly where it is needed to help achieve social and environmental impact that is tangible and lasting.

The role of investors in a net-positive future

Any consideration of biodiversity teaches us that rich, complex, and productive webs of life are vitally interconnected. Human systems cannot stand apart from biological diversity – they are both directly responsible for and subject to the implications of ecosystem damage.

The biodiversity crisis, alongside the climate crisis, is becoming a central driving factor in future policy and business decisions – particularly in the face of global crises that necessitate sustainable capacity building and regrowth. Given the magnitude of material risks and the potential for nature regeneration to provide a range of benefits from climate mitigation to social impact and the achievement of the UN SDGs, this call to action is not a trade-off.

Investors can start to play their vital part in the creation and establishment of a 'net-positive' future by seeking greater transparency of the risks and dependencies within their portfolios as a means to enhance their understanding and gain actionable insights – even if the data is not yet comprehensive. This can set a firm footing for scaling up investment ambitions, considering ways sustainability strategy could encompass proactive, nature-positive solutions addressing existing investment gaps and potentially capitalising on untapped growth opportunities.

In taking these steps, the global investment community can work together to create a more sustainable economy for the preservation of people and planetary health.

Figure 9: Investing in biodiversity can help safeguard the natural world for future generations

Source: Adiprayogo Liemena (photographer)

Allianz Global Investors is a leading active asset manager with over 600 investment professionals in over 20 offices worldwide and managing EUR 521 billion in assets. We invest for the long term and seek to generate value for clients every step of the way. We do this by being active – in how we partner with clients and anticipate their changing needs, and build solutions based on capabilities across public and private markets. Our focus on protecting and enhancing our clients' assets leads naturally to a commitment to sustainability to drive positive change. Our goal is to elevate the investment experience for clients, whatever their location or objectives.

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Data referenced in this paper's description of Allianz Global Investors is as at 30 September 2022. Total assets under management are assets or securities portfolios, valued at current market value, for which Allianz Asset Management companies are responsible vis á vis clients for providing discretionary investment management decisions and portfolio management, either directly or via a sub-advisor. This excludes assets for which Allianz Asset Management companies are primarily responsible for administrative services only. Assets under management are managed on behalf of third parties as well as on behalf of the Allianz Group.

To learn more about investing to preserve biodiversity, visit:
https://www.allianzgi.com/en/investable-themes/sustainability

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