

Nature finance: seminar series

In Spring 2024, the Royal Society in collaboration with the City of London Corporation hosted a series of meetings designed to bring together leading scientists and members of the finance sector to discuss key areas of common interest, with a focus on nature. Sessions outlined the interdependency between nature and the economy and sought to identify how science can support better financial decision-making in this space.

With private investment predominantly driven by where it can make market-competitive returns, discussions centred around the need to develop a clear value proposition for nature. Over the course of the series, speakers identified a set of basic conditions for nature investments to be compatible with matching GDP growth. These were:

- Conceptualise nature as an asset
- Establish a shared measurement framework
- Agree the role of policy
- Clarify ownership and property rights

1. Conceptualise nature as an asset

Traditionally, resource and environmental economics focus on the assets that we can observe and own. Nature's provisioning goods which can be physically extracted and transformed into products that at market price become GDP, have a clear market value. Meanwhile, the intangible services that nature provide- although essential for sustaining a healthy planet on which our economy depends- are not priced into valuations. These vital maintaining and regulating services are invisible, collectively owned and dynamic; making them hard to price, own, and accountability for their protection hard to enforce.

Our current valuation mechanisms fail to internalise the whole cost of excavating nature. This means that nature is being underpriced and, therefore, over-exploited to the detriment of future economic stability and growth. Investing in its protection and restoration, and thereby the vital services it provides, is critical for maximising portfolio resilience and long-term growth potential.

As a first step, Financial Institutions (FIs) would benefit from greater clarity on what constitutes Biodiversity and Nature. A less nebulous definition would help to increase confidence in what they are investing in.

“The idea that companies can be independent of each other because of the market system is completely wrong once you bring natural capital into accounting.”

Sir Partha Dasgupta GBE FBA FRS, Frank Ramsey Professor Emeritus of Economics, University of Cambridge.

Secondly, it is difficult to quantify the benefit of protecting nature when it lacks a clear monetary value. However, like asking a human to value their own heart, trying to assign a single price to a species or ecosystem will not reflect the value lost in its absence. The price of nature ought to reflect the necessity of avoiding its destruction in addition to its direct consumption value. One possible approach to this is to engage financial mechanisms that restrict the overconsumption of nature without creating a single market value for it. These could include:

- **Land value capture**
For example, Hong Kong uses land value capture in the form of land value tax, this encourages the use of brownfield land and disincentives urban sprawl.
- **Performance bonds**
For example, one could incorporate nature targets into existing sustainability-linked bonds. If the issuer does not achieve their stated targets, they are penalised with a step up in coupon rate. Although less than 10% of sustainability-linked bonds have water or biodiversity key performance indicators (KPIs), nature-linked sovereign bonds have already had demonstrable success in Uruguay.

- **Debt for nature swaps**

For example, a sovereign might commit to achieving certain nature goals in exchange for a credit enhancement. So far only two development banks have participated in this. In 2023, Ecuador's government completed the world's largest Debt for Nature swap, repurchasing \$1.6billion worth of outstanding sovereign bonds at approximately 40cents on the dollar in return for committing to long-term marine conservation targets in the Galápagos Islands.

- **Sustainability loans**

Nature-linked loans could incentivise the protection and restoration of key biodiversity hotspots globally. In 2023, the Inter-American Development bank approved a \$100million loan and \$6.12million grant to Barranquilla, Colombia. It requested that a portion of the proceeds go towards rehabilitating the surrounding water plains. As well as benefiting the local ecosystem, this nature-based solution will help to protect the city against extreme weather events.

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“We need to understand how current systems and proposed changes to those systems and likely to affect ecological, economic, and social outcomes for a whole diversity of actors in proximate locations where these changes are intended, but also in distal locations and interconnected ways.

Christina Hicks, Professor in the Political Ecology group, Lancaster University.

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2. Establish a shared measurement framework.

- Currently, 40% of the nature metrics used by FIs are based on model data and proxies. Increasing the quality and quantity of real data available will allow nature to be modelled and monitored at greater scales and precision. However, before nature data is used to monitor human impact on the environment, set policies, and hold people to account; robust water marking procedures are essential to verify the integrity of the raw data and how it is processed. Corroboration and authentication can be built into systems by overlaying the output from a range of measurement sources, for example satellite and eDNA.
- Finance and scientists must work together so that the raw data collected at ground level can be made meaningful and actionable for FIs. It is equally necessary that any financial nature metrics that are adopted by FIs can be disaggregated back into raw data. This will enable decisions in the boardroom to be directly associated with management decisions on the ground.
- Our systems, whether they are based on finance, climate, biodiversity or otherwise, are increasingly global and interconnected. Biodiversity risk compounded by Climate change, for example, is a huge material risk to the economy that has not yet been properly illustrated. To effectively navigate the opportunities and risks involving nature finance, it is important to understand how global systems interact and how proposed changes to them will affect ecological, economic and social outcomes worldwide. This includes understanding the inadvertent impacts of financial investments on remote locations¹.

1. Carmenta R , Barlow J , Bastos Lima MG , Berenguer E , Choiruzzad S, Estrada-Carmona N *et al*. Connected Conservation: Rethinking conservation for a telecoupled world. *Biological Conservation*. 2023 Jun 30;282:110047. Epub 2023 Apr 14. doi: 10.1016/j.biocon.2023.110047.

3. Agree the role of policy

Societal risk and opportunity are framed by government and the financial system works within that frame.

The financial system predominantly uses the Discount Cash Flow (DCF) model, with \$500 trillion of global stock using it to price securities. However, DCF relies on fundamentally flawed assumptions such as the ability to discount future generations, that nature is infinite, and that valuations can be shielded from their externalities.

While it is increasingly clear that relying on the DCF model to price securities damages long-term growth and financial stability, it is so widely adopted that to not use it, one risks becoming misaligned with the market. Policy intervention such as taxes, subsidies and mandatory disclosures could help correct existing market failures, de-risk the nature market, and construct an early mover advantage away from the DCF model to one that is compatible with sustainable development.

Interventions that were suggested included:

- Policy-linked sovereign bonds to help combat short-termism in the market, and act as a hedge for renewables in lieu of nature-harming investments.
- An increase in demand reduction policies to escalate the efficacy of renewable resource use, promote conservation, reduce consumption levels, and push behaviour change.
- In addition to sanctions and an appropriate regulatory framework, effective enforcement mechanisms are needed to ensure the protection and conservation of nature.
- Incorporate geopolitical risks arising from the nature and climate crises into FIs' physical risk assessments. The time horizons currently considered are too short and also geopolitical risk is seen as too complicated to quantify. However, geopolitical turmoil is likely to be the biggest single factor to cause regional and global crisis and must be accounted for.
- Extend scenario analyses used by FIs to the end of the century, and incorporate Earth's tipping points to accurately reflect the seismic risk that nature collapse presents to insurance and banks in particular.

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“We don’t think twice about heavily regulating commodity markets and yet there is a feeling that sustainability, nature and climate markets will self-organize. Patently, they do not.”

Sir Ian Boyd FRS, Professor of Biology,
University of St Andrews.

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4. Clarify ownership and property rights.

In most basic terms, fiduciaries seek answers to two questions when assessing the profitability of an investment. First, ‘what is the most likely configuration of the future economic system?’ Second, ‘given this information, how can a company’s business model be assessed to determine whether it is a good investment?’. The case for increasing private investment in nature protection and restoration should consider these two questions at all times.

However, often the returns from a private investment in nature are a public benefit. In such cases, the value proposition can be unclear to the private investor. While it is useful to articulate the risk of not protecting nature, greater emphasis could be placed on how private investors can directly and immediately benefit from investing in it. Possible solutions could include adopting a rental framework for nature (as is already used for fisheries) where private parties pay for access to and exploitation of public assets.

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“The central challenge to drive investment into protecting and restoring nature isn’t the asset owners, cost or complexity of nature but the level and quality of information being provided by companies.”

Helen Avery, Director of Nature Programmes,
Green Finance Institute.

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Immediate actions

While the ultimate goal is to transition to an economy that invests in nature, an estimated \$200billion is needed with immediate effect. Low-risk intermediary interventions that could be actioned immediately and don't require system change include:

- Establishing nature markets to drive money towards nature protection and restoration in the short term. This will require companies to first disclose their impacts, which they are currently not required or incentivised to do.
- The finance community wanting to protect their macro financial stability from depleting ecosystems often don't know what their priorities should be. Meanwhile, the scientific community is confused as to what questions they should prioritise. Science should help to focus efforts and drive investment to the right places. For example, what are the planetary tipping points that cannot be surpassed, and where are the systemically important spaces and species that should be given precedence?
- Scientists can help to determine what 'good' looks like per sector.
- For bonds and other types of fixed income instrument, one approach could be to incorporate nature KPIs in financial products that are already being used for climate.

“Economics is a political economy. We cannot make economic decisions without politics. Regulation needs to widen the scope of what's possible for economics, and economists need to think more radical thoughts to jump from the art of what is possible to the art of what needs to be done.”

Alderman Professor Michael Mainelli, 695th Lord Mayor of London.

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