

Preserving and Natural Capital by Investing in Sustainable Infrastructure

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Key Takeaways

- Natural capital refers to the tangible real assets that underpin the ecosystem services derived from the natural world.
- The annual funding gap necessary to preserve and regenerate nature and biodiversity is \$700bn – with only \$280bn invested in natural capital solutions, strategies including this asset class are limited.¹
- Capital invested remains low due to an uncertain risk/return profile. The main challenges are revenue stability, relatively low expected returns, scalability, and the maturity of nature-based credit markets.
- Resonance offers an alternative approach to creating a net positive environmental and social impact by preserving natural capital without relying on underdeveloped nature-based markets as a core revenue stream.
- Investing in sustainable infrastructure achieves long-term, stable cash flows from operating assets with exposure to carbon credit markets and a measurable environmental impact while preserving nature from excessive industrial degradation.
- Resonance's strategy presents tangible examples of alternative, low-risk approaches that include water management and treatment, renewable energy, and resource recovery assets that achieve circular solutions for industrial processes.



¹Schroders Insights, data from the Pwason Institute, June 20231



What is Natural Capital?

An unprecedented focus on ESG by investors, corporations, governments, and end-users, has inspired new conversations around natural capital. The term implies new approaches to investments that deliver environmental impacts integrated with wider socio-economic outcomes.

The required annual investment to preserve and maintain real assets from nature is approximately \$700bn- this far exceeds government and private investment commitments that amount to \$260bn.²

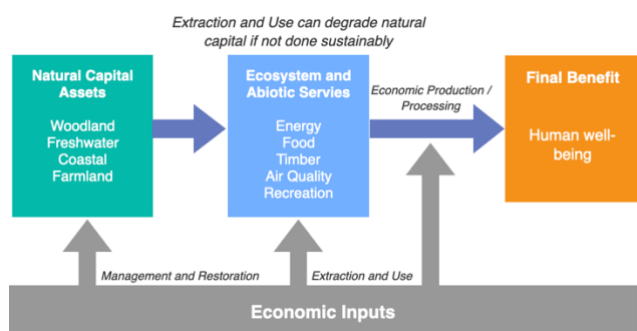


Fig. 1 UK Natural Capital Accounts, ONS, February 2017

Typically, economic growth has been at odds with preserving the natural environment. Capital has been allocated to 'Extraction and Use' and 'Economic Production / Processing' as shown in Fig. 1. These activities are profitable but can be environmentally intensive.

Due to national reporting requirements and pressure from investors, managers are under pressure to allocate capital to strategies that address 'Management and Restoration'. Natural capital offers a direct approach to enhancing and preserving the natural world to achieve this.

Natural Capital Strategies

Investment managers facing pressure to deliver climate solutions generate returns through underlying asset value growth, carbon credit-generating, and selling ecosystem services/useful by-products.³

The following strategies attempt to achieve this:

(1) Direct investment in natural capital real assets – this involves deploying capital to acquire operating natural capital assets such as forestry, farmland, or sustainable aquafarming. Demand for forestry and sustainable farmland is expected to rise as populations grow.

(2) Investing in nature-based solutions – this involves managing and restoring ecosystems that rely on the receipt of carbon credits. Examples include re-forestry, mangrove ecosystem regeneration, and biochar production.

What Drives Investor Interest?

The top drivers behind increased interest from institutional investors are as follows:

1. Changing Policy Frameworks

The world's ecosystems underpin \$44 trillion of global economic assets or over 50% of global GDP.⁴ Recognising this, at COP15 in 2022 several nations pledged to restore and conserve 30% of degraded freshwater bodies, by 2030, alongside renewing emissions targets.

Pledges have translated to more rigorous disclosure requirements, such as EU SFDR, CSRD, and green taxonomy in the EU, influencing private investment strategies

2. Access to Nature-Based Markets

Voluntary carbon credit markets are maturing with enhanced data collection and monitoring making emission reduction and removal a tradable asset.

Carbon prices are expected to rise with more ambitious emission targets being pursued.⁵ The carbon credit market is expected to be worth upward of \$50bn in 2030.

3. Diversification

Natural capital offers diversification, e.g., timberland is negatively correlated with fixed income and has a low correlation with global equities as trees grow regardless of economic cycles.

This provides investors an alternative to renewable energy funds, reducing the correlation with fossil fuel markets and their associated risks.

4. Positive Impact

Natural capital projects bring environmental and social benefits, including public health improvements and job creation.

Climate risk disclosures, influenced by the Taskforce on Climate-related Financial Disclosures (TCFD) Framework, impact companies and investors, with non-compliance threatening brand image.

What Are the Challenges?

However, scepticism ensures a gap between investor intentions in participating in this asset class and actual capital being invested due to several challenges faced by institutional investors.

- **Low Expected Returns:** Expected returns are relatively low, with 5-8% in developed countries and 10-12% in emerging markets. Ecosystem services generating tradable credits are seen as a significant revenue source, but accurate pricing and market depth require effective regulatory and monitoring frameworks.

² Schroders Insights, data from the PwC Institute, June 2023

³ Financing Nature: Closing the Global Biodiversity Financing Gap, PwC Institute, Report 2020

⁴ New Nature Economy Report, World Economic Forum, 2020

⁵ Carbon Growth Partners and Bloomberg NEF, November 2023



- **Uncertain Revenue Streams:** due to the nascency of nature-based markets, a lack of skilled project developers in restoration and management.⁶
- **Illiquidity:** the minimum duration of natural capital assets is 10 – 15 years, with more typical durations upward of 30 years offering limited flexibility.
- **Lack of stock and scalability:** almost 70% of all available financing vehicles in natural capital in the US are below US\$5m, with only 3% above \$50m.⁷ Due to their size, these projects rely on philanthropic or public finance support.⁸
- **Difficult to quantify public goods:** both carbon and biodiversity are 'public goods' and therefore very difficult to quantify and monitor. Methodologies need to be reproducible to achieve credibility and growth of nature-based credit markets.
- **Embryonic markets for nature 'credits':** in the UK, TNFD reporting is not yet mandatory and TCFD is only a requirement for certain sectors. Policymakers must embed nature requirements into law to accelerate the development of these markets. Currently, it is more likely that payments for biodiversity offsets will take the form of a bilateral exchange between landowners and property developers which does not present an investment opportunity.
- **Differentiated approaches to nature markets:** Terminology and approaches to measuring natural capital quality and quantifying biodiversity 'credits' aiming to compensate for negative environmental impacts are highly differentiated. This limits the ability to exchange these units across investment regions.

Enhancing Natural Capital While Generating Reliable Returns

Investing in sustainable infrastructure is an alternative investment approach that takes stock of natural capital with the comfort of investing in a traditional asset class. These assets include water treatment and reuse, renewable energy assets, waste management and resource recovery solutions.

Resonance Asset Management invests in sustainable infrastructure assets, co-located on-site with industrial producers to prevent unnecessary degradation and reduce pollution of industrial operations. As a result, the strategy avoids further destruction and depletion of natural habitats and resources through renewable energy solutions and preserves natural resources, such as water and biodiversity, by financing waste management solutions.

An Attractive Strategy for Investors

Sustainable infrastructure assets are built to provide the benefits associated with the natural capital asset class with reduced risks.

The benefits of this approach include:



Invests in proven, low-risk technology for a positive and measurable environmental impact, reducing risk compared to green tech PE and start-ups.



Offers predictable cash flows, with typical returns ranging from 8-12% IRR in co-located sustainable infrastructure projects, including water treatment, resource recovery, and renewable energy assets.



Ensures accurate impact data in line with EU SFDR Article 9 principles, enhancing monitoring and reporting on water treatment, supply figures, and carbon offsets.



Provides tradable nature-based credit markets through accredited assets. The strategy is well-positioned to utilise voluntary carbon markets and emerging credit frameworks. For example, biodiversity net gain (BNG) in the UK rewards operators for restoring water sources providing the largest available credit.



Falls under a familiar asset class, infrastructure, where the manager has extensive technical and financial management experience and operators are more easily monitored.



Delivers non-financial benefits for the environment and community, via improving air and water quality, reduced waste, and longevity of operations of the given site ahead of compliance regulation.



Additional revenue streams from sustainable by-products – sustainable, co-located assets generate useful by-products in repurposing waste that would otherwise pollute waterways or contribute to landfill.



Ahead of regulation – the strategy ensures compliance with climate-positive regulation ahead of rules tightening reducing the risk of increased costs relating to emissions tracking and local ecosystem management.

⁶ Nature and Biodiversity, PWC, May 2023

⁷ PWC Nature and Biodiversity Investment Gap, May 2023

⁸ Natural Capital Insights, Schroders, June 2023



Project Examples: Ecosystem Restoration and Generating Biochar

A pipeline project in Mid-Western Australia presents an opportunity to invest in an innovative nature-based solution which involves removing a Weed of National Significance (WoNS – problematic, parasitic species in Australia that damages local ecosystems) and using it as a feedstock to convert the biomass into biochar via pyrolysis.

Revenue Drivers

- **Carbon removal credits** sold into international Emissions Trading schemes or directly to Voluntary Carbon Markets.
- **Biochar for agriculture** is used as a soil fertiliser or livestock fodder.
- **Biochar for building materials** - biochar is used in concrete production or mine site rehabilitation.
- **Biochar for metallurgy** biochar is used in green steel processes.
- **Pelletised biochar and syngas** are effective renewable fuels with the potential to replace diesel power onsite.

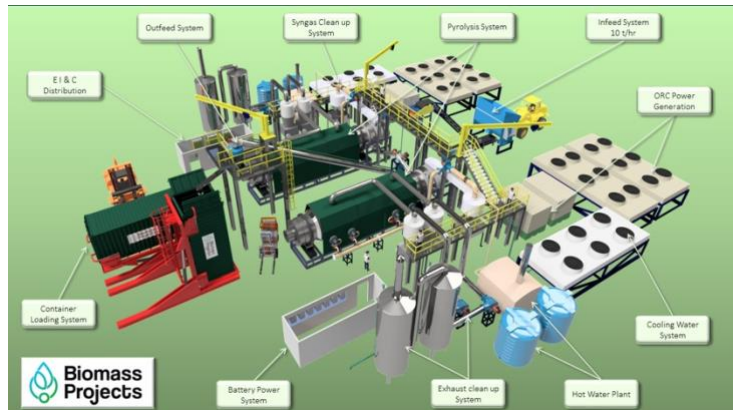


Image Source: Take Global, Equipment Controls example for biochar pyrolysis installation

Environmental and Social Benefits

- An effective method for land rehabilitation avoids using alternative methods such as controlled bushfires that may cause unintended damage.
- Creates a measurable carbon impact with the opportunity for sequestering and restoring soil health.
- Engagement with traditional and indigenous landowners offers local economic development opportunities and job creation.

Project Example: Reducing Agricultural Pollution in the UK

An existing Resonance investment provides a consolidated waste management solution for a local chicken farm in Kent. The waste-to-value plant reduces the local and global impact of agriculture on the environment while generating reliable revenue streams. Wastewater from an egg production process passes through an anaerobic digestion process to produce biogas.

Revenue drivers

- **Bio-methane sales** – 6.6MW of high-quality biomass exported to the grid.
- **Subsidy schemes** the facility is fully authorised to receive inflation-linked payments under GGSS (a government incentive scheme).
- **Liquid ammonium sulphate fertiliser** – high-quality organic fertiliser is produced and sold, this acts as a substitute for fossil-fuel-based fertiliser, relieving local farmers from the added cost pressure of nitrogen-based imported fertiliser.



Image Source: Green Create, Kent Facility

Environmental and Social Benefits

- The facility diverts 50,000t of manure from polluting the local environment. This protects freshwater sources from eutrophication and preserves the health of local ecosystems and biodiversity.
- Provides low-carbon energy sources from biomethane sales.
- Reduces the impact of ammonia on local air quality. Nitrous oxides contribute to greenhouse gas emissions and reduced air quality.



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