

THE
LANDBANKING
GROUP

Nature Equity Consultation Paper

A new asset class that brings nature on the balance sheet.

January 2024



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Abstract

Nature is a critical infrastructure for businesses, the economy, and society at large. However, our stock of natural capital is rapidly depreciating because we fail to invest in its maintenance or restoration. Today's funding streams, largely based on government support, philanthropy, land purchases, or compensation, are insufficient. And importantly, they do not establish a fiduciary-grade contract between the provider and buyer of natural capital. Advancements in technology and accounting standards now make it possible to invest in verifiable nature protection, restoration, or improvement. We call this novel concept "Nature Equity". It links a unit of biophysical nature preservation or enhancement to financial payment, offering land stewards outcome-based rewards. Investors, in turn, gain verifiable proof of nature stewardship. The Nature Equity contract establishes a new asset class, immutably linked to a Natural Capital Account (NCA). This account records the stock of biodiversity, carbon, soil, or water for a specific plot of land. With an NCA as collateral, payments for nature preservation or maintenance can be recognized as an immaterial asset on the buyer's balance sheet. Nature Equity contracts facilitate an equitable exchange of nature-based contracts between land stewards and businesses. Nature Equity can serve as the constitutional contract for nature-backed assets, then nature-backed securities and – eventually – nature-backed currencies.

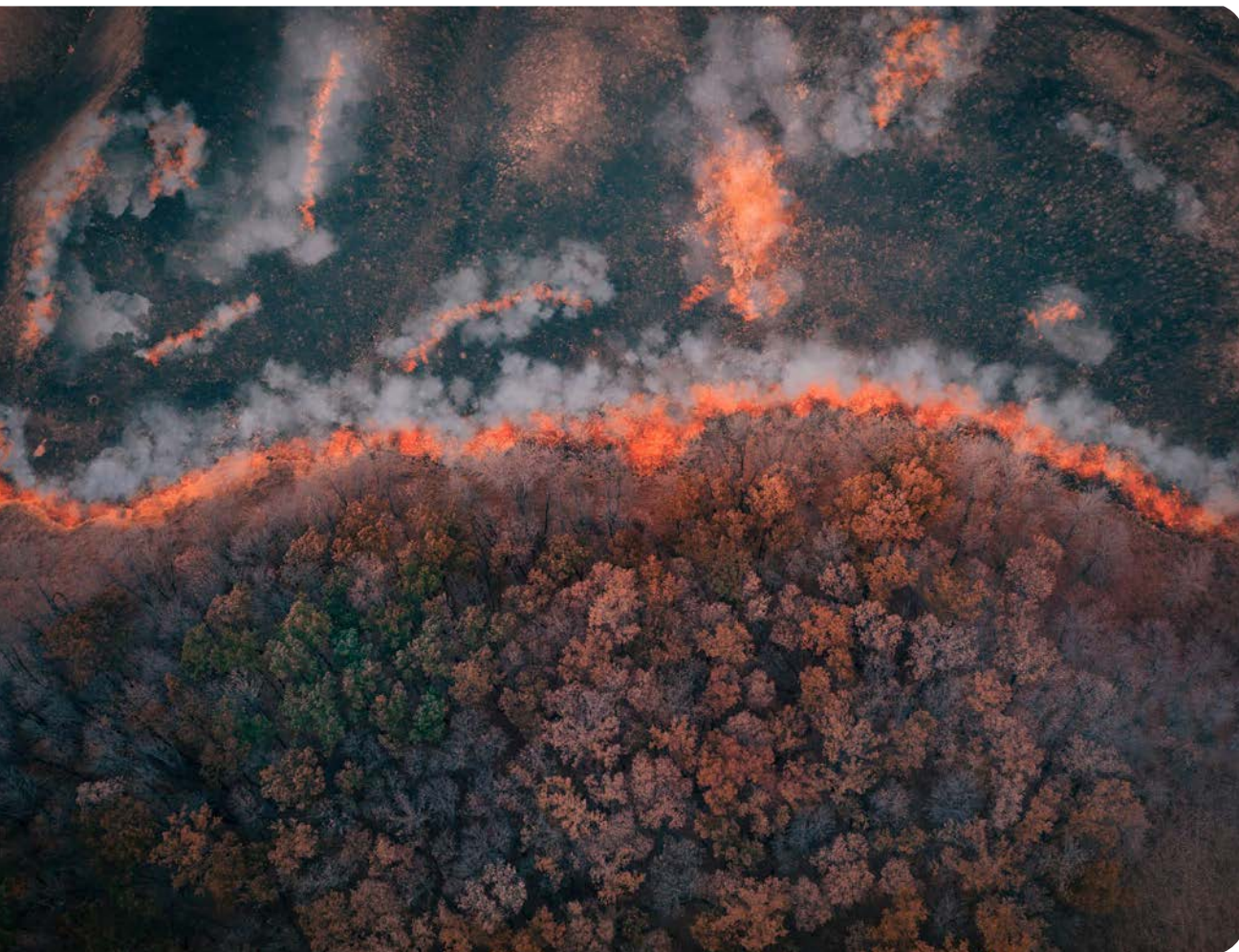




The status quo

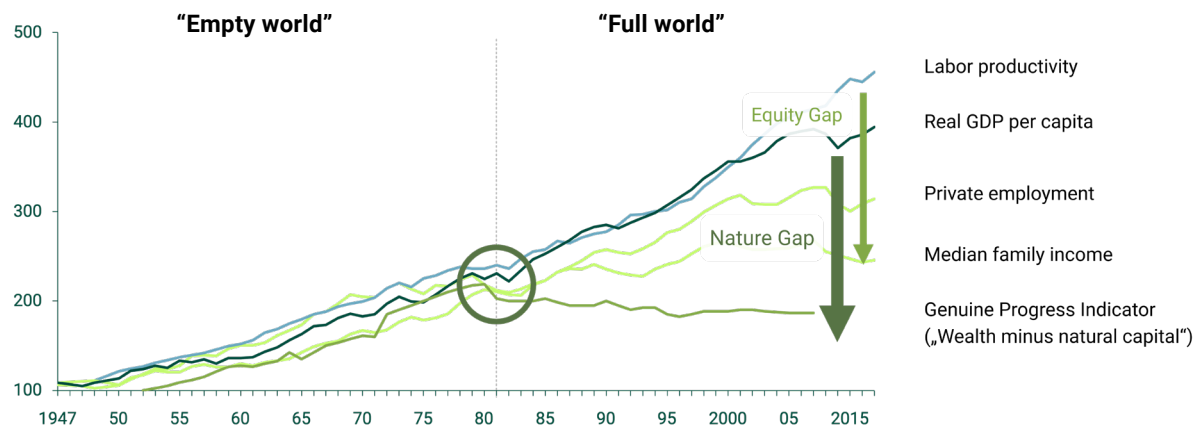
Growing poor

Recently, coffee companies have raised alarm bells. Coffee production is rapidly declining in countries that account for 75% of the world's Arabica coffee supply. This decline is due to factors such as soil degradation, diseases, and hotter temperatures. Similarly, a phytoplankton bloom, fueled by excessive nitrate runoff from over-fertilized fields, is jeopardizing Baltic fisheries. In California, increased wildfire risks have led insurance companies to withdraw from the home insurance market. Scientists also highlight that the drainage of peatlands and conventional agricultural practices are exacerbating infrastructure damage caused by floods.



Nature Equity addresses the “Great Divergence” at its root

U.S. labor productivity, GDP per capita, employment, median income, and Global GPI per capita
Indexed to 1947



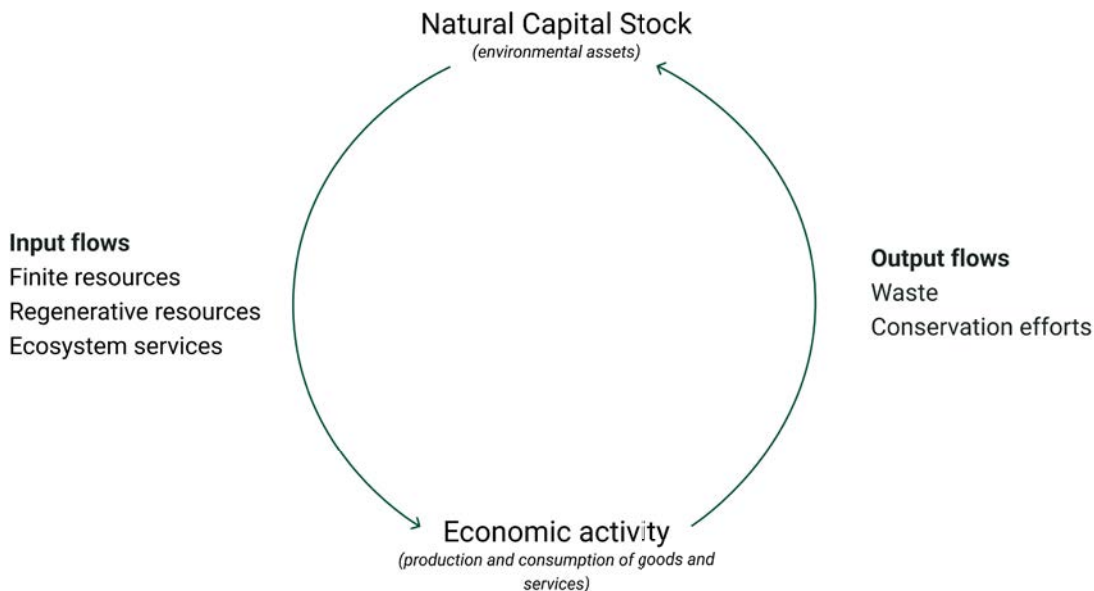
Nature has long been treated as an inexhaustible resource, available without cost. However, this is changing. Since the 1980s, key indicators of economic prosperity and societal well-being have ceased to align closely. For decades, macro-indicators of large economies evolved in parallel. But the mid-1980s marked a “Great Divergence.” Labor productivity, family income, real GDP per capita, private employment, and measures of societal progress like the Genuine Progress Indicator began to diverge. While labor productivity continued to grow, median family income stalled. This stagnation in real income has widened an **Equity Gap**, fueling a sense of exclusion and social discontent.

The current economy is characterized by a second phenomenon: a divergence between the real gross domestic product—the monetary market value of goods and services produced—and any reasonable measure of societal progress such as the Genuine Progress Indicator, an economic tool that measures a nation's economic health by incorporating environmental and social factors. This divergence signals that the production of goods and services is increasingly reliant on the depletion of natural capital. Consequently, our prosperity is eroding the very natural capital it depends on, leading to what we term the **“Nature Gap”**. This results in a concurrent increase in poverty and inequity. Together, the Nature and Equity Gaps define the dual economic crisis this paper addresses.

The opportunity

Natural capital as a source of societal wealth

Science is unequivocal: To prevent the most severe consequences of climate change, breakdowns of value chains, and zoonotic events, we must halt and reverse the loss of natural ecosystems by 2030. We are facing increasing losses of forests¹, peatlands², and mangroves³; the rate of species extinction is now hundreds of times greater than the average over the past 10 million years⁴. Forests provide more than just timber as a service we extract, measure, and pay for. They also offer crucial services like water storage and purification, regulation of local surface temperatures, and enhanced ecosystem resilience. This resilience, particularly important in combating extreme weather events such as droughts or floods and pest invasions, is significantly bolstered by biodiversity within these forests. Similarly, mangroves play a vital role in protecting coastal regions from floods and storms. They ensure resilience through their natural capital stock, which includes a rich biodiversity of flora and fauna.



Original chart by Björn Döhring:

https://www.researchgate.net/figure/Stylised-interactions-between-Natural-Capital-and-economic-activity_fig3_368364236

Based on: Reflections on the Role of Natural Capital for Economic Activity - Scientific Figure on ResearchGate.

Available from https://www.researchgate.net/figure/Stylised-interactions-between-Natural-Capital-and-economic-activity_fig3_368364236 [accessed 8 Jan, 2024]

“Rewarding the custodianship of natural capital in a fair and equitable manner can transform our relationship with nature and people.”

MARK GOUGH, CEO, CAPITALS COALITION

It becomes increasingly evident each year that nature is crucial for the stability of businesses, economies, and societies. Economists recognize natural capital as essential for generating wealth, alongside financial, produced, and human capital. For companies, a thriving natural environment is a vital asset for future profitability. Governments, too, view nature as critical infrastructure, just as energy or roads. Capital, assets, and infrastructures depreciate if we fail to invest in their maintenance or expansion. Much of our economic development journey has been a wholesale depreciation of the natural world. And soon, the nature bank will be empty unless we invest more than we depreciate.

At two pivotal UN conferences - UNFCCC COP21 in Paris (2015) and CBD COP15 in Montreal (2022) - the global community made initial commitments to protect nature-linked carbon sinks and biodiversity stocks. The target is to safeguard 30% of the planet's surface by 2030, a level scientists deem necessary for the safety of humanity and economies. Achieving this requires an annual investment of USD 700 billion⁵ into nature preservation and restoration. However, as of mid-2023, governments have pledged only USD 30 billion⁶ for programs against biodiversity loss, with just USD 160 million raised.⁷ Even as obligations for business sector stewardship of nature are emerging, investment in natural capital remains insufficient. “We’d be a more resilient and more valuable company if our value chains operated within healthy ecosystems,” a beverage industry CEO remarked, highlighting the business sector's recognition of this issue.

The realization

Today's natural capital markets fail the moment

How can we invest in natural capital? Currently, investment in natural capital amounts to about USD 200 billion⁸, which is significantly lower than required, largely from government expenditure along with philanthropy (approximately USD 165 billion). The private sector – despite extracting a value of USD 7tr from nature every year, only funds nature with an amount of USD 35bn. Historically, nature has been considered an open-ended and free public good, leading to underinvestment and overuse, a dilemma known as “the tragedy of the commons”⁹.

Access to these commons was traditionally provided by feudal landowners to their peasants. However, this feudal order dissolved in the late 19th century, and today, land is managed based on property rights, both private and public. The scale and scope of land ownership, as well as the provision of ecosystem services from natural capital, vary significantly.

In some cases, natural capital can be directly linked to the beneficiaries of a specific land parcel. In other situations, benefits arise from landscapes and catchment areas, or are accrued by wider communities. This variety necessitates a differentiated approach in measuring, contracting, and pricing the various levels of natural capital and the ecosystem services they provide.

The benefits of green infrastructure are multifaceted and depend on scope and scale

National scale (UN SEEA)

- National wealth accounting
- Maintenance and expansion of natural capital as national wealth exceeds GDP approach
- Improves parameters such as public health, climate resilience, adaptation to extreme weather events
- National well-being (inclusive wealth index!) and climate adaptation improve

Community scale (Ecosystem)

- Entire regions and ecosystems in various governance structures
- Regenerative practices benefit a variety of businesses and other stakeholders (problem of the commons)
- Resilienz reduces cluster risk (example droughts with water scarcity or floodings, health issues,...)
- Potential economic benefits can only be attributed indirectly

Farm scale (Polygon)

- One or more polygons
- Regenerative appreciation increases land value
- Resilienz reduces economic risk for land steward and down the value chain
- Potential yield improvement for land steward and resilienz down the value chain

Cooperative scale (Catchment Area)

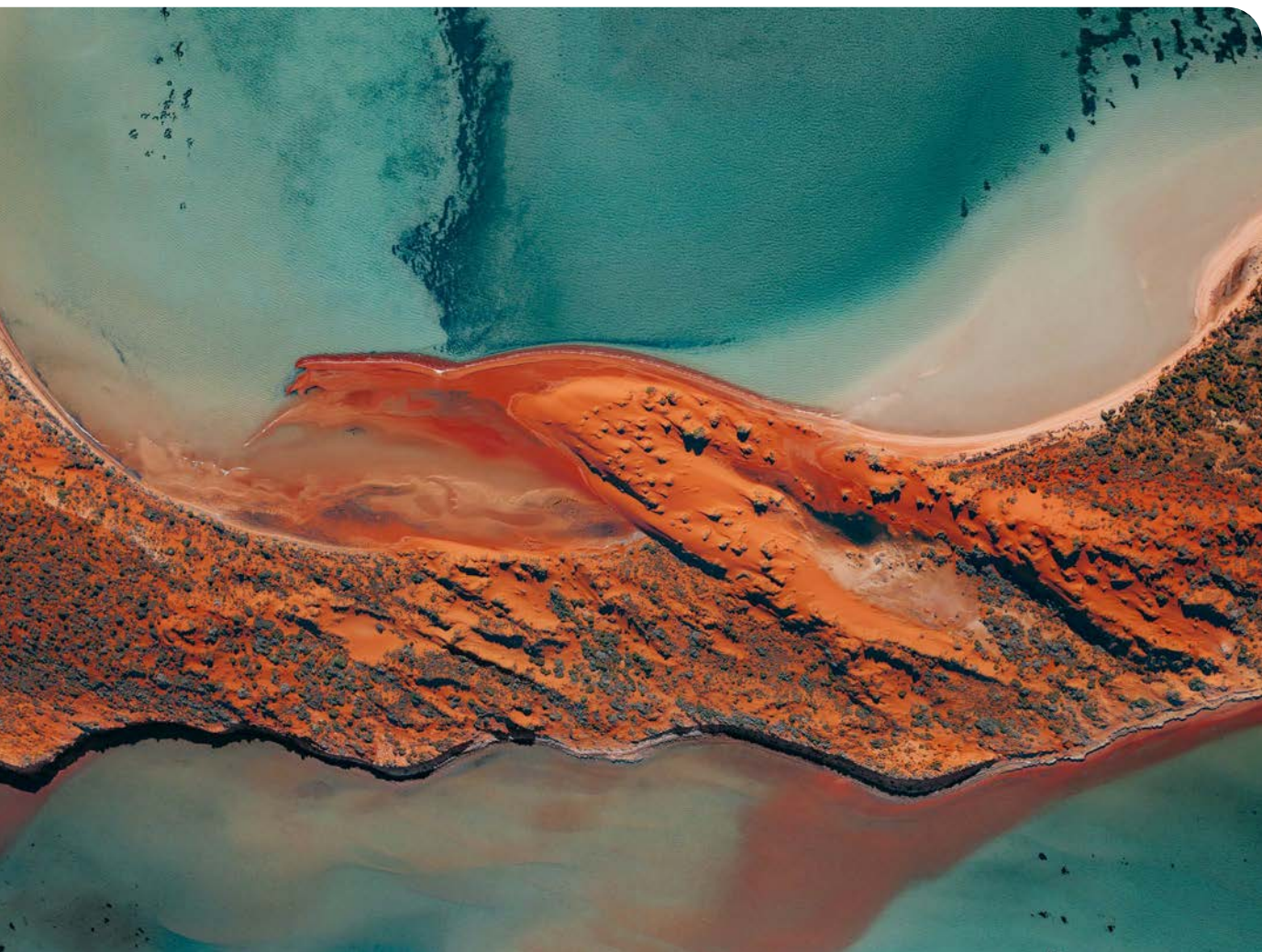
- Collaboration of various land stewards and land owners
- Regenerative practices and preservation benefit members and other stakeholders
- Resilienz reduces economic risk for members
- Potential yield and/or quality improvement

Given the significant role of private land ownership - for example, 70% in Spain, 60% in the US, 50% in Columbia, and 40% in Brazil - and the vast scale of extractive business activities in nature, which amount to over USD 7 trillion in value per year, the importance of deploying private capital to invest into natural capital is clear. Additionally, with half of global economic activity directly threatened by failing ecosystems¹⁰, the demand for market rules that support and mandate private investments in natural capital is increasing. Emerging market mechanisms are addressing this need, albeit gradually:

Nature compliance markets, initially established under the Kyoto Protocol and later under Article 6 of the Paris Climate Agreement, require emitters to offset their emissions. These offsets can include nature-based solutions. More recently, countries like the UK have adopted similar mechanisms to compensate for land conversion, such as the BioDiv net gain provision. In 2022, carbon compliance markets mobilized an estimated USD 900 million per annum¹¹, while land remediation or Biodiversity net gain markets mobilized USD 5 billion¹². However, these actions remain predominantly local in focus. The mechanism has not yet effectively facilitated international investment in natural capital, and both its scale and scope are still sub-critical.

Several countries have implemented incentives or legal mandates for the **Payment for Ecosystem Services (PES)**, such as water infiltration, pollination, and digital sequencing of biodiversity. Currently, there are over 550 PES programs globally, which collectively channel funds between US\$ 36 to 42 billion annually¹³. Again, these programs are often small and localized, failing to match the scale of the planetary challenges we face and the habits of international business.

Voluntary nature-related carbon and nature credit markets offer a mechanism to fund nature-based solutions, which are projects aimed at removing carbon or maintaining natural carbon sinks. These funds are sometimes allocated to restoration projects designed to store carbon and/or restore biodiversity. Alternatively, they may support existing carbon sinks, based on the counterfactual argument that these ecosystems would degrade in line with an estimated baseline without the credit purchase. Currently, voluntary carbon markets mobilize around USD 2 billion in funding¹⁴, while biodiversity credit markets are valued at approximately US\$ 8 million¹⁵. In addition to the inherited reservations against the concept of compensation, biodiversity credit markets raise questions about a unified metric and the equivalence of mitigation measures across geographies and ecosystems.



COMPENSATION VERSUS ASSET MARKET PARADIGM

In 1997, the Kyoto Protocol recognized emission reductions in “non-Annex I” (i.e. developing) countries to compensate for emissions. In the absence of a universal commitment from all countries to climate targets, a voluntary carbon market and certification standards emerged around 2005. They allowed individuals, businesses, and governments to voluntarily offset their carbon emissions. Ever-increasing expectations on companies and countries to decarbonize and the ongoing lack of UN-mandated carbon market rules (esp. under article 6.4 of the Paris Climate Agreement) led to significant growth expectations in voluntary carbon markets. Whilst the outlook for verified removals remains strong, there is a heated debate around the viability and robustness of “reduced emissions” carbon credits, especially through avoided deforestation.

How can we fund natural carbon sinks if compensation is becoming a harder proposition to make: Because our remaining budgets for allowable pollution are shrinking, because a counterfactual (e.g., an assumed deforestation rate) is increasingly hard to establish, because additionality is harder to argue in a world of universal environmental degradation, because permanence of an intervention is ever harder to prove in a volatile world, and because the value of natural capital investments should not only be available to those who have done harm in the first place? With all these conceptual concerns – which may not be resolved by higher integrity standards only – an extension of a compensation market approach to the realm of biodiversity (where equivalence is even harder to establish) may be doomed from the beginning.

Against this new backdrop of a “full world” in which nature represents not just a sphere for compensation but critical infrastructure, it is due to step back and rethink natural capital markets more fundamentally. A measured quantum of natural capital should constitute an exchangeable asset that holds value for the owner. This is because it strengthens the value chain, demonstrates contributions beyond the value chain, represents access rights to land, commodities, or digital sequencing information, and embodies intrinsic “scarce” value.

By contrast, so-called **“insetting” markets** – markets within value chains – are growing because they properly reflect the economic significance of sound nature provision. Today, companies are probably investing somewhere around USD 26 billion in nature-based solutions within their value chains¹⁶. The shift towards regenerative land use practices offers a much-needed solution for remedying nature and climate issues within business value chains (scope 3). This transition not only aids in ecological restoration but also enhances supply resilience and mitigates risks across business systems. Economically, this approach aligns the ambitions of investors with on-site ecological needs, and companies across sectors – from food and energy to infrastructure and mining – are beginning to recognize its economic benefits. That said, scaling up these practices presents challenges. From a practical standpoint, businesses grapple with how to effectively measure benefits and ensure engagement at the landscape level. Economically, even within the context of value chains, nature remediation is often not regarded as a capital investment for balance sheet recognition, but rather as a Corporate Social Responsibility (CSR) expense on the Profit and Loss (P&L) statement. This perception impacts how these initiatives are funded and prioritized, underscoring the need for a shift in how businesses view and integrate nature remediation in their financial planning.

Halting nature depreciation can also be achieved through land purchases. This strategy appeals to nature-minded high net-worth individuals (HNWIs) and Environmental, Social, and Governance (ESG) funds. Both groups are attracted not only by the potential dividends from ecosystem services, like those derived from natural capital stock in carbon markets but also by the prospect of value appreciation based on verified ecosystem quality. Traditional and emerging funds represent a new class of investors dedicating increasing amounts to land acquisition for conservation purposes.

“Nature is our most critical infrastructure. Without biodiversity there is no prosperity. We have to find new ways to fairly reward those who maintain and restore biodiversity on our behalf.”

CHRISTOF SCHENCK, MD, ZOOLOGISCHE GESELLSCHAFT FRANKFURT



The drawback of this model is evident: There are political acceptability limits to (cross-border) land purchases on a landscape level – which many people perceive as land grabbing. And the capital intensity of title deed purchases will stand in the way of an increase consistent with 30by30 requirements.

Land right purchases offer yet another route. Leases or long-term management contracts provide access to proceeds from carbon, green power, eco-tourism, or ecosystem service proceeds. While delegated management contracts have traditionally been awarded to conservancies, new players are now entering that market, turning management contracts into investible constructs such as listed Nature Asset Companies (NACs). A key obstacle of this concept – management contracts turned into assets – is the complexity and tediousness of origination.

All of the mechanisms available today have severe limitations and, in aggregate, fail to provide the funding required to procure nature for sound business continuity and human survival. They are unsuitable for attracting investors with high fiduciary obligations and significant amounts of investible funds, and to raise capital at the required levels.

The Solution

A vehicle for investments in nature



How to invest into standing ecosystems and natural carbon sinks if purchasing land or land rights is unviable at scale and if compensation is becoming a harder proposition to make? In a over-populated world where 75% of land outside of ice sheets is managed and even more is influenced by humans, maintaining nature becomes a household issue, and deserves a fundamental rethink. An orderly management approach to nature as a critical infrastructure must meet three requirements:

Capital maintenance requirement (“Nature Test”):

How do markets allow investments into nature as critical infrastructure that requires maintenance and improvements over time? Like 'grey' infrastructure, nature needs consistent investment to deliver future goods and services. The concept was raised by Paolo Quattrone¹⁷. It is consistent with Partha Dasgupta’s view that there is a need “to invest in a capital good to increase it beyond what it would be if there was to be no investment in it. We are talking of net investment, that is, investment net of depreciation.”¹⁸

Contribution reward requirement (“Equity Test”):

How do markets reward those who – through their land use choices and work – maintain and create natural capital, and those who – through their payments – catalyse these improved economic choices? How can they access these markets with ease and trust?

Value accrual requirement (“Nature Equity Test”):

How can a financial transaction over ecosystem outcomes allow the accrual of balance sheet value over time both for the seller (land steward) and the buyer (natural capital investor)? How can that value originate a formal asset that can be held, transacted, and adjusted for changes in the underlying ecological value?

We propose the creation of a new asset class, termed “Nature Equity,” which fulfills the aforementioned triple test. The term ‘equity’ has its roots in Latin, with ‘aequitatem’ meaning “the uniform relation of one thing to others, or one actor to other actors,” and ‘aequus’ signifying “even, just, equal.” Historically, in law, Roman ‘naturalis aequitas’, established in the late 14th Century, represented a general principle of justice that corrected or supplemented legal codes. In accounting, equity is understood as the fair value of all assets minus liabilities, appearing on the right-hand side of the balance sheet. Conversely, investing in the equity of other entities creates an asset on the left-hand side of the balance sheet. Therefore, equity, in essence, symbolizes a relationship founded on trust and durability. We argue that contracts embodying these principles are essential for managing something as critical as natural capital. Nature Equity is an innovative financing model designed to support nature protection and restoration initiatives. It successfully fulfills the three key requirements mentioned above:

- **Capital Maintenance:** At its core, Nature Equity facilitates ongoing payments for the delivery of biophysical nature preservation or improvement services. This ensures a continuous investment in the maintenance and enhancement of natural capital.
- **Contribution Reward:** The model establishes equitable contracts between two parties: Nature Equity sellers (“land stewards”) and Nature Equity investors (“buyers”). A land steward can be a person or community legally entitled to take land use decisions – be it as owner, tenant, or based on any hereditary right of use of land – and, as such, is a provider of natural capital. Buyers will usually be businesses with an interest in protecting their value chain, demonstrating positive contributions, and accruing value as a hedge or store of value (i.e. like gold or real estate). This contract does not represent a title-deed. It solely contains the measured capacity of nature to produce outcomes such as harvests, carbon sequestration, water holding, water purification, and biological regeneration in the future. In return, investors receive a right of significant value: Exposure to safe physical assets in their supply chain or their neighborhoods, solid and generally recognized proof of climate or nature remediation, reliable delivery on government requirements, and finally a holding right on an intrinsic scarce value.

- **Value Accrual:** Both parties benefit from balance sheet-grade safeguards. These include a unique and immutable identification of the underlying measurements, transparent valuation methodologies, and clear contractual rights with defined durations. The value of these transactions is recognized on the balance sheet; for investors, the contractual rights to nature's measurable outcomes are recorded as intangible assets on the left side of the balance sheet.

As an intangible asset, a nature Equity Asset is part of the left section of the investor's balance sheet

| Assets | Liabilities |
|--|--|
| Current assets Cash Accounts Receivable Inventory | Current liabilities Accounts Payable Tax debits |
| Long-term assets Property Intangible assets Nature Equity Asset | Long-term liabilities Long term borrowings Lease agreements |
| | Shareholders' equity |

Nature Equity represents a robust, transparent, and mutually beneficial model for investing in the preservation and enhancement of natural ecosystems, offering tangible benefits to both land stewards and investors.

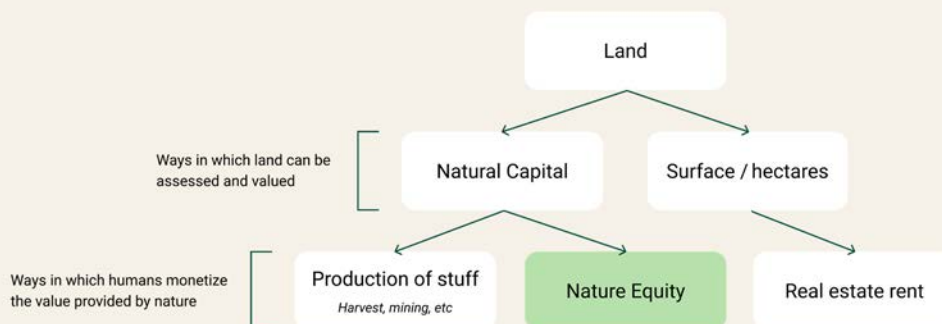
Nature Equity also offers the potential to strengthen the balance sheets of land stewards, provided they are structured as legal entities. The valuation of a land's biophysical state can increase its property value by indicating the future economic resilience of its usage. To distinguish Nature Equity from other current methods of attributing monetary value to land, it's important to understand two conventional practices:

The first method values land based on its surface area – essentially, the real estate value measured in square meters or hectares. The second method assesses value based on the natural capital that can be converted into tradable products, as exemplified by “provisioning ecosystem services” under the CICES typology. This includes resources like soft commodities, timber, or minerals.

In contrast, Nature Equity focuses on non-extractive natural capital. It recognizes the inherent value of ecosystems that contribute to the land's overall health and sustainability, not just the extractable resources. This approach to valuation represents a significant shift from traditional methods, emphasizing the importance of preserving and enhancing natural capital without depleting it.

There is an attractive outlook for the future: If Nature Equity contracts are retained, the land stewards will increase the value of the 'Property' position of the balance sheet. In the future, we foresee an additional line item in the property section of assets with Nature Equity as an isolated asset class for land stewards which can be kept decoupled from the real estate and transacted as an intangible asset (Value accrual requirement).

Nature Equity Assets are reserved for Natural Capital that is improved or conserved, rather than exploited or consumed



Philosophically, Nature Equity assets represent the net “regenerative” asset after the deduction of all “extractive” liabilities. This qualifies Nature Equity as an equity item in a world of full Natural Capital Accounting and thereby as accounting infrastructure for any country willing to adopt the UN’s SEEA – Natural Capital Accounting standard. This vision has however not yet been embraced by accounting standards and, for now, cannot be capitalized on a land steward’s balance sheet. Quintessentially, it would add a new type of “shareholder”: Nature. Patagonia’s transition of assets to a nature trust “Nature is now our only shareholder” may be a pioneering precursor of a world where nature is recognized as a legal subject able to act as a creditor to a business.

Issuing Nature Equity

The workings within a nature-based economy

A Nature Equity contract is a legal framework governed by the Civil Code, facilitating the exchange of rights between providers (sellers) and buyers of natural capital. This right is termed a “Nature Equity Asset”. Technically, it's a legal fiction representing “a specific level of performance of a specific land characteristic with respect to a specific project’s Natural Capital Account (NCA)”. The contract stipulates payment for the delivery of a defined natural capital preservation and improvement equivalent (the “unit”) from the buyer to the seller. The investment into Nature Equity – be it an Uplift Unit or a Conservation Unit – as an outcome-based funder (OBF), creates a claim on measurements (current and subsequent) on the side of the buyer. She has purchased a right that corresponds to the requirements of IAS 38 and can be named an asset. This is not a liability or credit, but a right. To qualify as a balance sheet asset for the buyer, under International Accounting Standards (IAS) 38, a Nature Equity investment must meet three specific conditions:

Contracts must be identifiable, the base of “*value*” attribution:

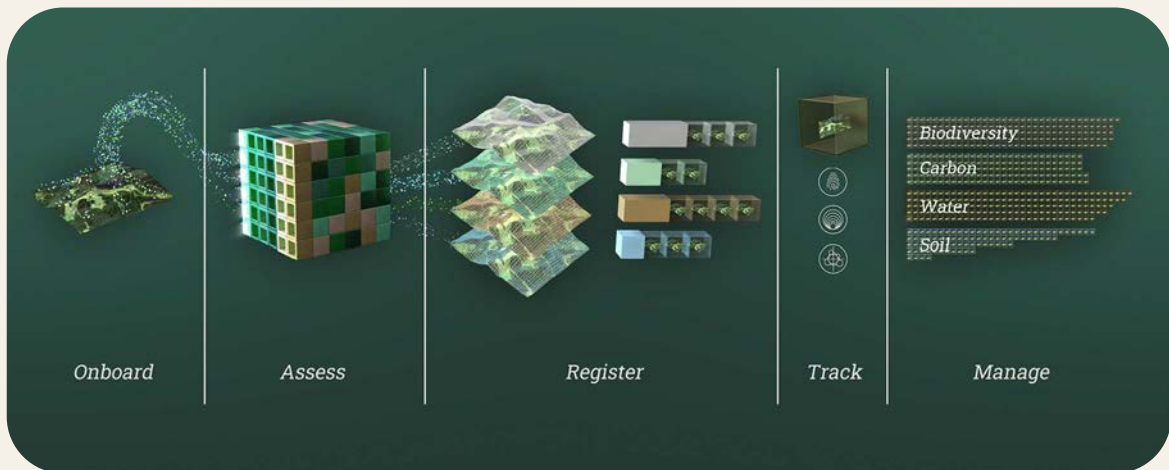
Nature Equity contracts are paired with a specific portion of land (polygon) – their 'biophysical twin' in nature – through a Natural Capital Account. The Natural Capital Account, which acts like an ecological passport, records various ecological metrics such as carbon levels, soil quality, water resources, and biodiversity. The use of remote sensing, public mapping, local sampling data, and machine learning ensures that the identification is immutable and meets the International Accounting Standards (IAS) criteria. The approach is scalable across biomes and ecosystem archetypes, reproducible, and verifiable.

Contracts must be controllable, which refers to the definition of “*asset*”:

The land steward and the buyer agree that whenever a measurement is taken and a preservation or improvement equivalent is determined, a certain number of Nature Equity Assets is generated and then sold and transferred by the land steward to the buyer. This satisfies the IAS definition of an “asset” because the contract, while rooted in real-world ecological conditions, is a separate entity from the land, giving the benefits and the control to the buyer, due to their ownership of Nature Equity Assets.

Contracts must hold future value, which requires a definition of “*market*”:

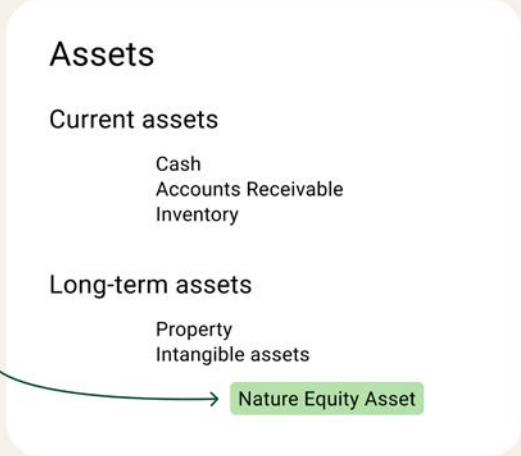
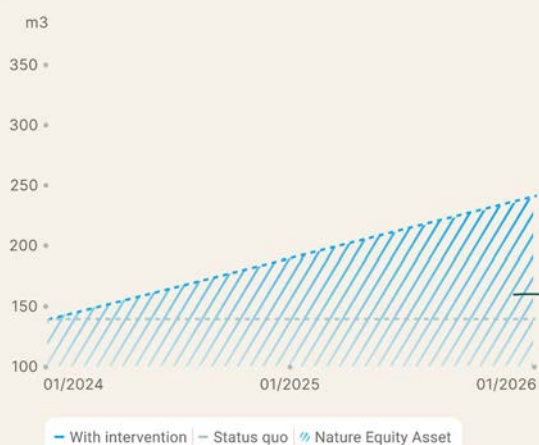
Nature Equity contracts must constitute a value to the seller and the buyer (sources of business and portfolio value will be described below) and a marketplace must exist for transactions to materialize (IAS criteria).



Contracts are established between land stewards and buyers (outcome-based funders – “OBFs”) in either a spot or a forward transaction. A spot transaction on existing Nature Equity assets can take place at any time and between any two parties, always referring to a particular uplift or conservation unit. Long-term relationships between sellers and OBFs allow for forward purchase agreements (we call them “Nature Equity Asset Purchase Agreements – NAPA”). A NAPA enables a land steward and a buyer (e.g. in an agri-food value chain) to step into an outcome-based financing agreement. The ambition is to prefinance regenerative practices to restore and improve the Natural Capital Balance of a selected Natural Capital Account (NCA). This is to increase supply chain resilience against climate change on the biophysical twin, the field, and thus mitigate supplier risk.

A Nature Equity Asset is a measured, attributable quantity of natural capital preservation or uplift. The asset is activated on the left side of the investor's balance sheet.

The visual below illustrates an example of a Nature Equity Asset representing an uplift in water holding capacity.

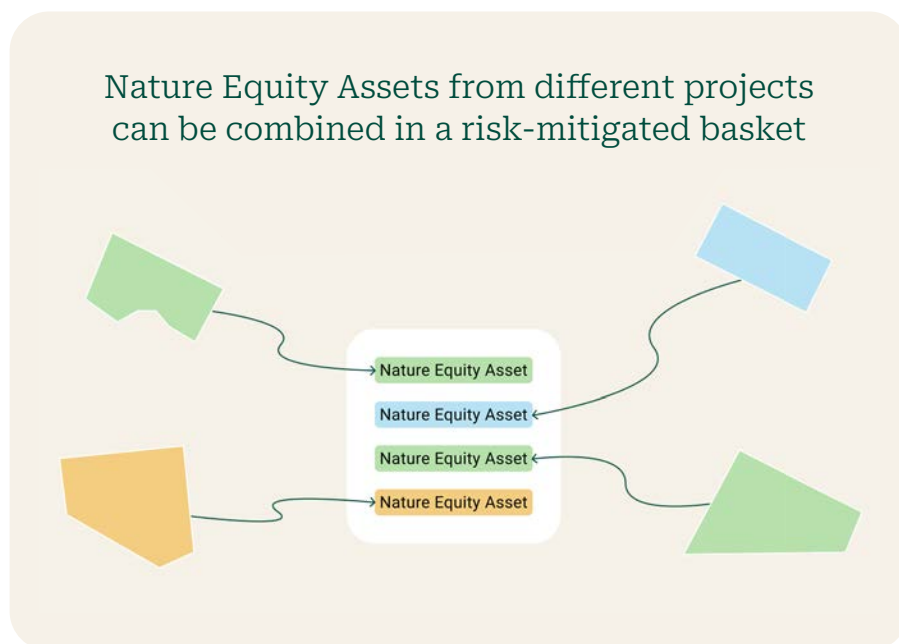


Under a NAPA, parties agree on various parameters based on a forecast provided by intermediaries like The Landbanking Group. This includes the contract duration, which can span multiple years, the Uplift Unit settlement scheme, types of Uplift Units, an aggregated contracted purchase volume (“up to” amount), and the price per Uplift Unit type. Additionally, the agreement outlines a down-payment due at the beginning of each settlement cycle and other details like payment instructions. A crucial component of these agreements is the adherence to Monitoring, Reporting, and Verification (MRV) services. For instance, in the case of The Landbanking Group's offering, this involves a subscription to landler.io and compliance with a specific rulebook. These elements collectively ensure the effective and transparent functioning of Nature Equity contracts.

If Nature Equity contracts fulfill all requisite criteria – value, asset, and market – they establish a balance sheet-grade asset. This marks a decisive shift from current nature markets, fostering trust and enhancing liquidity to attract fiduciary-grade capital. The “Units” defined in Nature Equity contracts provide an opportunity for risk diversification through investment baskets or funds. Such funds can compile Uplift and Conservation Units from diverse regions, ecosystem types, and domains – or they can focus on a specific type or type of risk.

There are multiple initiatives underway to position Natural Capital as an investible asset class, building on the concept outlined above. For example, The Landbanking Group has developed www.landler.io, a platform that offers an end-to-end infrastructure for issuing Nature Equity.

Nature Equity Assets from different projects can be combined in a risk-mitigated basket



This platform exemplifies how the market is evolving to support this innovative asset class, paving the way for a new era in natural capital investment. Such a solution is composed of the following elements:

Automated and scalable Monitoring, Reporting, and Verification (MRV) technology across biomes/ecosystem regions, different natural capital dimensions, and different economic demand categories (i.e. insetting, offsetting, insurance, investment). The models are based on the latest technological feasibility and in open exchange with the NatureTech community for scientific rigor and commercial accessibility.

The **contractual suite** for the issuance of a balance sheet-grade asset containing:

- A **Natural Capital Account** (NCA) with a dashboard interface that dynamically records the land characteristics. It documents and stores the data that serves as underlying for Nature Equity Assets. It is the reference for land stewards that the applied practices lead to the measured ecosystem outcomes. Investors are granted access to the relevant data for the units they have acquired. This access to NCA data permits transparency on the ecological health of the invested polygon – the biophysical twin - and allows for active management of Nature Equity.
- A **rule book** details the technical services and the scientific methodology applied for the determination of Nature Equity Units.
- A **Nature Equity Asset Purchasing Agreement** (NAPA) that refers back to the NCA and the rule book, ensures all legal safeguards for buyer and seller and triggers the transfer of Nature Equity Assets from the land steward's portfolio or Nature Equity Account to the buyer's.

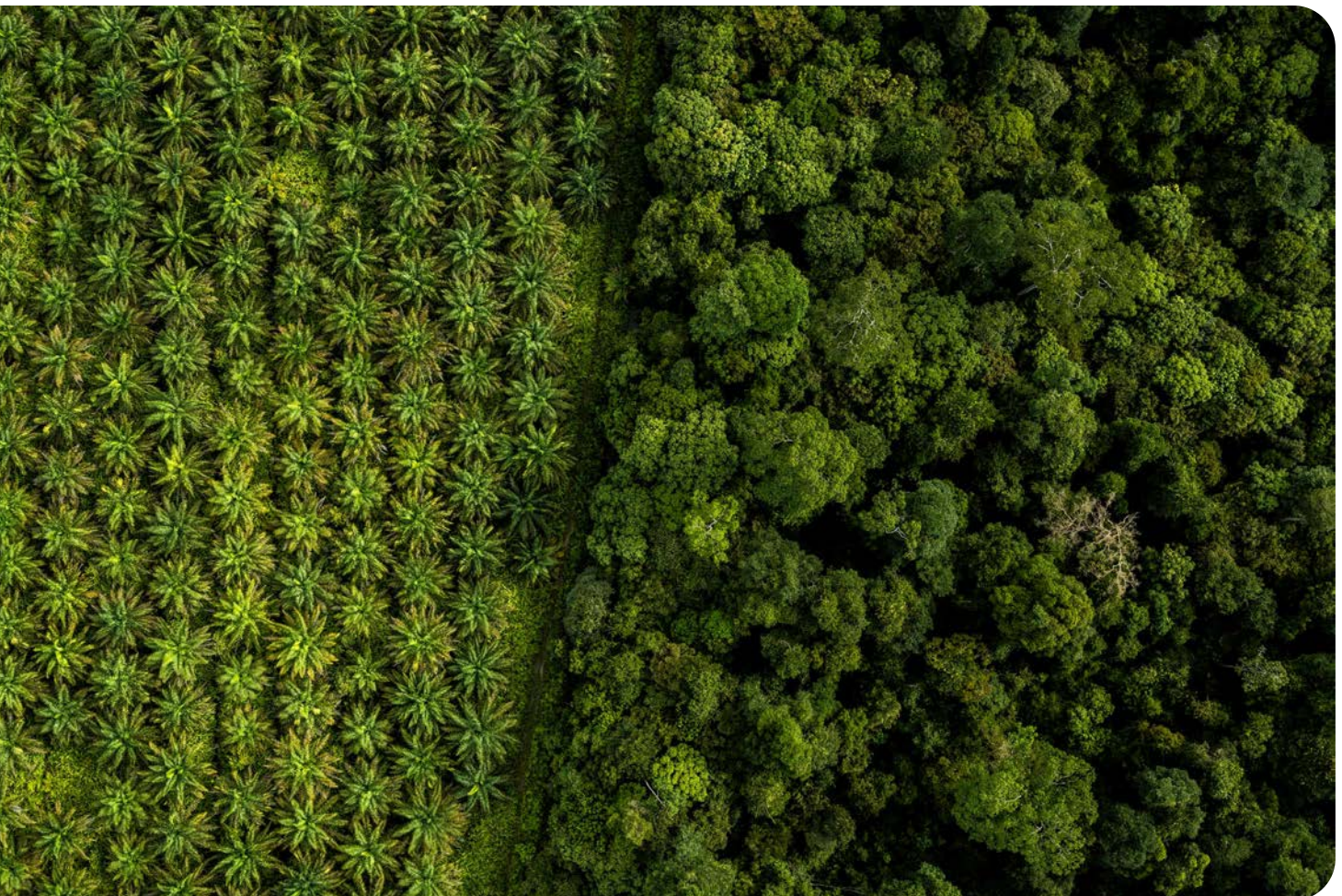
A **management system** for contracting, holding, managing, transacting, and settling the Nature Equity Assets. Ideally, it is easy to operate and consistent with other asset management systems used in business or banking environments.

Landler.io is used by a first cohort of users – largely insetters – and will evolve its functionality over time.

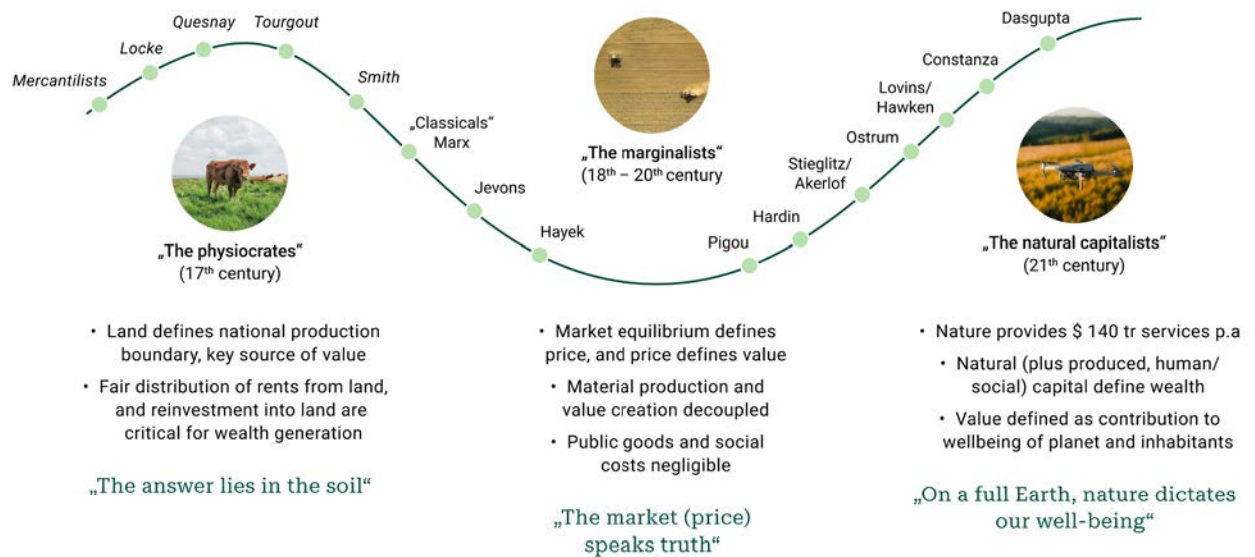
The benefits

Value for many

When it comes to our view on nature's value, we are living through a transition. Early physiocrats, such as François Quesnay, considered fertile land as the primary source of wealth and agriculture as the only productive sector of the economy. Subsequently, the "marginalist" view by liberal economists considered land as homogeneous, plentiful, and – in the absence of human labor and capital – worthless. This view is rapidly giving way to a re-interpretation of land as a form of capital that deserves investments for private and public benefit. We are living through a transition. From a world where no one had an incentive to invest (because nature was a public good amply available) via a world where a few had reasons (landowners, green food brands, or buyers of carbon credits) to a world where more and more actors will have reasons to understand the natural-capital implications of their activities and to hold Nature Equity.



Nature Equity has the ambition of redefining humanity's relationship with land



Source: Linklater "Owning the Earth", Mazzucato "The Value of Everything"
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First, understanding the aggregate Natural Capital Account (NCA) of a business's activities is increasingly crucial in today's evolving regulatory and accounting environment. Enhanced transparency requirements such as the Corporate Sustainability Reporting Directive (CSRD) and the Taskforce on Nature-related Financial Disclosures (TNFD), along with new market rules like the Corporate Sustainability Due Diligence Directive (CSDDD) and the EU Disclosure Regulation (EUDR), are compelling businesses to invest more in transparency as their value chain perimeters expand. In addition, the International Sustainability Standards Board (ISSB) is setting new accounting standards that are likely to reward such investments. These changes are significant in a stakeholder economy, especially given the urgent context of collapsing ecosystems. CEOs are now more than ever focused on these aspects, recognizing the importance of sustainability in business strategy.

The value of a Nature Equity Asset – a measured, attributable quantity of natural capital preservation or uplift – is rooted in clear investment rationales for different stakeholder groups:

- **In-value-chain application (“insetting”):**
Nature Equity ensures the long-term viability of the business as it interacts with nature.

Agri-food companies:

Nature Equity represents an investment in the resilience of their growers in times of climate stress; a proof of scope-3 emission reduction under the GHG Protocol; a contribution to complying with voluntary label standards or any other nature target; a reduction of refinancing costs due to improved ESG rating; a reduction of provisions of impending losses related to existing supply agreements; and, last but not least, a savings vehicle, as it helps reduce procurement efforts to identify alternative suppliers.

Energy companies:

Nature Equity creates opportunities for natural capital uplift on PV fields or wind sites both on and offshore, and thus improves access to land rentals or leases. An actively managed ecosystem by Nature Equity Asset investment in the vicinity can further improve the energy harvest and increase the resilience of service delivery.

Mining companies:

Nature Equity can help provide clear proof of successful land rehabilitation or a way to ensure appropriate conditions around a mining site.

Beverage companies, municipalities, or any other bulk water user:

Nature Equity can be an instrument to incentivize farmers to adopt practices that ensure water availability and quality. This preserves future supply, reduces the erosion of company value, and serves as a hedge in a world suffering increasingly from climate change.

Infrastructure, construction, and real estate companies:

Nature Equity allows them to manage their footprint and the surroundings of the site towards future-proof projects, and to comply with Biodiv Netgain or no-conversion rules. An actively managed ecosystem on site and in the vicinity increases the usability and reduces the value erosion due to climate change.

- **Beyond-value-chain remediation** (conventionally known as “off-setting”):

Nature Equity is an attractive way to verifiably demonstrate positive contributions to climate and nature targets as increasingly requested by the integrity taskforces.

- **Land investing:**

We are seeing the emergence of nature and nature-oriented land funds betting on the appreciation of their assets as nature improves. As a store of value, land has proven a reliable treasure to retain value over time. We see the increase of real estate prices in the vicinity of conservation areas in Africa and Latin America on the pure prospect of preservation of natural capital. Nature Equity is a way to demonstrate ecological value uplift over the holding period of these assets. However, it has to be emphasized at this point that the entire idea of Nature Equity is explicitly detached from the ownership of the land and, whilst demonstrating the appreciation of natural capital, it is not designed as an argument for land purchases.



Financial intermediation:

While there are many precedents of how capital markets can be integrated into nature finance (e.g., Debt-for-Nature swaps, nature-linked bonds), a stronger involvement of the financial sector requires a repeatable, cost-efficient, data-supported approach. An automated MRV technology together with the concept of NCA and Nature Equity Purchasing Agreements form the necessary basis for this process to trigger fundamental changes in the way financial institutions can intermediate or affect natural capital investments:

Nature-risk-based pricing:

The data accumulated in the NCAs will allow for the first time to gather statistical evidence on how land ecologically performs over time, allowing banks and insurances to estimate risks and introduce risk-adjusted interest rates and premiums. Particularly the latter will accelerate the conservation and regeneration of natural capital. Since a healthy level of natural capital safeguards the usability of real estate – as a productive area for farming and forest as well as for commercial and residential dwellings – the documentation of natural capital levels at and around a property provides robust risk indication. Real estate in times of ‘un-insurability’ is highly receptive to risk mitigation via Nature Equity as proof of payment for natural capital.

Nature-Equity financing:

Banks can help businesses prefinance the Nature Equity contracts they acquire in support of their businesses increasing share of wallet with them and reducing their business continuity risk at the same time.

Nature-linked bonds:

Natural Capital Accounts can be a measurable and controllable basis for nature-linked bonds that are set out to finance environmental performance and store invested capital, i.e. through publicly funded senior layers for broader natural capital ambitions. The case of the World Bank Rhino Bond can be then replicated for other types of nature assets.

Green bonds:

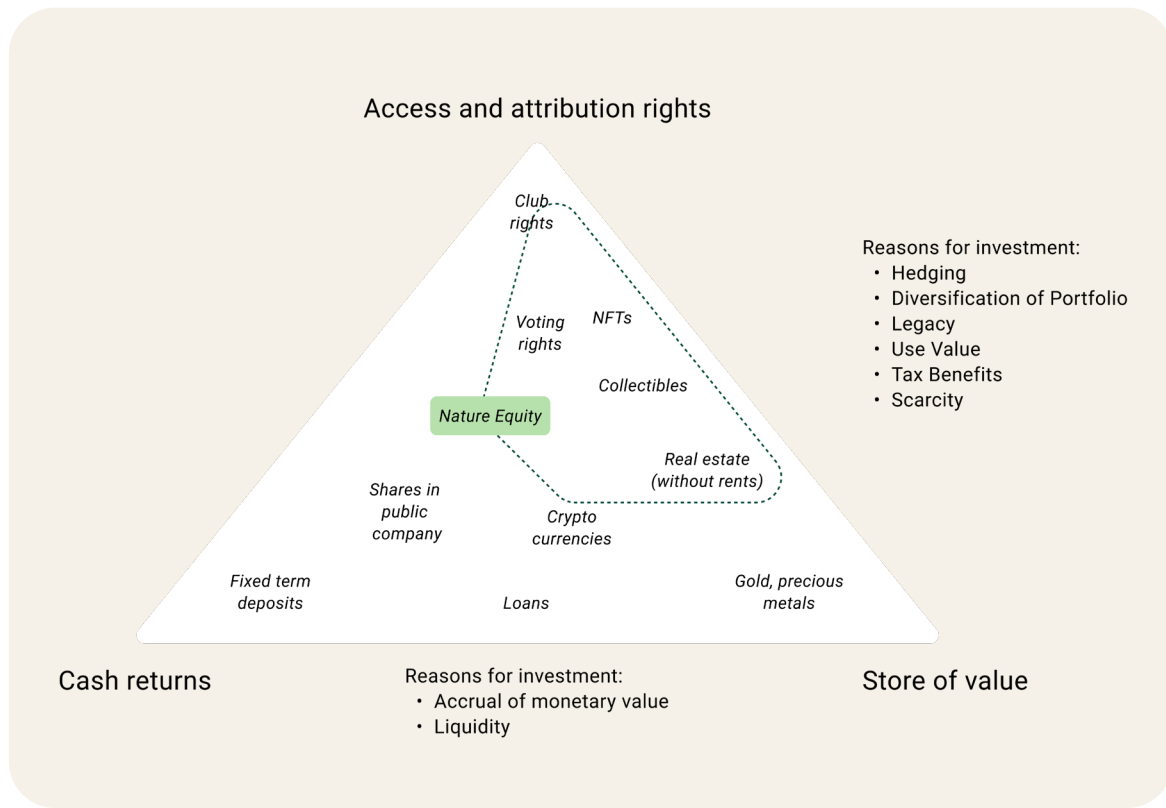
Natural Capital Accounts (NCAs) equally serve as covenants for green bonds, which are specifically designed to finance the transformation to more sustainable business practices of i.e. corporates, and allow as fixed-income financial instruments, for reliable financial returns in addition to nature-based outcomes.

Portfolio management:

Banks or funds exposed to land-related risks will have the infrastructure and data to make rapid and confident investment decisions and diversify risk-mitigated portfolios based on a comparable measurement approach and pricing principles. They may, e.g., develop Capital asset pricing models (CAPM) to price Natural Equity and derive inputs for pricing corresponding derivate instruments. On top, Nature Equity permits the transition of portfolios and dedicated funds into the new and tightening requirements of central banks and policymakers such as the SFDR (Sustainable Finance Disclosure Regulation)

“Even now, we see the disruption of major food supply chains and the failure of major crops. The reason is clear: Our agricultural system degrades soils, water bodies and ecosystems at large. Like any other infrastructure, the biological systems that support our food sector require investments. These investments are not only needed, they are feasible and attractive.”

GUNHILD STORDALEN, EXECUTIVE CHAIR, EAT FOUNDATION



Intrinsic value investment. Today, Nature Equity investments may be dominated by stakeholders who benefit directly from the impact of natural capital on their value chains or their capital cost. In the future, the recognition of natural capital as a source of our collective and individual prosperity and ultimate scarcity will nurture the acceptance of measured, attributed, and collateralized Nature Equity Assets as a commonly held store of value. We can see appetite for designated exchange listings of SPV-issued securitized Nature Equity-related notes. Over time, secondary markets may well emerge for Nature Equity. These markets will allow for price discovery and increased liquidity which will attract long-term investors like pension funds, endowment funds and sovereign wealth funds as well as retail investment where we observe a remarkable appetite. The foundations have been laid with indicators on the risk of biophysical impairment and a technical rating for Nature Equity Assets.

“Land stewards work on more than yields and harvests. They contribute to the life support system of this planet and deserve a fair reward.”

HELMY ABOULEISH, CEO, SEKEM GROUP

Call for Action

Towards a trusted new asset class

Nature Equity – even now – can generate huge value for land stewards and natural capital investors. We expect it to become over time a new asset class that holds intrinsic value, and is tradeable and liquid. All asset classes – be it stocks, bonds, currencies, derivatives, commodities, real estate, or crypto – share similar foundational journeys, consisting of three phases. At first, there is a value perception, acceptance, and confidence (see gold, snails, bitcoins) shared by a relevant set of potential investors. Then, there is a trusted contractual infrastructure emerging that allows trusted one-to-one or peer-to-peer transactions (traders/trading platforms, custody services, clearinghouses, securitization services). And finally, there is the emergence of market rules. These have to accommodate the unique characteristics of the emerging asset class. For Nature Equity or any other identifiable, controllable, and equitable nature asset contract, we expect a similar development.



During the **formation phase**, it is the group closest to the fundamentals of a new asset class that disposes of the insights to trust the economic logic and the actors in the field. In the case of Nature Equity, the in-value-chain applications are closest to the interdependencies of natural capital and business success. They are leading the way in this new field. The more effectively we coaly as players in this field to kick off the flywheel of Nature Equity Assets to finance the strengthening of this value-generating factor nature, the easier the access will be for more remote participants. Hence, we call on:

- **Offtaker consortia** (e.g., with similar inseting demands in the agrifood industry), ready to co-create the market with early investment into tangible nature uplift and conservation. They will set the standard transparency, reliability confidence in and for a world in transformation.
- **Supplier consortia** will accelerate the process towards risk-mitigated financial tools that can build on the economies of scale.
- **Accounting and rating professions** as early adopters. Against the traditional retrospective viewpoint, this profession needs to take, accounting has the opportunity to set the stage for the new regenerative economy by the deliberate use of existing accounting standards in this new context. They are in the place to not only permit but also shape the ambition and requirements connected to the enhancement of natural capital for the good of businesses and stakeholders.

In the **institutionalization phase**, we will see and need the integration of Nature Equity in well-established market practices to deliver for more remote stakeholders the trusted pathways for investment:

- **Enabler/tech consortia** that co-create and foster the continuous testing and improvement of assessment solutions. Ideally, they identify a process and trusted entities to validate and certify processes and methodologies as they are being developed and scaled.
- **Stock markets** embrace the listing opportunity offered by the scalable emission of Uplift and Conservation Units and offer the exchange of the new asset class and derivatives thereof.
- **Policymakers** can enhance the transformative pace by tax advantages for Nature Equity investments that contribute to public goals such as food security, flood or fire risk reduction, an increase of biodiversity and hence pest resilience, or plain regional beauty to attract tourism and increase the well-being of the constituency.

Finally, during the **regulation phase**, public stakeholders need to provide the guardrails to ensure the ambition of a fair and just transition and an equitable (nature) market:

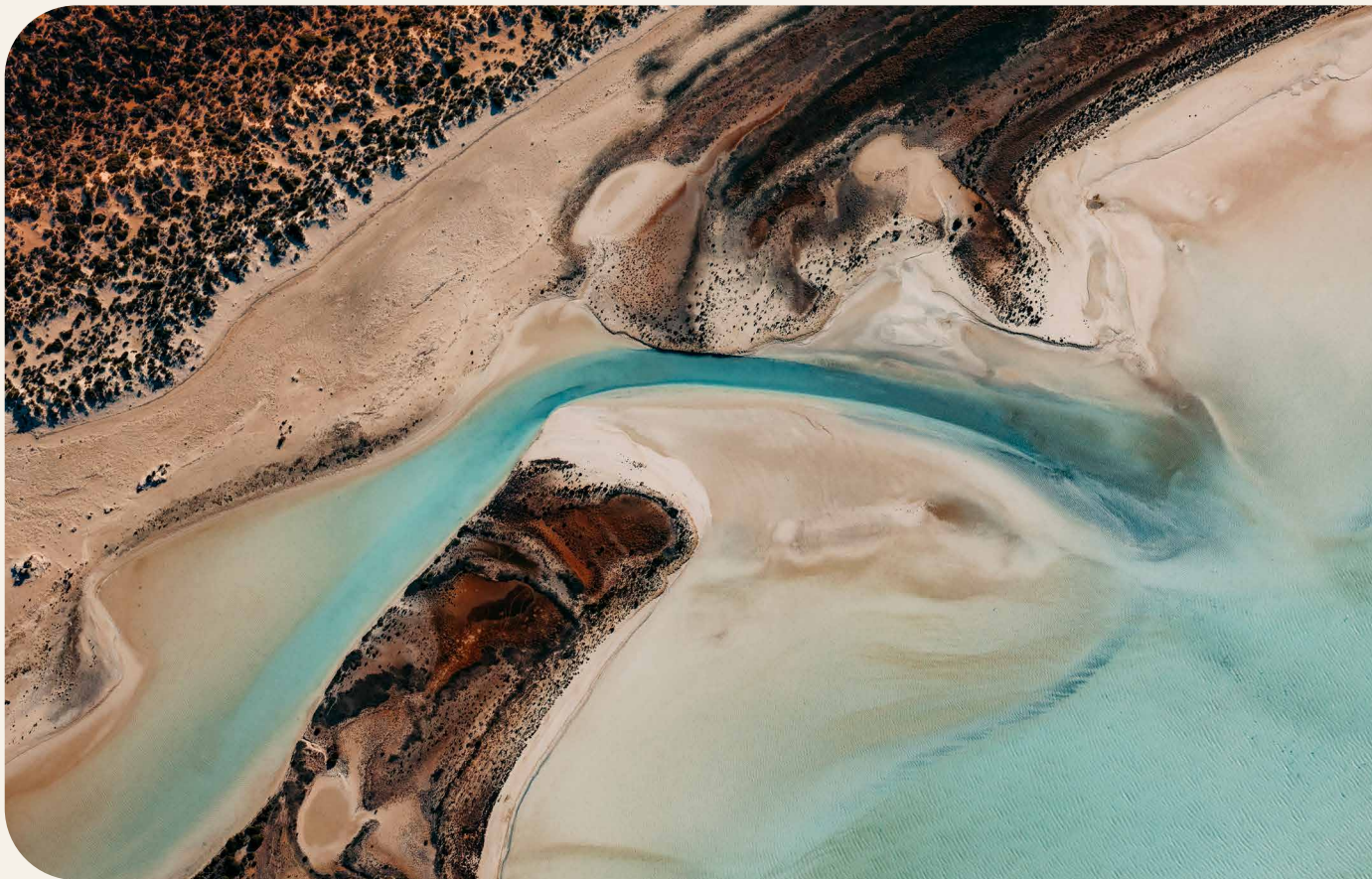
- **Tax offices** can shift the focus away from unsustainable businesses fueled by subsidies for detrimental practices, such as fossil fuel use, and favor investment in regenerative practices. This can be achieved through means like tax advantages for maintaining healthy soil in real estate transfers, as seen in France, or by incentivizing the creation and maintenance of water-holding capacities in drought- or flood-prone catchment areas. Additionally, benefits can be created for assets like Nature Equity.
- **Banking regulators** will necessarily begin to ensure the quality and reliability of Nature Equity Asset investment and particularly the development of a secondary market which will add new financial opportunities derived from the Nature Equity Units.
- **Central banks** eventually may consider the biophysical underlying connected to Nature Equity as a robust collateral for commercial banks.

Of course, these processes have to be accompanied by a conversation around market governance principles as initiated by Taskforce for Nature Markets offers guidance to “help avoid the worst outcomes and instead make new and expanded nature markets a key driver of a Just Transition to a sustainable post-carbon economy in which all humanity, and nature more broadly, can thrive on a healthy planet.”¹⁹

“Accountants will save the world.”

PETER BAKKER, CEO, WBSCD

Nature Equity will allow natural capital investments to attract fiduciary capital, remove the barrier between sustainability and financial accounting, and gradually establish a new asset class with a growing group of investors. Growing acceptance should set a positive spiral in motion between frontrunners and adopters (nature disclosure, nature targets, nature taxonomies, nature accounting standard setters). With nature-backed contracts as a basis, establishing nature-backed assets and nature-backed securities, we could move on to nature-backed currencies and, ultimately, nature-backed wealth. We believe that Nature Equity can become a universal “hard currency” for countries, companies, and individuals as they navigate an upcoming economy where our possibilities will be defined by the natural capital we steward.



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About The Landbanking Group



Martin Stuchtey and Sonja Stuchtey

Founders of The Landbanking Group

The Landbanking Group is a Munich-based eco-fintech dedicated to building the infrastructure for trusted natural capital markets. It is an ecosystem company collaborating with academia, government and the nature tech, accounting and banking sector to change land-use decisions worldwide.

The Landbanking team convenes experts across scientific disciplines and professions to build solutions that allow land stewards to be rewarded for better nature outcomes, and businesses to invest into them.

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