

Embedding Equity in Nascent Nature Credit Markets

KEY CONSIDERATIONS

December 2022



Taskforce on
**Nature
Markets**

KNOWLEDGE PRODUCT

About



Taskforce on Nature Markets

The Taskforce on Nature Markets' core objective is to shape a new generation of purposeful nature markets that deliver nature positive and equitable outcomes. It seeks to achieve this by:



Landscaping, analysing, and socialising **existing and emerging approaches**



Building awareness of **opportunities and risks** across policy, business, and civil society



Building the basis for a **community of practitioners** with a shared vision and narrative



Encouraging synergies between **innovations and innovative people/platforms**



Recommending and advancing **standards of practices** and enabling principles and supportive governance arrangements



Initiating and supporting **pathfinder initiatives** to scale the implementation of recommended approaches and actions.

The Taskforce is an initiative of, and hosted by, NatureFinance (previously the Finance for Biodiversity Initiative - F4B). It benefits from the broader portfolio of NatureFinance's work and the extensive knowledge of its partners and networks. The Taskforce is supported by the MAVA Foundation.

Find out more about the Taskforce on Nature Markets, its members, partners, work programme and how to get involved at www.naturemarkets.net

Embedding Equity in Nascent Nature Credit Markets

KEY CONSIDERATIONS



About this report

The Taskforce on Nature Markets was established in March 2022 in response to a rise in markets that explicitly monetise and trade nature ('nature markets'). The broad contours of this development were set out in the Taskforce's formative white paper, 'The Future of Nature Markets'.¹ Building on the white paper, this paper is part of the learnings and findings of the second phase of work and explores the developments in environmental law and their implications for the governance of nature markets.

This knowledge product is part of the Taskforce's knowledge ecosystem which aims to support the Taskforce in delivering its mandate: ensuring the global economy interfaces with nature in ways that deliver nature positive, equitable, and net zero outcomes.

The report was prepared by Ralph Chami and Andreas Merkl with editorial support from Monique Atouguia.

Comments on the paper can be sent to:

Monique Atouguia: monique.atouguia@naturefinance.net

Acknowledgements

This paper has benefited from contributions from the entire NatureFinance (previously Finance for Biodiversity) team, and many others including contributions from members of the Taskforce and its Knowledge Partners.

The authors would like to thank those who dedicated time to speak with them throughout its development, read and review various iterations and provide invaluable feedback. Specific thanks to Rayyan Chami, Collen Fullenkamp, Marcelo Furtado Mark Kenber, Dinah Nieburg and Simon Zadek, for very helpful exchanges in the process of writing the paper and/or feedback on an earlier draft.

The views expressed in this paper are those of the authors alone. Any errors are our own.

Contents

Embedding Equity in Nascent Nature Credit Markets

Background 5

FIGURE 1: TWIN RISKS FACING HUMANITY 5

What we mean by equity 7

Risks in nature credit markets 9

FIGURE 2: THE NATURE MARKETS TAXONOMY 12

Risks across all types of nature markets 11

FIGURE 3: THE NATURE MARKETS TAXONOMY 12

Structural nature credit market risks 14

Pathways forward 16

BOX 1: LESSONS FROM CARBON MARKETS 17

Governance mechanisms to ensure equitable and nature positive outcomes 19

A. MARKET REMEDIES 20

1. OVER THE COUNTER (OTC) 20

2. REGULATED CAPITAL MARKETS 21

3. PRINCIPLES FOR TRADING NATURE SERVICES 22

FIGURE 3: DEVELOPING THE NATURE CAPITAL MARKET FOR ECOSYSTEM SERVICES 22

4. THE ROLE OF TECHNOLOGY 23

FIGURE 4: NATURE CREDITS AND THE ROLE OF TECHNOLOGY 23

B. NONMARKET REMEDIES 24

1. THE ROLE OF CAPACITY DEVELOPMENT 25

2. MECHANISMS FOR AMELIORATING GOVERNANCE CONSIDERATIONS 25

FIGURE 5: A NATURE TRUST FUND 26

3. THE NEED FOR COORDINATION AND HARMONIZATION OF EFFORTS TO PROTECT NATURE 27

BOX 2: LESSONS FROM THE BASEL ACCORD 27

The cost of success: transition pains 29

Concluding thoughts 31

Endnotes 33

Embedding Equity in Nascent Nature Credit Markets

KEY CONSIDERATIONS

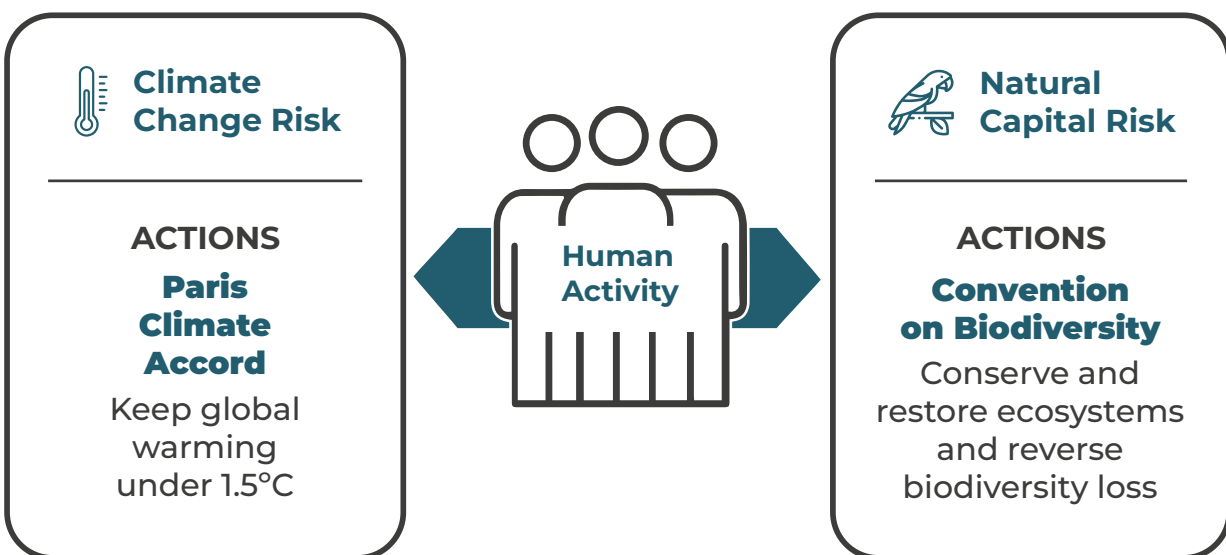
December 2022

Background

Nature, including flora and fauna, blue and green, has suffered from a history of disregard and outright destruction. An extractive view of nature has informed the ways in which our economic and social systems have operated since and even before the industrial revolution. This has resulted in the exponential loss and degradation of nature and its biodiversity, and in the climate change calamity. The IUCN reports that more than 41,000 species are threatened with extinction, including 41% of amphibians and 33% of coral reefs.² Each of these risks: climate change and the loss of nature and its biodiversity, if not reduced or reversed, poses existential risk to humanity.

Figure 1 Twin risks facing humanity

Humanity is facing Twin Risks



The need to rebalance our relationship with nature—long understood by indigenous populations and local communities (IPLCs) and advocated for by conservation groups and natural scientists— is now clear to policymakers and financial markets concerned with the implications of these twin risks for their bottom line, and to consumers needing to ensure that their choices do not adversely impact nature and its biodiversity.

Valuing the ecosystem services of a “regenerative nature”— that is, of a living and thriving nature—would go a long way to rectifying this imbalance in our relationship with nature and should be at the core of our global economy. In fact, markets that explicitly trade and generate nature-related revenue streams are on the rise.³ Nature markets have the potential to address climate risk, biodiversity loss, and ensure sustainable and equitable human development. They also have the potential, if designed properly, to restore a regenerative and reparative relationship between humans and nature that positions economic growth inside of planetary health. But, despite this promise, nature markets, unchecked, also have the potential to pose risks to nature asset owners and stewards, to IPLCs, as well as to nature itself.⁴

This paper highlights the types of risks mainly focusing on potential equity implications that are likely to arise when a new asset class, namely natural assets, is identified and new markets for ecosystem services develop. The focus of the analysis here is on the newest nature markets, specifically, emerging nature credit markets, including carbon and biodiversity credit markets. The paper outlines some feasible pathways toward addressing these equity concerns, highlighting market as well as nonmarket mechanisms that can be designed and implemented “ex-ante” to avoid the harm that could accrue to nature itself and to IPLCs from unbridled new nature markets in search of profit maximization at all costs. Finally, it is argued that these nascent markets require a positive governance approach which embeds equity in its design and safeguards the promise of these new markets.

**Embedding
Equity in
Nascent Nature
Credit Markets**



**What we mean
by equity**



Taskforce on
**Nature
Markets**

What we mean by equity

Equity is inherently contextual. Drawing from the social justice definition, equity acknowledges and addresses systemic inequalities to ensure everyone in a community has access to the same opportunities. From the context of developmental history, nature has mostly been seen as an infinite property to be extracted, rather than a regenerative life source to be protected. It is in this context that equity measures must ensure that historical injustices are not revisited within the fast-developing nature markets. Thus, equitable market outcomes both locally and globally should address these potential market failures/ injustices by embedding protections for nature and ensuring equitable distributions of its reward and sharing of benefits.

More recently, equity principles related to the governance of protected areas and conservation areas were adopted at CBD COP14,⁵ which defined equity as comprising three dimensions: recognition, procedures and distribution. ““Recognition” is the acknowledgement of and respect for the rights and the diversity of identities, values, knowledge systems and institutions of rights holders and stakeholders; “Procedure” refers to inclusiveness of rule and decision-making; “Distribution” implies that costs and benefits resulting from the management of protected areas must be equitably shared among different actors. This understanding is based on the concept of environmental justice (EJ).⁶ Examples of how this is already playing out in the worst-case scenario for communities on the ground is communities being kicked off ancestral land in order to realise its carbon sequestration potential; or communal groups being denied access to natural areas that they have historically harvested. Likewise breakdowns in consultations processes, can result in the rights of local communities being signed away or their land sold or leased for little real material benefit to the community at larger. In other situations, state monopoly control of carbon markets suppresses market development, fair pricing and just benefit sharing.

**Embedding
Equity in
Nascent Nature
Credit Markets**



Risks in nature credit markets



Taskforce on
**Nature
Markets**



Risks in nature credit markets

The main risks that exist in these nascent and emerging markets include:

- | Expropriation of land and land access rights for IPLCs and other communities;
- | Unfair sharing of proceeds from projects and credits sales;
- | Exclusion of key communities from project design and approval;
- | Rent-seeking behaviour by intermediaries.

Equity concerns go beyond ensuring equal rights of IPLCs, and more generally, humans over time, to also include protecting nature (and its creatures) as an end in and of itself. Ensuring the respect and protection of the inherent values and functions of nature is very much linked to securing the resilience and inclusion of current and future nature stewards in the promise of nature credit markets.

As in every nascent market, nature credit markets, including carbon credit and biodiversity credit markets, have been subject to typical “gold rush” type behaviour, where predatory buyers take advantage of illiquidity, asymmetrical information, and/or ineffective price discovery to engineer large “green” (land-based) and “blue” (coastal and deep ocean) land grabs, often expropriating small-hold landowners. This has been the unfortunate consequence of many land reform experiments.

In addition, not all ecosystem services of nature have found market prices that approximate their true valuation. For example, and in the context of blue carbon assets such as seagrass, only the carbon sequestration service is currently being priced and potentially traded. However, seagrass also provides additional ecosystem functions such as flood barrier and food security by enhancing the stock of fisheries. Yet, these two latter services are not yet priced by the market. As a result, the natural asset owners and IPLCs may not be aware of the “true” market value of the natural assets’ ecosystem services. Selling the seagrass, in this case, would greatly disadvantage the asset owners due to under-pricing the true value of seagrass. In addition, the sale of the asset would place the IPLCs in the position of not being able to assert their pre-existing rights to their natural assets; thereby losing their ability to voice their views as to how to govern, manage, or to benefit from the future returns on these assets.

Risks could also arise due to abuse of market power on the part of the buyer, corruption and rent seeking of those in power, and to the lack of capacity on the part of asset stewards and owners to recognize the option value of their natural asset services. This leads to elite capture of the social benefits of nature credit markets, embedding the power dynamics of development. In the long-term, elite capture of benefits sharing incentivizes illegal markets and reproduces the harms of inequality.

These additional risks could also result in depriving owners from managing the governance of their natural assets, in transferring the asset ownership at prices that do not reflect the true market value, with sellers and stewards potentially being dispossessed of the asset itself, along with losing access to land, water, and other services.

**Embedding
Equity in
Nascent Nature
Credit Markets**



**Risks across
all types of
nature markets**



Taskforce on
**Nature
Markets**

Examples of markets where such risks are present include **asset markets**; where agricultural, forested land, coastal assets (wetlands, mangroves, seagrass, saltmarshes, etc.) or increasingly, the carbon rights pertaining to these assets, are sold, in part or whole, at highly discounted prices to those with private information about the true asset value.

Figure 2 The nature markets taxonomy

Type	Description	Category	Traded element	Segments
Asset Markets	Markets in which the right to use ecosystem assets with long-lived value are traded	Real assets	Rights to use an entire ecosystem asset and resulting services	Agricultural land, timberland, water rights, <i>biodiversity IP, additional ecosystems assets</i>
Intrinsic Markets	Markets in which provisioning, regulating, or cultural ecosystem services are traded	Products	Use of provisioning services	Hard and soft commodities, legal and illegal wildlife, genetic materials, water rights leases
		Conservation	Conservation of nature for direct economic benefit or altruistic value	Payments for ecosystem services, overseas development aid, philanthropic grants, sustainability-linked debt
		Access	Access to/use of cultural services	Wildlife tourism
Credit Markets	Markets in which credits that reflect efforts to enhance or conserve ecosystem assets or services are traded	Nature-specific credits	Credits that reflect the value of ecosystem services	Mitigation banks, water quality credits, <i>voluntary biodiversity credits</i>
		Nature-related carbon credits	Credits that reflect the value or carbon sequestration or storage	Nature-related voluntary carbon credits, AFOLU sector compliance carbon allowances
Derivative Markets	Markets for financial products which directly reflect ecosystem values or ecosystem risks	Financial products	Financial products directly tied to ecosystem assets or services	Commodity derivatives, nature-related insurance, wildlife NFTs, <i>biodiversity loss insurance, securitization of ecosystem assets, water futures</i>

Source: Taskforce on Nature Markets

Note: The nature markets in italics have not been sized due to their nascency but they may grow and play a role in creating nature-positive and equitable nature markets in future.

Risks across all types of nature markets

Another example pertains to **intrinsic markets**, where wildlife ecosystem services are undervalued or not recognized, resulting in their abuse, demise, or being sold for extractive purposes.⁷ Cultural values of nature sites may not be respected or taken into account in nature markets, yet this value is integral to the spiritual practices and rituals of the indigenous community. Disturbing these sites can affect and disturb the integrity, well-being and cohesion of the community.

Nature credit markets, such as carbon and biodiversity markets, are also subject to informational gaps and asymmetry risks. The lack of transparency, verifiability and clear governance processes results in differential pricing of the same ecosystem service, double-counting and other unscrupulous behaviour, leading to severely discounted prices for ecosystem services and to investors' reluctance to enter such markets. Again, as highlighted earlier, asset owners and stewards of nature markets run the risk of being disenfranchised and nature itself being harmed.

These market distortions and informational problems also spill over into nature **derivative markets**. Securities markets, in particular equity markets, are very sensitive to informational problems. This has several implications. For example, markets will prefer debt to equity until and unless counter-party creditworthiness and recourse can be well documented. Also, it will be difficult to sell nature services in capital markets unless they are reliably standardised. Nature markets, and in particular (offset) credit markets need organized capital markets to scale up – and capital markets need more information than is currently available. Predictably, what we get is nature credit “markets”, that consist largely of one-off projects. This deprives buyers and sellers from the needed liquidity and diversification to properly manage risks to nature markets. The technically and ethically problems of offsetting markets are beyond the scope of this paper but require more attention.

**Embedding
Equity in
Nascent Nature
Credit Markets**



Structural nature credit market risks



Taskforce on
**Nature
Markets**

Structural nature credit market risks

Another risk arises from **weak governance frameworks, policy implementation and enforcement** in countries with natural assets. The danger here is the well-known “resource curse” or paradox of plenty/ poverty paradox, namely, the risk of a new asset class and its financial rewards being captured by a small elite, thereby exacerbating inequalities and underdevelopment. The introduction of a new natural asset class could serve to repeat historical patterns of weakening already tenuous governance structures in some countries rich with natural capital, driven by the interests of the powerful few. Rent seeking behaviour at all levels could, again, result in excluding legitimate asset owners from their rights to the returns on the natural asset services, depriving them of access to the assets altogether or their ability to govern the management of these resources. All this leads to increasing the existing equity gap between the stewards of nature and the “connected” parties.

This risk is further exacerbated by the **lack of proper legal framing of nature and its rights**. Land tenure and rights remain weak and easily manipulated in many countries, especially for IPCLs, as well as in low income and fragile countries rich in natural capital but suffering from weak governance structures. In such cases, potential investors in nature markets face significant risks in dealing with ambiguous or unfounded claims of ownership. Robust markets cannot arise in such situations, with owners of natural assets facing limited investments or receiving steep haircuts for the services of their natural assets. This situation is made worse as asset stewards in such markets often face other risks related to lack of access to credit, unemployment, lack of clear land tenure rights—further weakening their bargaining power.

Second, the **global legal system currently treats nature as “property”**. Under current law, the owner of nature has intrinsic rights. Nature does not. Even the protection of nature is legally framed in terms of protection of property, rather than protection of nature’s intrinsic right. Thus, land rights as they currently stand across jurisdictions, may not necessarily serve and protect nature and its stewards as these new markets emerge.

These risks, if not mitigated, are likely to detract investors from nature markets, with nature protection and restoration falling back on the limited capacity of philanthropic funding; restricting the full capability of a restored and thriving nature to help in the fight against climate crisis. Moreover, the absence of proper governance and the valuation of nature services may further embolden predatory and extractive behaviour or short-term business-as-usual practices which do not serve the interests of nature, its stewards and IPLCs over the long-run. This is likely to impact the resilience of nature ecosystems, increase biodiversity loss, and possibly lead to the outright destitution of its stewards and to the destruction of nature itself.

So, what can be done? What are the available governance mechanisms that can help mitigate risks to the functioning of nature markets and safeguard the health and sustainability of nature services and the health and prosperity of its stewards? These could include ex-ante market as well as nonmarket approaches that would help ensure more equitable outcomes that are also nature positive.

**Embedding
Equity in
Nascent Nature
Credit Markets**



Pathways forward



Taskforce on
**Nature
Markets**



Pathways forward

Firstly, collectively there is a need to take heed from learnings across established markets, but also the first nature credit markets, namely carbon credit markets.

BOX 1 - Lessons from carbon markets⁸

NatureFinance's *Governing Carbon Markets* emphasised the need to better define and review the specifications of carbon market stakeholder engagement and transparency mechanisms, such as a grievance redress system, feedback channels, and oversight protocols. In sum the paper put forward these recommendations:

Whole-system governance:

The governance system must see the big picture and connect with every level of the value chain, as well as with the broader market ecosystem outside of its institutional domain. This means prioritising the market's public purpose, establishing systemic oversight, and conducting regular impact assessments.

Complete transparency: All information pertaining to the market and its procedures must be open and publicly available to ensure the integrity of projects, transactions, and market outcomes.

Inclusive participation: All key market stakeholders — especially Indigenous Peoples and other frontline community members — must have the opportunity to participate fully in the governance of the market. That means key stakeholders are meaningfully represented in governing bodies, have power to contribute to the design and oversight of both the market and individual projects, and have effective channels for their grievances to be addressed.

From these learnings, a variety of approaches can be then used to embed equity in nascent nature credit markets, applicable across nature markets. Here, we synthesize them into three basic archetypical approaches, alternately focusing on ensuring the integrity of the product, the data, and/or the counterparties:

Focus on product integrity: Under this approach, access to nature markets is restricted to products that meet rigorous normative standards, usually requiring certification. This is promoted by most activists today in the voluntary carbon market realm. Standards can include equity-driven contract structures, profit sharing with IPLCs, transparency and grievance requirements, etc. The downside of this approach is that markets requiring extensive product certification do not tend to become liquid – and illiquid markets bring their own set of equity problems (such as smallholders’ land being expropriated when nature assets are systematically undervalued).

Focus on data integrity: This approach shifts the focus from product integrity to data integrity. If the markets are driven by reliable and absolutely transparent information, the theory goes, nature products will be efficiently priced according to their quality. This is how most regulated capital markets work, after all – the SEC regulates the integrity of the bond market, it does not exclude “junk bonds” for quality reasons. The obvious problem is that transparency may not drive equity - markets may simply choose not to adequately price equity, or buyers may choose not to specify it. On the plus side, a liquid, informed and efficient market will price nature assets properly, reducing the chances of land grabs and other abuses.

Focus on counterparty integrity: This involves the formal qualification of the sellers and buyers allowed to participate in nature credit markets. Buyer/ seller behaviour is critical to trust-based nature credit markets and all nature markets and can be tracked by the right transparency measures. Additionally, the credit worthiness of the counterparties can be an important contributor to overall integrity.

This is analogous to the pharmaceutical market regulation, which requires both product certification (i.e. FDA approval) as well as seller (pharmacy) and buyer (prescription) certification. This may actually be used as a hybrid with the former two approaches - presumably, a certification of originators and buyers may simplify the credit and information quality integrity requirements. However, the very idea of certifying institutions is systemically highly fraught politically and making it prone to gaming.

**Embedding
Equity in
Nascent Nature
Credit Markets**



**Governance
mechanisms
to ensure
equitable and
nature positive
outcomes**



Taskforce on
**Nature
Markets**



Governance mechanisms to ensure equitable and nature positive outcomes

A. Market Remedies

The buyers of nature services include consumers, producers, investors, financial firms, and governments. There is recent evidence that they are all coalescing around a new narrative about helping to fight the climate crisis, reducing the risk of nature loss and its biodiversity as well as supporting the efforts to achieve the UN Sustainable Development Goals.

However, nature credit markets can be beset by several asymmetries that prevent fair sharing of the surplus created. These include asymmetries in information (buyers have more market information than sellers) and market power (huge buyers overwhelming small markets). This means that contracts need to feature assurances designed to avoid such asymmetries.

1 OVER THE COUNTER (OTC)

In the context of nature credit markets, contracts can be designed to limit the surplus a buyer of carbon or of biodiversity credits could make from using private information regarding the true and future value of the natural asset. One approach would involve re-writing the contract forward in such a manner to ensure that the seller also benefits from any future uptick in the price of the service sold. Naturally, contract enforceability across time and legal borders figures prominently here.

Tailoring individual contracts to ensure equitable sharing in the future profits from ecosystem of a natural asset is costly. There are also search costs involved in identifying and securing buyers. Moreover, OTC contracts reflect the market power of the buyer in terms of maturity, collateral, and pricing. Finally, OTC contracts do not automatically allow for scaling up of funding, which is imperative if nature credit markets are to grow and provide the much-needed benefits to investors and to owners of natural assets.

The persistence of informational and associated moral hazard problems, as well as a lack of documented credit worthiness of the counterparties, may also lead investors to prefer debt instruments over investments as the former provide recourse, and present more of a guarantee of repayment, by limiting the lender's exposure to risk. But, for many highly indebted countries with natural capital, acquiring more debt may not be the preferred choice. Thus, there is a need to equip and advise countries rich in natural capital on how their assets can deliver positive financial flows and help reduce debt, rather than continuing to hold debt. In sum, OTC markets are challenged by illiquidity, lacking price discovery, and deep informational asymmetries. These are not issues that can be fully addressed by a normative approach focused on product quality. Also needed will be radical transparency about the characteristics of product and transaction alike, so that monopolistic or predatory behaviour can be quickly discovered and flagged. Lastly, the option of (dis)qualifying actors based on their behaviour in the market needs to be discussed.

2 REGULATED CAPITAL MARKETS

Dealing systematically with informational as well as market size issues allows for nature credit markets to develop, leading to better price discovery and to more liquidity. A regulated exchange for nature services, for example, would warrant the production of credible and relevant information regarding the natural asset whose services are being sold to be produced on a regular basis by the seller of nature services. This eliminates the buyers' excuse—of the lack of (credible) information—from being used to offer a low price for ecosystem services.

Moreover, the ability to list on an exchange allows the seller of nature services to benefit from competition among potential buyers, thus avoiding the search costs involved in finding a buyer as in the case of OTC. The competition among the buyers would guarantee a higher price by limiting the power of buyers' market size to dictate a price.

Securities with limited duration could be issued on the regulated exchange. These asset-backed securities, be it carbon or biodiversity credits—could be used by the buyer to offset their carbon footprint or to meet their other commitments to biodiversity or to ESG or SDGs. Within the maturity period of the certificate, the buyer could also benefit from an upside of a rising market value of carbon and of biodiversity credits. The rise in price of the security, however, would also help reprice the remaining stock of assets on the balance sheet of the natural asset owner. Thus, both buyers and sellers would stand to gain from market price increases.

The resulting increased liquidity from the development of capital markets would also provide for better and more transparent pricing of the natural ecosystem services allowing natural asset owners wanting to get into the market greater understanding of the value of what they have to sell. More transparent pricing and liquidity would also attract other financial services into the market such as insurance and derivatives instruments that allow investors in nature credit markets to better manage their exposure to nature risks.

Sellers of nature services also now have the option of issuing debt, equity or blended instruments to satisfy their financing needs. Given the dire fiscal and debt positions of many countries with considerable natural capital, the ability to offer non-debt instruments would provide a much-needed fiscal space.

Derivative markets can be developed in such a setting which could be used to offset long exposures to nature credit markets in some regions, further increasing liquidity and allowing for better risk management for businesses.

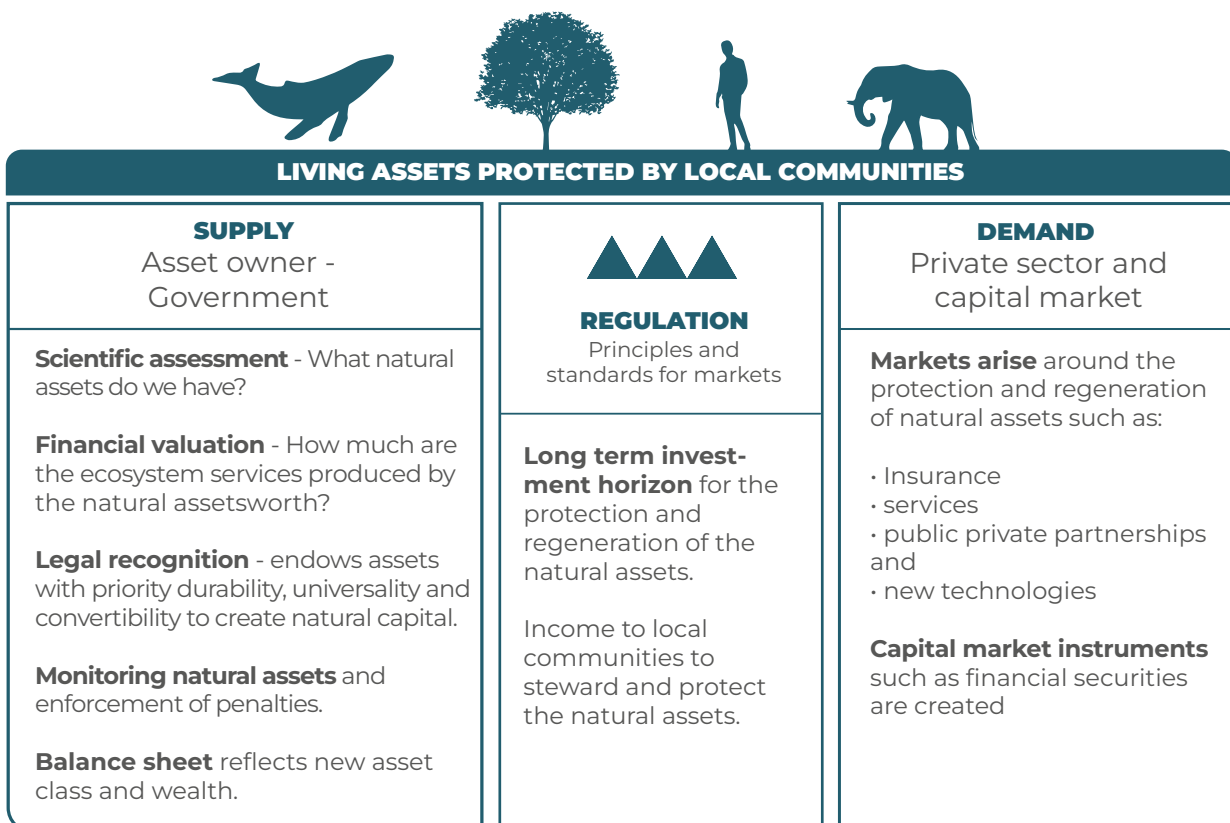
In sum, an efficient and liquid exchange can help solve problems related to information and market power asymmetries and the resulting potential for predatory pricing. However, finely calibrated regulation is necessary, especially in terms of the transparency and the integrity of the product-related and transactional data driving the exchange. While a truly liquid exchange can accommodate differences in product integrity, it cannot tolerate problems with data integrity. In addition, there needs to be a transparent process for excluding known bad faith actors, both on the buyer and the seller side, from participating in the exchange.

3 PRINCIPLES FOR TRADING NATURE SERVICES

It is important to note here, that in emerging nature markets, especially in the case of credit markets that involve carbon and biodiversity credits, nature services are being traded and not the assets themselves. This should be clear from the discussion above, where the various risks, missing markets, and market distortions preclude the ability of the asset owners from getting a fair price for their assets. As such, it is imperative that only the ecosystem services are traded, while the ownership of the asset is retained. Moreover, three guiding principles should govern the flows from exchange carbon/biodiversity exchange (see diagram below):⁹

- 1 The **flows should be used by the seller to ensure that the natural asset providing the service is protected, and if needed, restored and rejuvenated.** This is important, as the flows can only accrue if the asset is a going concern, that is, maintains its ability to provide ecosystem services. This also accords well with ensuring equity considerations also involve nature itself benefitting from the development of the nature credit market.
- 2 The **flows should benefit all the stewards of nature, including IPLCs.** As discussed earlier, nature stewards play a key role in safeguarding the health and sustainability of nature and its assets. Thus, the flows from the sale of the ecosystem services should ensure that these stewards are included in the governance of nature credit markets as well as share in the new wealth. This equity consideration not only includes the current generation, but also future generations, thus income from nature credit markets should be invested such that nature and stewarding communities are supported over the long-term. The following discussion will elaborate on the mechanisms for safeguarding these principles.
- 3 The **flows should be fully transparent in all transactional detail, including pricing and the identity of the counterparties.** The flows must be discoverable by third party observers and watchdogs, with buyer and seller behavioral patterns in full view. Buyers and sellers using informational or monopolistic asymmetries to extract rents from the nature credit market system need to be identifiable. All products and derivatives traded on the exchange need to be traceable to their underlying assets.

Figure 3 Developing the Nature Capital Market for Ecosystem Services



4 THE ROLE OF TECHNOLOGY

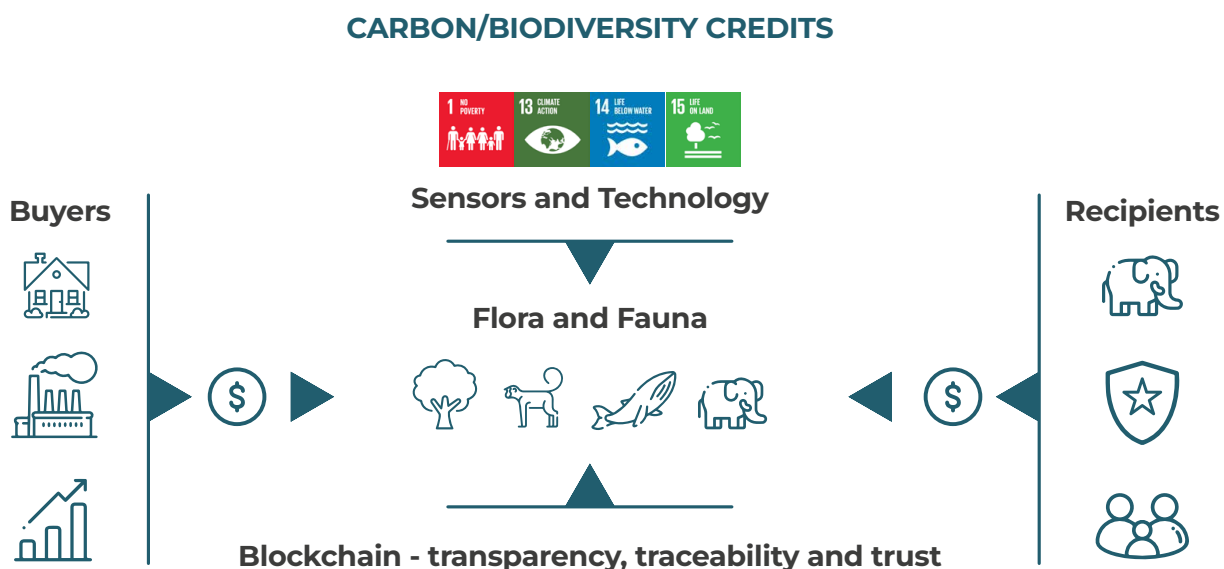
Nature markets rely on the sale of ecosystem services that derive from a living and thriving nature. This implies that the natural assets need protection, restoration, ongoing maintenance as well as regeneration. Given the distance in time and space between the origin and destination of the financial flows from the sale of ecosystem services, investors have to rely on the natural asset owner to look after the asset and to provide the needed information about its status. This gives rise to a well-known principal-agent problem and to associated problems, such as moral hazard that afflict such arrangements. Examples of such problems include double-counting, fraudulent behaviour, increased corruption—all negatively impacting the health of the natural asset and its ecosystem services. If not remedied, these problems would affect the pricing of the natural ecosystem service, the maturity of the capital market instrument, and the type of collateral required by the investor or lender; these possible implications would typically not favour the interests of owners of the natural assets.

The pains of the carbon market are a typical example of such problems. These issues have resulted in timid investments, huge carbon price discounts, and outright search for alternative high-tech carbon capture solutions to nature-based solutions. In essence, investors need assurances that their flows are indeed used to look after nature and its stewards, as described in Section C. Thus, there's a need for reliable and timely information production. But, how to do so?

Digital technologies such as blockchain, among others, play an important role in assuaging the concerns of the investors around the verifiability and transparency of nature contracts, especially in natural-capital rich countries where legal and governance frameworks may be weak. For example, blockchain technology could be used to provide a two-way transparency of all contracts linked to sale of carbon credits (see Figure 3). Nature products sold as non-fungible tokens could be connected to a monitoring data stream (sensors, photos, etc.) for life, ensuring that their value is informed by their real-time performance. Digital wallets and phone credits could also be used to ensure that IPLCs are receiving payments directly from the sale of nature services. Thus, investors would have a clear view of conservation actions, payments, and verification of the asset's growth and condition through this transparent platform.

The mitigation of informational asymmetries using such technology is also likely to enhance trust which would be reflected through the better pricing of the nature credits in the capital markets. Moreover, nature stewards can also make use of such technologies, gaining voice in how the assets are managed, in ensuring that resources are shared, and in securing access to finance.

Figure 4 Nature credits and the role of technology



B. Nonmarket Remedies

It is well known that many of the issues that afflict nascent nature credit markets, discussed earlier, cannot be left for the markets to resolve on their own. This lesson is well understood in the policy circles. But, in this case, these are nature markets that are also linked to the fight against climate change, which introduces additional dynamics into the policy space. So, how can we tailor policy to account for nature dynamics?

At the global level, there are major concerns that revolve around safeguarding the rights of asset owners and nature stewards as well as that of nature itself, including flora and fauna. In the context of nature credit markets, there is wide recognition that indigenous populations are critical to the success of Nature Based Solutions (NbS) in fighting climate change.¹⁰ In fact, according to the IUCN Global Standard for Nature Based Solutions (NbS), an activity can only be classified as such, if certain criteria and indicators that safeguard the rights of indigenous peoples and local communities are explicitly adhered to, such as upholding the rights of Indigenous Peoples to Free, Prior and Informed Consent.¹¹ Establishing these principles and standards allows market participants to seek high quality nature credits and set prices accordingly.

Attempts at protecting and safeguarding the rights of nature itself are also gaining ground, giving nature a 'voice' and treating nature as a living system rather than property. Such efforts range from calls for criminalizing harm to nature (such as Stop Ecocide International), to conferring personhood on nature, or simply to the current practice of protecting nature as a valuable resource for human use. At the country level, New Zealand, for example, conferred personhood on its rivers and Costa Rica conferred it on bees. These legal mechanisms also give nature a voice in markets and legal systems by allowing citizens to sue and speak up on behalf of nature and allowing for the appointment of legal 'guardians' to represent and stand up for the well-being and rights of nature.

There are also efforts that recognize the inalienable link between sustainable and shared development and the rights of nature stewards and of nature itself. For example, Bolivia's 2012 Framework Law of Mother Earth and Holistic Development for Living Well, links the concepts of rights of nature, holistic development and 'good living'. In 2008, Ecuador amended its constitution to ensure that development does not come at the cost of nature rights. A similar sentiment is articulated in Principle 22 of the Rio Declaration on Environment and Development, which highlights the importance of the traditional practices and knowledge of indigenous people in environmental management and in safeguarding a sustainable and shared development.

These efforts also extend beyond land-based natural assets and communities, to include coastal blue natural assets. A case in point, COP 26, Stockholm 50, and more recently 2022 UN Ocean Conference have featured declarations and commitments at the country level to protect the ocean, its assets, and communities. For example, an inclusive and participatory approach with the active engagement of community stakeholders to address their needs is a cornerstone for developing the blue economy and for national marine spatial planning, which is underway in 100 countries or territories worldwide.¹²

Despite these valiant efforts and policy declarations, many initiatives remain one-off, and not enforceable or sustained across time or borders. Moreover, in some cases, they represent more of a 'best hope' or 'minimums' and nonbinding efforts at safeguarding the rights of nature and equitable outcomes for people.

1 THE ROLE OF CAPACITY DEVELOPMENT

The ability of IPLCs to share in the new wealth created by nature markets hinges to some degree on their familiarity with the new governance data technologies, such as blockchain, as well their financial literacy. This points to the importance of building local capacity in sharing the “ownership” of or “open access” to the data about their ecosystems. Such data-sharing should be two-way. Indigenous and local peoples contribute traditional knowledge which is as important as state-of-the-art science in managing natural assets and assessing their condition.

It is imperative that conservation and restoration or rewilding programs, as well as monitoring, reporting and verification of outcomes be locally co-designed and co-produced, since evidence shows that conservation works best when local communities lead it.¹³ In fact, IPLCs can become paid “citizen scientists”, gaining additional income, rather than getting displaced by external researchers, data providers and analysts.

Benefitting from access to capital markets and from new technologies requires familiarity with finance and financial technology. Thus, in addition to access to information and to resources, building capacity, such as financial literacy, among natural asset owners and IPLCs is important in helping them benefit from the promise of nature credit markets. This also allows them to gain a voice in tailoring contracts, and in managing and directing the sizeable flows from the sale of nature services to areas of greatest need.

2 MECHANISMS FOR AMELIORATING GOVERNANCE CONSIDERATIONS

The recent policy actions at safeguarding the rights of asset owners and nature stewards could also include tailored mechanisms that resolve issues alluded to earlier and related to weak governance, corruption, and time-inconsistency related to political cycles.

Governance mechanisms could include both nonmarket as well as market approaches. For example, in the case of nature credit markets, safeguarding the rights of IPCLs and those of the natural asset owners against predatory behaviour from well-informed foreign investors as well as from corrupt local politicians could involve an outright ban on the sale of nature assets—as mentioned earlier. In this case, IPCLs would retain ownership of the assets and only nature services are sold.

Another nonmarket mechanism to ensure that the flows from the sale of ecosystem services are used to safeguard the interest of nature itself and its stewards could include a Nature Wealth Fund (NWF). In the case where the sovereign has ownership of the natural asset, the total asset market value would appear on the fiscal accounts of the government, changing its net worth with positive implications for its debt dynamics as well as its credit ratings. The balance would be invested, with the returns, for example, used to enhance the government's fiscal stance, as well as to fulfil commitments made by the seller to fund the protection and restoration of natural assets as well as to safeguard the interests of the IPCLs (see figure 4).

Figure 5 Nature credits and the role of technology

A Nature Trust Fund

NATURE TRUST FUND

Approved distributions

- Funding for Nature protection, restoration and regeneration
- Ongoing management for Capital Preservation
- Wages for IPLCs involved in Conservation and Preservation (C&R)
- Funding C&R programs for animal species
- Funding other C&R programs forest/biodiversity
- Funding Development/Social programs to support IPLCs

The NWF would also help resolve the issue of time-inconsistency that could result from short-term expedient political considerations trumping promises to safeguard the interests of nature and of IPLCs. The governing board for NWF could involve representatives from the IPLCs, government as well as outsiders viewed as impartial.

The NWF provides a commitment mechanism that, for example, ameliorates time-consistency issues related to political cycles, and helps assuage the concerns of potential investors as to the uses of the flows, with technology (discussed previously) providing the needed verification of the distribution and the uses of funds. This should provide better pricing and overall, more favorable contract conditions in terms of maturity and type of collateral. The buyers of the asset-backed ecosystem securities also benefit from such a mechanism by showcasing their commitment to ESG and SDG goals—all leading to more valuable good will.

3 THE NEED FOR COORDINATION AND HARMONIZATION OF EFFORTS TO PROTECT NATURE

Governance considerations around nascent and fast-growing nature markets suggest the need to regulate these markets. Experience with the development of financial markets suggests an urgent call for global coordination of efforts to harmonize the definition of natural capital and to clearly define the metrics for measuring natural capital that countries and companies should adhere to.¹⁴ While a full analysis of this issue is beyond the scope of this note, below are some thoughts on the rationale behind such a call — meant to ensure that they do not become a source of the next financial crisis, exacerbating inequity and climate change risk. In this regard, there are examples of previous efforts at coordinating and harmonizing the definition of capital which come from the financial markets, which could provide a guide as to how to move forward.

BOX 2 - Lessons from the Basel Accord

The 1987 Basel Accord on the definition and level of bank capital provides an example of the rationale for: 1) a universal definition of natural capital 2) on the minimums that countries need to maintain; 3) on its valuation; 4) and on the metrics needed to assess capital adequacy. Prior to 1987, large OECD global banks were tempted to reduce their capital levels thereby gaining competitive advantage and ensuring higher profits. Absent an agreement on the minimum bank capital, the result was clear—a race to the bottom. This would have spelled disaster for the global payments system as banks with low capital have every incentive to engage in risky behaviour with deleterious implications for the global payments system. Initially, the Basel Accord targeted banks in OECD countries. But, at Basel, these countries had to, first, agree on the definition of what constitutes bank capital, on the capital minimums a bank ought to hold, and on the metrics to be used to value and assess adherence by banks to these standards. Finally, enforcement of the agreed-to rules was left to the local supervisory authorities/regulators and to market participants such as rating agencies.¹⁵ Within a decade, however, over 110 countries had adopted Basel 1.

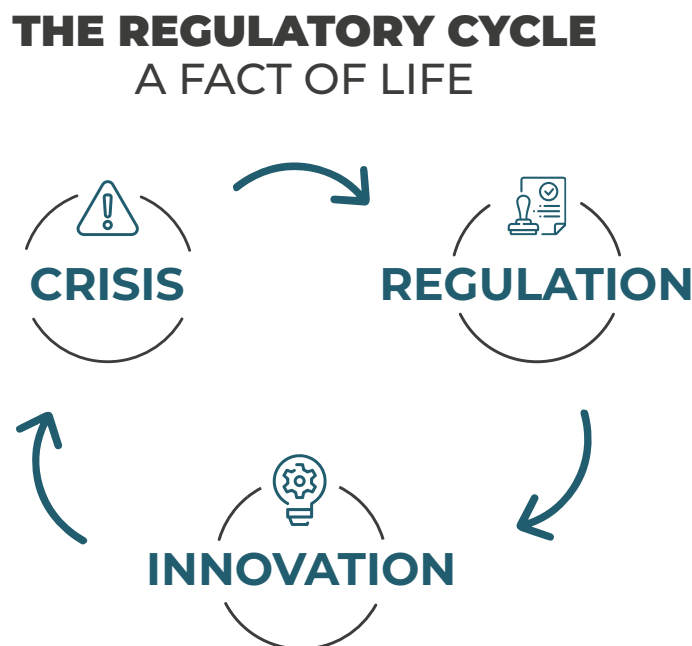
In the absence of a global consensus on a natural capital definition, including minimums and metrics, global extractive industries could arbitrage by locating to countries with the minimum environmental constraints on their operations, thereby continuing to socialize their pollution while privatizing their profits. Given that a healthy nature and its biodiversity are very much linked to the fight against climate change, such behaviour could have disastrous implications for climate change, for nature itself, and for its stewards. So, what can we glean from the Basel experience that can help avoid the loss of natural capital?

In the case of banks, the Basel requirement was for a minimum level of bank capital (initially 8% of risk-weighted assets, then later raised to 14%) to be set aside to absorb potential losses. Such idle capital, however, was viewed by banks as a “regulatory tax,” which, time and time again, they have tried to “legally arbitrage,” leading to disastrous implications for the financial markets and the global economy.

Achieving such a global consensus, however, involves an agreement on the characteristics of the metrics being used for measuring the success of mitigation measures for nature and climate risks. For example, carbon reduction/sequestration is used as a metric for how well the fight against climate change is progressing. Carbon is easily identified and thus the metric is transferable across natural systems and jurisdictions. On the other hand, biodiversity metric is inherently local and context specific, which could present a problem for comparisons across space and jurisdictions. There are efforts underway to come up with a transferable measure for biodiversity akin to price index, which, in principle should facilitate comparison across markets. These efforts, however, are still in the early stages, and more work is needed in this area.

In the absence of markets for a living and regenerative nature, in other words, continuing to value a living nature at zero, any attempt to set a minimum target level of natural capital is likely to be viewed by countries as a regulatory tax which they will try to avoid. This is because alternative extractive uses of nature are simply more lucrative. Which continues to result in the loss of nature, of its biodiversity, of environmental degradation, with a knock-on effect of increasing the risk of climate change. In this case, attempts to coordinate a global natural capital standard are likely to be slow, if not resisted by some countries.

Moments of financial crisis and volatility are often linked to market innovation, either as a response to it or its cause. However, innovation almost always precedes the regulation needed to ensure it spurs positive developments and prevents gaming of the system.¹⁶ This would suggest that the issues raised above need to be urgently tackled with a forward-looking approach as nature credit markets continue to quickly develop with their link to the global fight against climate change likewise evolving with every innovation and development. In other words, the market governance of these nature credit markets should be the top priority.



**Embedding
Equity in
Nascent Nature
Credit Markets**



**The cost
of success:
transition
pains**



Taskforce on
**Nature
Markets**

The cost of success: transition pains

The introduction of an efficient and liquid nature credit market will monetize previously unpriced ecosystem services such as carbon sequestration, biodiversity enhancement, storm protection, etc. This will, naturally, be reflected in the valuation of assets in the food, energy, water and consumer goods sectors. This, in turn, will carry certain equity-related risks, such as loss of employment in the agricultural sector, decreased food affordability, increased raw material prices, to name a few, many of which are disproportionately borne by lower income populations. These transition risks must be carefully anticipated and managed. A purely finance-driven transition is likely going to have significantly greater unintended consequences than a 'policy-facilitated' transition that is carefully designed to improve social and economic outcomes.¹⁷ This is true for all nature markets, and not just emerging nature credit markets.

A policy-facilitated transition can ensure, for example, that price increases are incremental rather than abrupt, that investments are directed towards improving the land assets underlying ecosystem services, and that innovations in agricultural productivity, land management, and carbon sequestration technology partially offset the burden of transition. Sovereign natural capital wealth funds and central banks are increasingly emerging in the major NBS "exporting" countries and play an important role in managing transition risks.

**Embedding
Equity in
Nascent Nature
Credit Markets**



Concluding thoughts



Taskforce on
**Nature
Markets**

Concluding thoughts

Nature markets have the potential to create enormous wealth. However, there are two structural issues that must be overcome:

- 1 | These are, by definition, public purpose markets.** Their ultimate mandate is not just to create wealth, but to preserve and restore nature and its services to mankind. Equity is central to that public purpose, both as a condition for success and an outcome. The problem is that we don't have much experience with public purpose markets, and we are struggling to find the right balance between free market dynamics and regulatory oversight.
- 2 | Nature credit markets are new.** All nascent markets struggle intimately with teething problems, including gold rush and carbon-cowboy behaviour, accounting irregularities, informational gaps and asymmetries, price discovery problems, rent-seeking and corruption, as well as outright unscrupulous behaviour. The history of corporate finance is replete with examples of such behaviours afflicting newly developed markets. In the case of equity markets, it took decades to get these excesses under control. We don't have decades for these markets.

Solving these fundamental issues requires that we look to the experiences and lessons gleaned from market development to manage the promise of new and established nature markets, in particular the governance and policy mechanisms employed.¹⁸

In addition, many equity considerations are unique to nature credit markets. For example, equity extends beyond the rights of people to the rights of nature. After all, these markets deal with assets that are regenerative rather than extractive, with values that change over time with the degree that nature is protected, restored, and grown. Also, the rights of nature's stewards and custodians feature centrally, with their health and livelihood very much linked to the health and wealth of the nature around them.

These equity related issues imply a number of design imperatives. First and foremost, nature custodians must be involved in tailoring the financial contracts and ensuring their fair shares of proceeds over time. Second, the units of trade must be nature-based services, not natural assets like land. Third, given the length of nature asset life cycles, the interests of future generations must not be sacrificed.

Lastly, the importance of an efficient exchange cannot be over-estimated. The current over-the-counter markets do not allow for efficient price discovery and thus leave too much market power in the hands of well-informed and organised buyers. These exchanges must be given a chance to develop. Key to their development is the availability and transparency of robust, high-integrity credit data; the transparency of all nature credit transactions; and the inclusion of a broad set of nature-based credits that is widely differentiated in terms of their attributes and quality.

ENDNOTES

¹ Taskforce on Nature Markets (2022) The Future of Nature Markets: <https://www.naturemarkets.net/publications/the-future-of-nature-markets>

² See the IUCN's red list: <https://www.iucnredlist.org/>

³ See the Taskforce on Nature Markets' (2022) Nature in an Era of Crises: <https://www.naturemarkets.net/publications/nature-in-an-era-of-crises>

⁴ Ibid.

⁵ UNEP (2018), Decision Adopted by the Conference of the Parties to the Convention on Biological Diversity: <https://www.cbd.int/doc/decisions/cop-14/cop-14-dec-08-en.pdf>

⁶ See box 2 Equity (p.20) in Dudley, N., and Stolton, S. (eds.). 2022. Best Practice in Delivering the 30x30 Target (1st ed.). The Nature Conservancy and Equilibrium Research.

⁷ See, for example, Berzaghi et al. (2022a, 2022b), among others.

Berzaghi, F., Chami, R., Cosimano, T., Fullenkamp, C. Financing conservation by valuing carbon services produced by wild animals, PNAS 119 (22) . <https://doi.org/10.1073/pnas.2120426119>

Berzaghi, F., Cosimano, T., Fullenkamp, C. et al. Value wild animals' carbon services to fill the biodiversity financing gap. Nat. Clim. Chang. 12, 598–601 (2022). <https://doi.org/10.1038/s41558-022-01407-4>

⁸ NatureFinance (2022), 'Governing Carbon Markets', <https://www.naturefinance.net/resources-tools/governing-carbon-markets/>

⁸ NatureFinance (2022), 'Governing Carbon Markets', <https://www.naturefinance.net/resources-tools/governing-carbon-markets/>

⁹ This discussion is based on Chami, R., Cosimano T, Fullenkamp C and Nieburg D (2022). Toward a Nature-based Economy. Frontier in Climate. doi.org/10.3389/fclim.2022.855803i.

¹⁰ Townsend, J., Moola, F. M., and Craig, M.K. (July 2020) "Indigenous Peoples are critical to the success of nature-based solutions to climate change", FACETS 5(1): 551-556. DOI: 10.1139/facets-2019-0058.

¹¹ IUCN (2020), IUCN Global Standard for Nature-based Solutions: First Edition, <https://doi.org/10.2305/IUCN.CH.2020.08.en>

¹² UNESCO (2021), MSPglobal: international guide on marine/maritime spatial planning, <https://unesdoc.unesco.org/ark:/48223/pf0000379196>

¹³ Dawson, N. et al. (2021), The role of Indigenous peoples and local communities in effective and equitable conservation, <https://www.ecologyandsociety.org/vol26/iss3/art19/>

¹⁴ See Chami, R., Fullenkamp C., Sharma S. (2010) A framework for financial market development, <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/A-Framework-for-Financial-Market-Development-23128>

¹⁵ See Tirole, J.; Dewatripont, M. (1993) The Prudential Regulation of Banks.

¹⁶ See Chami R, Fullenkamp C, Sharma S. A framework for financial market development. J Econ Policy Reform 2010;13(2):107–135.

See Chami et al. (2010) Toward a Framework for Financial Market Development, <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/A-Framework-for-Financial-Market-Development-23128>

¹⁷ NatureFinance (2022), Finance, Nature and Food Transitions: <https://www.naturefinance.net/resources-tools/finance-nature-and-food-systems/>


¹⁸ Chami, Ralph, Fullenkamp, Connel, and Sunil Sharma, 2010, "Toward a Framework for Financial Market Development," Journal of Economic Policy Reform.

About NATURE FINANCE


NatureFinance is committed to aligning global finance with nature positive, equitable outcomes.

The core mission of NatureFinance is to accelerate the alignment of global finance with equitable, nature positive outcomes. We do this by shaping the many dimensions, actors and change pathways at the nature-finance nexus.


How we make change:




Nature Markets: shaping principles-based nature markets by increasing awareness, innovations and better governance of nature-linked markets including nature credits and soft commodity markets.




Nature Liability: extending the liabilities of financial institutions for nature outcomes, including the application of anti-money laundering rules to break the links between investment and nature crimes.



Nature Data & Disclosure: Increasing the quality and quantity of nature data, risk assessment and transparency across financial markets to enable integrated assessments of nature-climate risks and impacts.



Sovereign Debt: Engaging market actors, and governing institutions in efforts to place nature in the world's sovereign debt markets, including scaling the issuance of sustainability performance-linked sovereign bonds.



Nature Investment: Creating new nature focused investment opportunities that address climate, food security, equity and broader sustainable development goals.

For more information and publications, visit www.naturefinance.net

NatureFinance is the next phase of impact of the Finance for Biodiversity Initiative (F4B), established with support from the MAVA Foundation. The work also benefits from partnerships with, and support from, the Children's Investment Fund Foundation (CIFF) and the Finance Hub of the Gordon and Betty Moore Foundation.

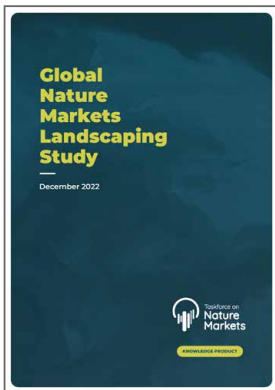


This work is licensed under the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit: <http://creativecommons.org/licenses/by/4.0/>



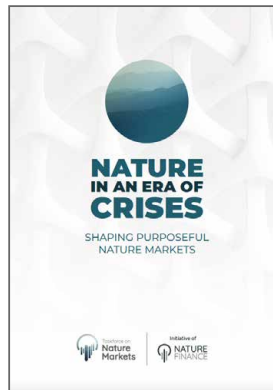
Our use of Fibonacci sequence imagery is inspired by the association of this unique ratio with the maintenance of balance, and its appearance everywhere in nature- from the arrangement of leaves on a stem to atoms, uncurling ferns, hurricanes and celestial bodies.

Related Publications



Global Nature Markets Landscaping Study

[Click to access publication >](#)



Nature in an Era of Crises

[Click to access publication >](#)



The Future of Nature Markets

[Click to access publication >](#)



Governing Carbon Markets

[Click to access publication >](#)



Nature Loss And Sovereign Credit Ratings

[Click to access publication >](#)



Breaking the Environmental Crimes-Finance Connection

[Click to access publication >](#)



Taskforce on
**Nature
Markets**