



THE FUTURE OF
**NATURE
MARKETS**

April 2022



Taskforce on
**Nature
Markets**



F4B



THE FUTURE OF **NATURE MARKETS**

ABOUT THIS PAPER

This paper sets out challenges and opportunities associated with the surge in monetarisation of nature across the global economy. It has been prepared as the anchor 'white paper' to set the scene and inform the work of the Taskforce on Nature Markets. The paper establishes a baseline of where we are in the evolution of nature markets and sets out a work-in-progress framework for considering their various forms. It also highlights areas that need to be addressed in ensuring that nature markets deliver equitable, nature positive outcomes. The paper does not set out recommendations or conclusions, as this work is only now due to begin.

The report was prepared by Ralph Chami, Marcelo Furtado and Simon Zadek, and has benefited from contributions from the entire Finance for Biodiversity team, and many others including contributions from members of the Taskforce and its partners. The contents of the report, including any errors and omissions, remain the responsibility of the authors.

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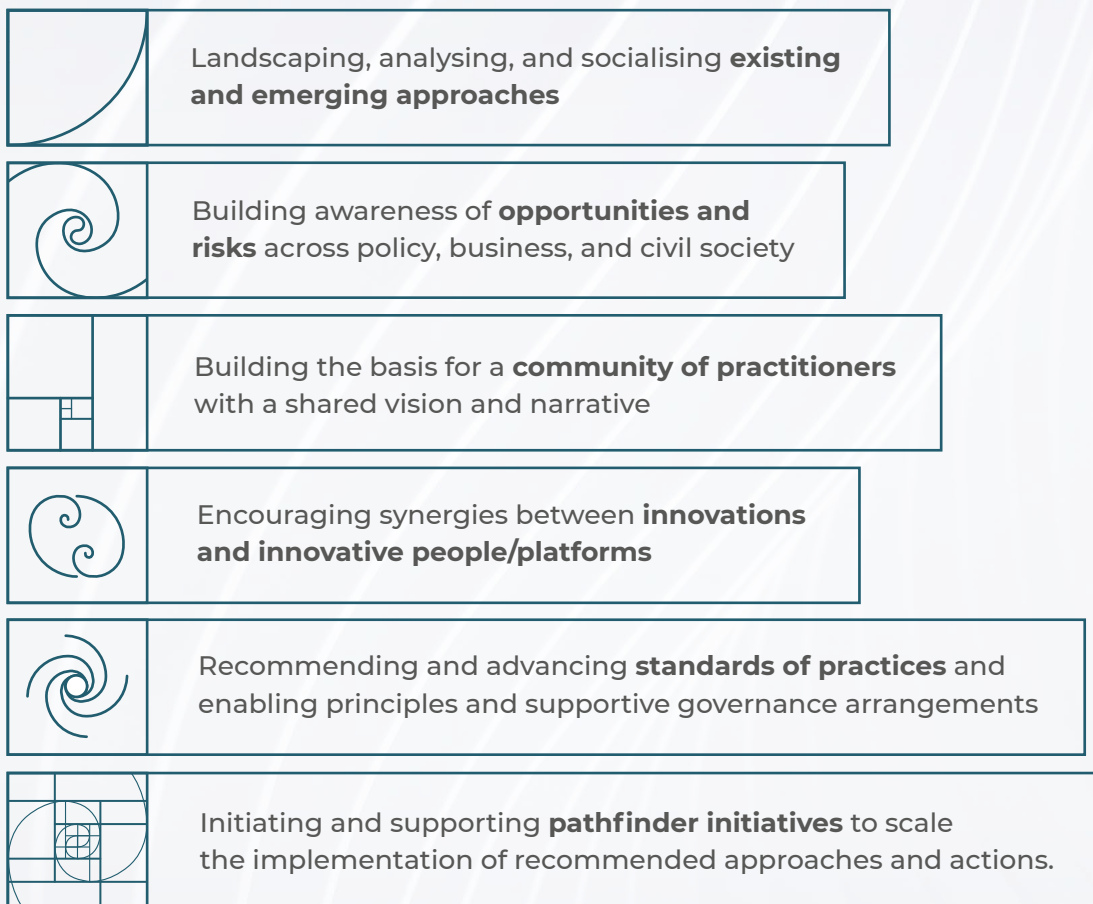


About



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:



The Taskforce is an initiative of, and hosted by, Finance for Biodiversity (F4B). It benefits from the broader portfolio of F4B'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

About FINANCE FOR BIODIVERSITY Initiative

F4B's goal is to increase the materiality of biodiversity in financial decision-making, and so better align global finance with nature conservation and restoration.

Our work is organised across five workstreams:



Market efficiency and innovation: data, risk assessment and transparency across financial markets, including support to the Taskforce on Nature-related Financial Disclosures (TNFD).



Enhanced liability: focusing on extending the liabilities of financial institutions for biodiversity outcomes, including the extended use of anti-money laundering rules.



Citizen engagement: public advocacy and campaigning, including advancing digital approaches to catalysing shifts in citizen's financing behaviour.



Public finance: advancing measures and advocacy linked to pandemic-linked public spending, development finance, and the place of nature in sovereign debt markets.



Nature markets: catalysing nature markets by developing new revenue streams and robust governance innovations, including the governance of voluntary carbon markets.

F4B has been established with support from the MAVA Foundation, which has a mission to conserve biodiversity for the benefit of people and nature. F4B's work benefits from partnership with, and support from, the Children's Investment Fund Foundation (CIFF) and the Finance Hub of the Gordon and Betty Moore Foundation.

For more information and publications, visit www.F4B-initiative.net



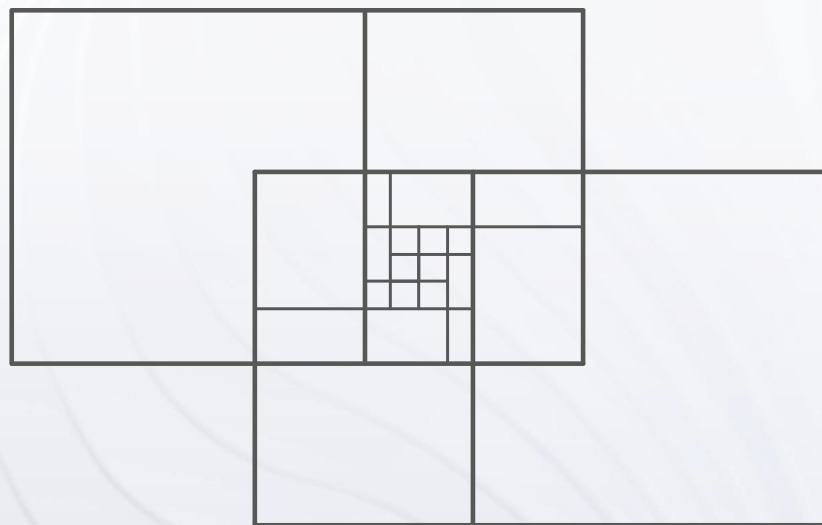
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The Fibonacci sequence is a unique ratio that can be found everywhere, from atoms to uncurling ferns, hurricanes and celestial bodies. The Fibonacci visualisations that appear in this paper are inspired by nature's use of the ratio to maintain balance.

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An Invitation

Connecting the words 'nature' and 'markets' is a challenging undertaking. Nature plays a pivotal role in sustaining life on our planet and addressing the climate crises. Less visible is the simple truth that 100% of the global economy is 100% dependent on nature. Nevertheless, markets, trade and the global economy have historically under-priced nature and the distribution of economic gains from its use, leading to its unsustainable exploitation and associated injustice and inequitable outcomes. Faced with such facts, it is tragic that much of today's debate on this topic reinforces polarised positions rather than supporting a reconfiguration of the nexus between nature and economy in equitable, sustainable ways.

Today, a confluence of forces are leading to a surge in the monetarisation of nature, as its services - such as carbon storage - are increasingly valued. This shift is at an early stage and could be harnessed alongside other all-important approaches to valuing and stewarding nature. New nature markets could deliver new nature positive products, engaging and benefiting public and private actors, including local and indigenous communities. Getting them right will not, however, happen automatically, as history amply demonstrates. A conscious, collective endeavour is needed to design and then govern these markets in ways that ensure that they deliver long-term public goods as well as short-term private gains. In doing so, this will help transform the practice and behaviour of the market to recognise the value of nature and its stewards, and to, therefore, integrate them into its core.

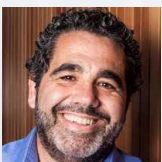
This paper is a contribution to the Taskforce on Nature Markets that has been established with the aim of shaping a new generation of purposeful nature markets that deliver nature positive and equitable outcomes. Our Call to Action is to those diverse communities that must be part of any sustainable solution: from investors, consumers and academia, to fishing communities and indigenous leaders, to policy makers and regulators, human rights activists and civil society at large, entrepreneurs and corporate leaders.

The Taskforce aims to, and can, make a meaningful contribution, working with many partners and allies, to find ways of activating these communities towards collaborative, ambitious action. In this context, this paper is an invitation to those who care and can make a difference - everyone - to contribute to the work of the Taskforce in offering insights and capabilities in developing the right nature markets needed to deliver a sustainable future for all. Read, comment, join us.



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THE FUTURE OF **NATURE MARKETS**

SUMMARY

A history of disregard and destruction of nature

The sustainability of our economic systems depends on the sustainability of our ecosystem and its biodiversity. Yet nature and its contributions have historically been mis-valued, and its economic benefits inequitably distributed. Nature's resulting decline increasingly impacts us all, particularly those most directly nature dependent, including farmers, and local and indigenous communities. Nature's destruction also undermines our efforts to address climate challenges with potentially existential consequences.

A surge in the monetarisation of nature across the global economy

Recent developments point to nature becoming more visible, valued across 'nature markets' that generate nature-specific revenue streams. Nature markets can and do involve the trading of nature as the core product itself, such as food, wood products, minerals and nature-based health products. Beyond this is the growth of trade in nature's functions or 'services'. Notable are the links between carbon markets and nature's capacity to store carbon, but also the growth of markets for water embodied in what we make, and the value of property near nature and nature-linked tourism, and the emergence of a broader set of biodiversity offset markets.

Investors are also waking up to the value of nature. Nature has joined climate as a risk that needs to be counted and integrated, whether it arises from physical dependencies, or as a result of nature-linked regulation and policy, litigation or reputation challenges. Beyond risk, nature is an increasingly investable domain due to the development of nature markets. Moreover, the pricing of nature by investors makes nature-friendly technologies and businesses more attractive.

Nature has joined climate as a risk that needs to be counted and communicated.

We need to place nature and equity at the core of our economic activity and support the development of purposeful nature markets.

Nature markets designed and governed with a focus on nature and equity could reset the historically unbalanced and unsustainable relationship between nature and economy

Societies have deep traditions and diverse ways to value and steward nature. Nature's critical relationship with economy is both a source of pressure on nature's health and continued bounty, and a mechanism through which it can be valued, invested in and conserved. Developed appropriately, nature markets could unlock and channel innovation in delivering new nature positive products, engaging and benefiting public and private actors, including local and indigenous communities. Success in steering nature markets towards purposeful ends could deliver direct value to many actors in the sustainable use of nature, and catalyse investments linked to nature offset markets, including those linked to carbon markets. All of this and more is possible, tapping into the deeper values and social awareness of individuals and communities.

The opportunity to shape purposeful nature markets could also be squandered, or worse

Unchecked monetarisation of nature could lead to its further depletion and damage. For example, unintended consequences could arise from an over-emphasis on markets predicated on one measurable metric (say, carbon reduction or offsets) while missing and negatively impacting other aspects of biodiversity.

Nature markets could be responsible for yet another historic round of inequitable outcomes. Unfettered competition in the carbon market, for example, could lead to under-priced purchases of nature-linked carbon offsets, or conversely to skyrocketing land prices that dispossess the ultimate stewards of nature - local communities and indigenous population.

Given the pivotal role that a healthy and thriving nature plays in reducing climate change, such damaging outcomes could ultimately hamper our collaborative efforts to address climate change, with existential consequences.

Said simply, we need to place nature and equity at the core of our economic activity and support the development of purposeful nature markets. The question is how.

Nature markets need to be principles-based to deliver nature positive, equitable outcomes

Markets need to be designed to generate revenues aligned with equity and nature-centric principles whilst being attractive to would-be sellers, buyers and investors. This is entirely possible, by building on a long history of embedding public purpose into private markets - from the regulatory basis for health and utilities markets to social and environmental market outcomes driven by citizens as consumers, savers, investors and taxpayers.

Principles-based nature markets need the right balance of innovation, power and accountabilities. Today's governing institutions need to be drawn into the effective governance of nature markets, including those responsible for trade, competition and finance as well as those with core socio-environmental mandates. Classical governance instruments can and should be used but are likely to be inadequate for the task. A new generation of digitally-powered, decentralised governing instruments can also play a role in advancing the right governance solutions, such as blockchain and tokenisation to enhance transparency, verifiability and trust. These instruments would be especially useful in countries with weak or absent institutional frameworks.

Principles-based nature markets need the right balance of innovation, power and accountabilities.

The Taskforce on Nature Markets will seek to advance a principles-based approach in practice

Our 'Call to Action' is to establish the framework for building principles-based nature markets. The nature-economy nexus is entering a new phase that combines a greater urgency with increasing attention, new actors, and instruments. At this early stage, there is an opportunity to shape tomorrow's nature markets, helping to maximise their positive potential and mitigate associated risks.

The Taskforce on Nature Markets has been established with the core objective being: 'To shape a new generation of purposeful nature markets that deliver nature positive and equitable outcomes.' Individual initiatives, however high-profile, smart or well-resourced, can rarely make a difference by themselves. The success of the Taskforce on Nature Markets depends on its ability to engage with, crowd-in and connect active, aligned communities of practice. To enable such an approach, the Taskforce on Nature Markets is guided by a remarkable group of leaders drawn from policy, legal and governance, market, technology, civil society and indigenous communities. They are in turn supported by an amazing group of knowledge partners and hosted by Finance for Biodiversity.

The Taskforce on Nature Markets' approach will be to advance an ambitious work programme over its lifespan that seeks to map existing and emerging approaches and experience, build awareness of opportunities and risks, grow a community of practitioners, encourage innovations and innovative people, advance supportive governance arrangements, and initiate pathfinder initiatives to scale the implementation of recommended approaches and actions.

Effectively implementing such a work programme, with the help of knowledge partners and allies, would enable the Taskforce to contribute to the development of nature markets fit for the 21st century and beyond.

1



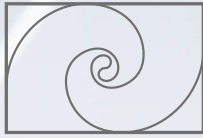
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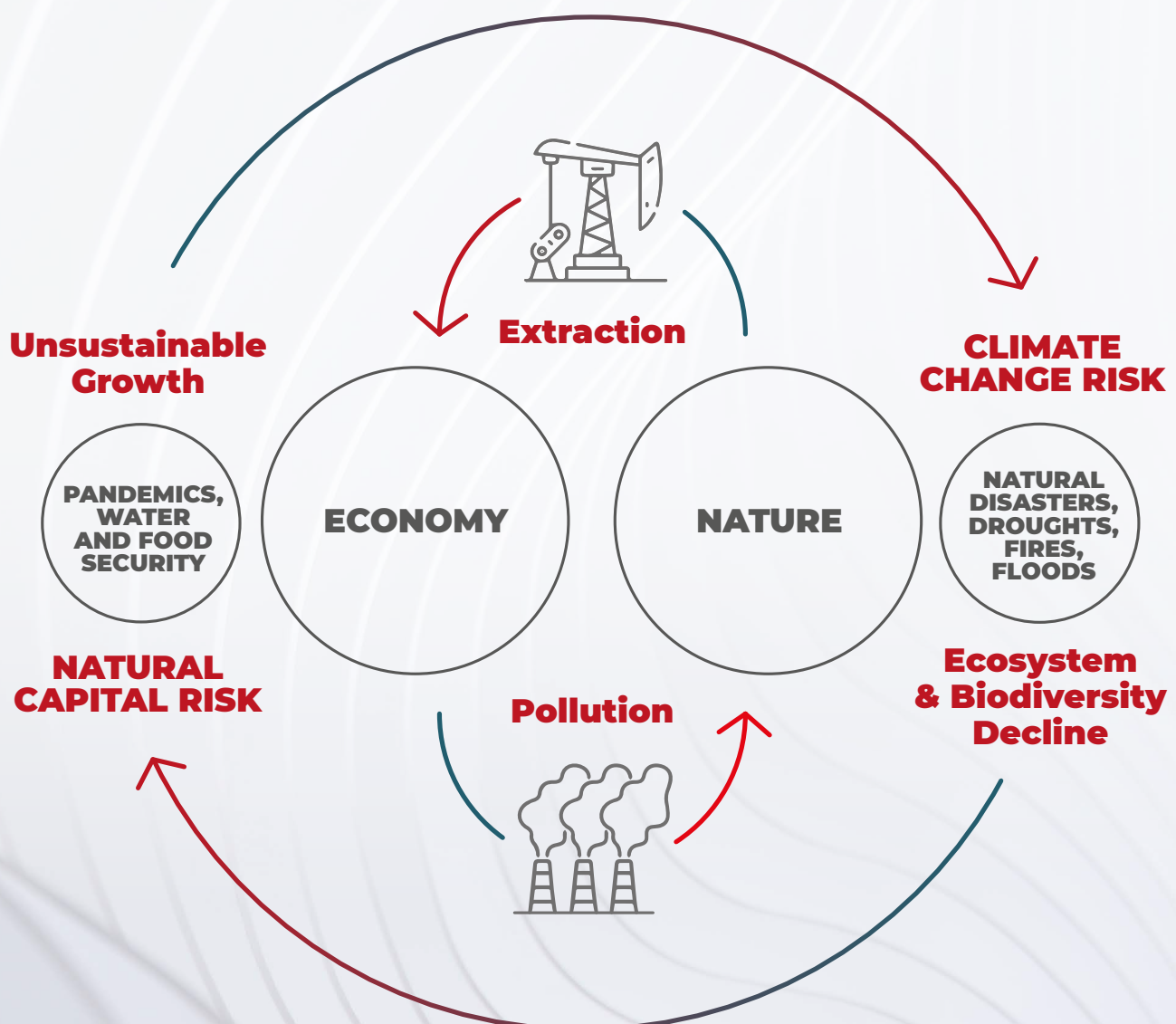


NATURE MARKETS

A history of disregard and destruction of nature

For too long, preserving nature has been at best a local and often fragile affair. The current paradigm sees the economy outside of nature and treats it as an afterthought (Figure 1). More often, preserving nature and ensuring nature-related equitable outcomes has been marginal to policy and market considerations, or, worse still, rendered impossible in the face of an inequitable, nature destructive, business-as-usual.

Figure 1 The current paradigm: economy outside of nature

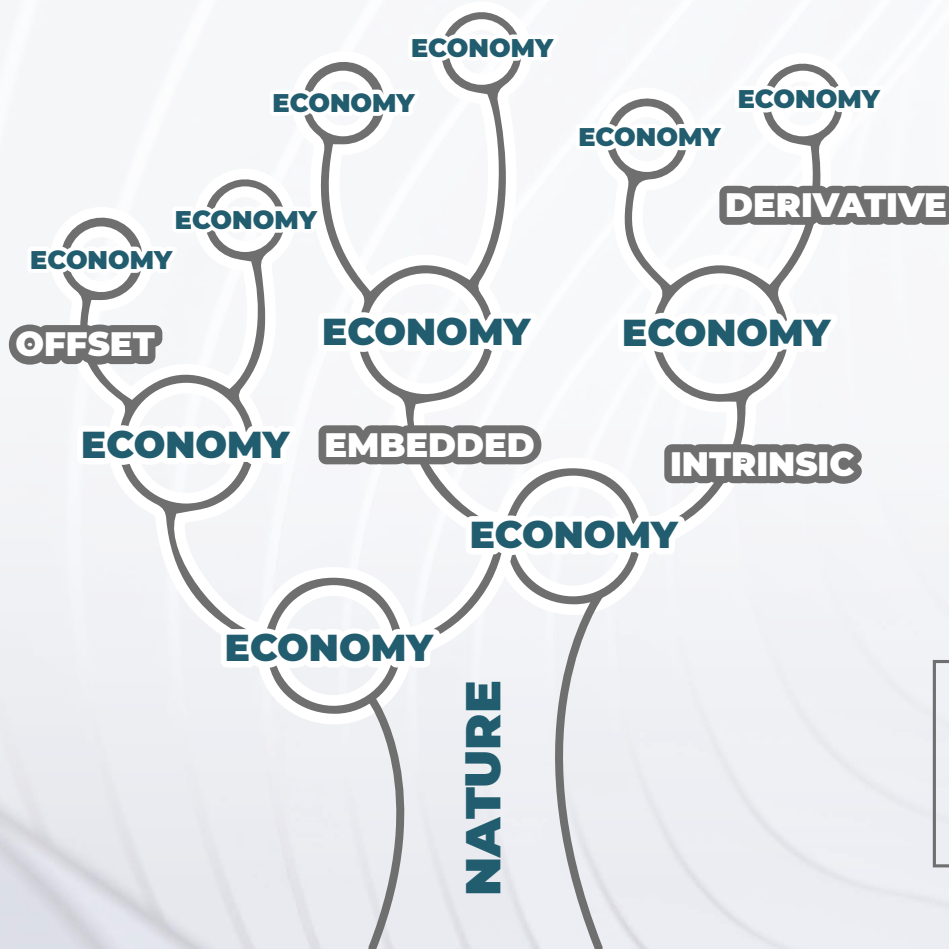


A surge in the monetarisation of nature across the global economy

Every dollar, job, and community ultimately depends on nature's bounty. Policy makers, the public, and gradually market actors including the financial community, are recognising this fact - that nature is essential to our intrinsic well-being as well as to economic prosperity and justice.¹² There are many signs of this shift. The growing visibility of nature in inter-governmental negotiations includes the Convention on Biological Diversity (CBD) and equivalent climate negotiations. There is a surge of concern and engagement by a wide range of governing institutions including central banks,³ trade regulators, civil society organisations, citizens and investors. A host of market-driven initiatives is also making nature's value more explicit in product design, promotion and pricing.

The future of the global economy and livelihoods, and the prospects for sustained, shared prosperity all depend on a living and thriving nature (Figure 2).^{4, 5, 6} In some instances, this dependency is in plain sight, such as the production of food.⁷ In most cases, however, the dependencies are less visible, such as nature's contribution to our digital technology and physical infrastructure, the returns to our pensions, and the services we consume.⁸

Figure 2 Nature is at the centre of the economy



Every dollar, job, and community ultimately depend on nature's bounty.

The mainstreaming of valuing nature has been driven by four factors:

1

Public engagement

Increasing public interest in being part of and contributing to positive nature outcomes as well as concern about the current state of nature, and anger at the lack of accountability of those who have caused this state.⁹ Increasing media coverage has amplified concerns, for species and landscape loss, deforestation, plastics pollution and the links between nature and the current COVID-19 pandemic.

2

Risk to equitable economic prosperity

There is concern regarding the current and potential impact of nature's decline on our economic prosperity and equity in its distribution, set out in numerous publications, including most recently in Professor Sir Dasgupta's 'The Economics of Biodiversity', and the World Bank's report on the importance of nature to developing country economies, 'The Economic Case for Nature'.

3

Addressing climate goals

Nature plays a critical role in addressing climate goals, notably in its capacity for capturing and storing carbon. This was clear at the recently concluded UN Climate Change Conference of the Parties (COP 26) negotiations in Glasgow, where nature made its debut on the global stage as an essential ingredient to resolving the existential climate change challenge.¹⁰

4

Business risks and opportunities

There is increasing appreciation by the business community of the risks and opportunities associated with nature.¹¹ Initiatives such as the Taskforce on Nature-related Financial Disclosures (TNFD) exemplify the growing attention from the financial and broader business community to the very real risks associated with nature-climate dependencies. One example is transition risk due to potential new nature-climate friendly regulations coming online. On the other hand, the private sector is becoming more in tune with the potential impacts of their investments and activities, just as the Food and Land Use Coalition (FOLU) points to the trillions of dollars in economic opportunities associated with more climate- and nature-friendly food production.

These four drivers have catalysed a surge of activities seeking to protect diverse aspects of nature

Activities for the protection of nature include classical conservation efforts, such as national rewilding initiatives in wealthier countries, and the high-profile, internationally embraced ‘30x30’ policy-driven initiative seeking to protect least 30 percent of our lands, oceans, rivers, lakes, and wetlands by 2030. Other activities seek to connect the market and nature in ways that deliver nature positive as well as market-friendly outcomes. This latter category of actions uses widely divergent instruments, from TNFD’s work on improved risk pricing and disclosure, to new forms of biodiversity offsets, linked both to project investments and to carbon markets that are channelling more investments into nature given its carbon sequestration attributes.

Policy and regulation are an important driver of many of these market-based initiatives. A central bank of Brazil initiative requires disclosure of climate and nature risks to the EU, and the UK has new due diligence requirements regarding deforestation, with moves to extend the application of anti-money laundering rules to a wider range of environmental crimes which drive a significant proportion of nature damage.¹² Notable is that many, although not all of these high-profile initiatives, are being largely driven by wealthier countries.

Nature is becoming a geopolitical issue but is not yet fully established as a macro-competitive issue

Efforts to address climate challenges are increasingly entangled in a global struggle to dominate tomorrow’s green technologies and low-carbon industries. So far, the same cannot be said for nature. Despite growing interest and engagement by the financial and wider business community, there is no widely accepted equivalent to the multi-trillion-dollar market resulting from efforts to address climate change.

There are early signs, however, of growing business interest in the trading of nature and related functions or services. Most visible is the explosion of interest in investing in so-called nature-based solutions in securing carbon offsets to trade in voluntary carbon markets.^{13, 14, 15} Initiatives such as the Taskforce on Scaling Voluntary Carbon Markets (TSVCM) have helped to catalyse a surge of investments in the owners and stewards of nature assets to secure long-term carbon off-take agreements. Interest is also surging in agri-tech as an investable domain, in some ways the closest nature analogy of renewables to climate. Most visible right now is ‘alternative protein’ that promises to substitute out climate- and nature-intensive animal protein industries. Vertical farming is moving rapidly up the agenda given its potential to delink from the use of water and pesticides, and its reduced carbon emissions, compared to soil-based farming.

<i>The concern is that market-based approaches will either not make enough difference, or will cause more damage</i>	
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It is good that nature's value is being promoted by such developments, but there are growing concerns as to their impacts

It is exciting to see the multiplicity of pathways, initiatives and instruments being developed to establish nature's value, and translate it into meaningful action and impact. There is little doubt that the increased value attributed to nature through market-based innovations, often linked to policy and regulatory developments, could make a major positive difference.

That said, there are concerns as to the impact of many of these developments. Such concerns are multi-faceted. For example, the 30x30 initiative is criticised for its limited ambition, and lack of implementation will and capability. Concerns are being raised as to whether TNFD and other voluntary and mandatory risk-based initiatives can address the challenge ahead of us with the required urgency, as well as the need to expand the narrow, legalistic view of what the finance sector considers 'material risk'.

Monetising nature through its capacity to store carbon does positively create the potential for massive investments in nature. Assuming, of course, the presence of mechanisms that ensure socioenvironmental integrity and the avoidance of unscrupulous behaviour such as double counting. That said, there are already early signs of conflicts that can emerge over the ownership and stewardship of monetisable nature assets.^{16, 17} Moreover, there are worrying asymmetries of information and negotiating capabilities across these early-stage markets. The result is significant profit-taking by financial market traders at the expense of both the owners of nature and the value of investments in the protection and restoration of nature assets.¹⁸

Policy measures to protect nature may have perverse, unintended, development impacts, especially when they confront concerns regarding impact on employment and market access, among others. Examples include Indonesia's concerns about the deforestation initiative launched at COP26,¹⁹ and Brazil's very negative response to the EU's proposal to ban imports of soya and beef associated with illegal deforestation.^{20, 21}

In addition, there is very unequal treatment of different aspects of nature. Some aspects receive much focus, such as forests and bees, whilst others such as wetlands or oceans receive less attention. This is often because of the complexity of the science, difficulties in communicating to the public and policy makers, or institutional problems such as property rights.

As a result, many of nature's benefits to our economies, that go beyond climate risk mitigation and resilience, have escaped attention. The proof of nature's role in creating sustainable prosperity has remained in the realm of science. Some of this evidence is quite recent and has not yet been fully incorporated into our models and narratives. Translating the scientific evidence into concrete descriptions of the benefits of nature to our own health and economic well-being, and accounting for their value, will be paramount in galvanising the necessary competitive forces that would help shape a new nature positive economy.

Such concerns, and others, are valid red flags at this early stage in the innovation curve. It is important to take such concerns seriously by integrating their implications into the design of such developments.

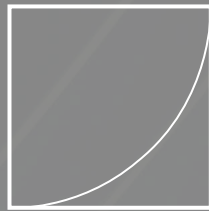
Now is our moment to forge a practical compact and shape future interactions with all aspects of nature.^{22, 23} As in the case of climate, we come to this moment with a growing sense of the acute dangers and risks associated with nature's decline, the asymmetries of power, capabilities, information and interests that make ambitious, co-ordinated action commensurate with the challenge unlikely.

Likely is that we advance many different approaches to address the problem, providing for more innovation but potentially more conflict and unintended consequences. Policies and markets, supported by civil action and technology, are our principal instruments for scaled action outside of the tragedy of war and other catastrophes.

It is in this context that we turn to the role of nature markets.

Policies and markets, with civil action and technology, are our principal instruments for scaled action.

2



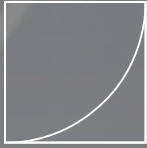
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2



WHAT ARE NATURE MARKETS

There is a broad literature about the nature-market nexus that offers a diverse set of definitions and categories. According to Millennium Ecosystem Assessment (2005),²⁴ Ecosystem Services can be grouped by function:

- 🌀 **Regulating** - includes climate and carbon store, pollination, water purification, and flood control
- 🌀 **Provisioning** - includes food, fibre, wood, water, and medical
- 🌀 **Cultural** - includes inspiration, recreation, education, and aesthetic
- 🌀 **Supporting** - a function that feeds into all three above categories; includes soil formation, biodiversity, primary production, and habitat

Some of these 'supply' functions, such as provisioning, support typical 'extractive' markets. Others give rise to new 'regenerative' markets that support the protection, conservation and regrowing of nature.

From the 'demand' side, two main motives support investment in nature services. An 'exchange' motive involves a requited pecuniary motive and a 'psychic' motive, or non-pecuniary and unrequited transfer such as charitable giving.



Nature markets have two essential characteristics

Everything is nature dependent, and for many, everything on earth is nature. But that does not mean that the global economy is just one big nature market. For our purposes, we understand one of two pre-conditions of nature markets to be that a monetary value can be specifically attributed to nature, or more often to its functions, i.e. the services it can provide.

A specific price on nature is necessary but not sufficient for nature to be traded. Nature markets also require nature-specific revenues to be generated as an integral part of the trade. For example, the sale of natural health products, or land-grown food, clearly involves the trade of nature itself. On the other hand, a business may place a monetary value on the risk of being fined for damaging nature by polluting. The nature in question is being valued but is not being traded. At the same time, if the business at risk takes out an insurance policy against being fined, this transaction would be part of a nature market in that not only is nature being valued, but there are associated revenue flows.

Nature markets come in many shapes and forms, and here we suggest three key types

Since no definitive right or wrong can be assigned to such frameworks, we have drawn on our two-feature definition of nature markets in offering up three types of particular interest:

🌀 **Intrinsic nature markets** concern first and foremost the trade of nature itself. The most straightforward nature markets are those where nature itself is the main aspect of the traded product or service. Most obvious is food, but we may also think about nature-based medical products, wood products, and indeed the sale of sand, earth and of course minerals.

These markets include embedded nature markets concerning the explicit value of nature embedded in the value of what is actually traded. For some this may be substantial and quantifiable. Consider the nature value of tourism, for example, through the use value of a park or beach. Although the park or beach may not be tradable themselves, the tradable value of a nearby hotel, home or restaurant may be enhanced by their proximity to these natural assets. Such nature value will in the main not be distinctly monetarised, i.e., may not be separable from the economic asset.

For nature markets to arise, there need to be nature-specific revenues generated as an integral part of the trade.

Nature markets need to be purposeful in securing both the integrity of nature and inclusive social outcomes.

🌀 **Offset nature markets** concern investments and/or trade in aspects of nature to offset a negative impact elsewhere. As we have seen evolve in the case of carbon, nature markets can be, and are created to offset the effect of an economic actor on nature elsewhere in time or/and space. The main challenge in developing such offset markets is one of equivalence: for example, a litre of water used in drought-ridden Kenya is not equivalent to a litre of water in rainy Amsterdam. Nevertheless, a host of biodiversity offset approaches are already in use²⁵, notably regulated requirements in developed countries linked to specific, nature-impacting project investments. The equivalence problem is essentially dealt with by such arrangements being local and there being no secondary markets for the offset agreements.

These markets include carbon-linked nature markets - those that trade carbon sequestration attributes of nature. These markets have been pulled out as a distinct category given the importance and distinct policy and market dynamics of carbon sequestration. Natural capital that offers the potential for carbon sequestration are now much sought after, particularly with the growth of voluntary carbon markets. Indeed, today, carbon offset markets are the most powerful nature-linked revenue-generating machine²⁶. These markets are viewed as a gateway for developing markets around other ecosystem services.

🌀 **Derivative nature markets** concern those markets that trade instruments that reflect the value of nature embodied in the underlying economic assets and enterprises. Most obvious here are financial instruments and markets that consider nature-related risks and opportunities as a basis for valuing and trading financial assets, from sovereign debt to nature intensive and dependent companies. Beyond this, one might include in these markets valued representations of nature, such as non-fungible tokens (NFTs) and other forms of tradeable nature-linked tokens.

This proposed three-way classification of nature markets is a work-in-progress and likely to evolve over time. Notably, there are overlaps between the definitions, and many nature markets may well fit into more than one of the categories. That said, the classification hopefully helps to highlight the breadth and diversity of what we are referring here to as nature markets, and so also some of the challenges in both understanding what is going on already, and figuring out what can be done to shape them going forward.

ECOSYSTEM SERVICES*				
	Supporting Necessary for the production of all other services  Soil Formation Biodiversity Primary production Habitat	Regulating Benefits obtained from regulation of ecosystem processes  Climate/Carbon Pollination Water and Air purification Flood Control	Provisioning Products obtained from ecosystems  Food&Fiber Wood Water Medicinals	Cultural Non material benefits obtained from ecosystems  Inspiration Recreation Education Aesthetic
Motive for Investing	Exchange	Exchange	Exchange	Psychic
	Regenerative	Regenerative	Extractive	Regenerative
Existing & Potential Markets	Offset& Derivative	Offset & Derivative Carbon-linked	Intrinsic	Embedded & Derivative

*Ecosystem Services Table: Millenium Ecosystem Assessment, 2005

Nature markets need to be purposeful in securing nature integrity and inclusive outcomes

Nature markets have emerged as just another part of the global economy. As such, they are in any case subject to applicable rules and norms, including national and international laws, regulations and standards. Beyond these rules and norms is the opportunity and need to develop a generation of purposeful, principles-based nature markets. Public interest goals are part of the development and governance of many markets, advanced by policy makers, regulators and standard setters, and also increasingly influenced by investors and citizens as consumers, pension policy holders, taxpayers and voters.

Most recently, we have seen efforts to do exactly this with carbon offset markets. Compliance, or regulated, carbon markets are now subject to Article 6 agreed at the recent UN Climate Change Conference of the Parties (COP26) in Glasgow. Likewise, the Taskforce on Scaling Voluntary Carbon Markets (TSVCM) and other initiatives have sought to establish goals and align the market design and governing arrangements for voluntary carbon markets.²⁷

Much needs to be considered in developing the equivalent normative framework for nature markets, not least because of their diversity across many dimensions. Any effective framework must be more than merely aspirational and focus on delivering practical implications for the design, operation and governance of nature markets. It is also critical that such a framework has a nature-regenerative rather than nature-extractive focus, to ensure that nature markets contribute to nature positive outcomes.^{28, 29} Such a framework must also provide for equitable outcomes, although how that is translated into market design and practice remains an open question.³⁰

Finance is critical to the development of nature markets

Finance is in theory an upstream enabler of market development in funding profitable market opportunities. But in practice, finance and market development is a far more entangled affair. For example, it is hoped that investments will flow into intrinsic nature market opportunities. On the other hand, purchases of carbon offsets associated with nature assets are in themselves investments in nature. Similarly for offset nature markets. Embedded nature markets are again a different case, where investors increasingly respond to nature-related risks (and opportunities) as part of their wider due diligence of the sector, product and business.

The leading edge of the financial community is re-tooling itself to deal with nature, just as it has increasingly done in recent years for aspects of the climate challenge.³¹ These developments are evolving quickly but are nevertheless rather well documented, with publications from non-profit platforms like Finance for Biodiversity, service providers, development finance institutions, financial sector associations, and many others. Data, risk and impact analysis are the foundations of these developments. The Taskforce on Nature-related Financial Disclosures (TNFD) exemplifies the collective effort to insert nature into mainstream financing decisions.

Alongside the development of such basics, there is a growing stream of nature-finance related products and institutional innovations. For example, the first generation of 'nature positive funds' are now active, nature-tracking indexes are entering into use, and nature risks are being built into credit ratings. Another example is digitally-enabled financial products that offer clients an ever-widening range of nature- as well as climate-linked investment choices. The Brazilian National Development Bank (BNDES) is considering matching concession schemes of infrastructure projects (port and roads) accompanied by public forests to attract green bonds and offset the operation. Innovative financing markets are being developed, such as the 'nature asset company' listing platform under development by Intrinsic Exchange with the New York Stock Exchange.

The leading edge of the financial community is re-tooling itself to deal with nature, just as it has increasingly done over the last years for aspects of the climate challenge.



Any effective nature market framework must have a nature-regenerative rather than nature-extractive focus.

Governance innovations are accompanying such developments, intending to shape the wave but at this stage trying to keep up (see case study). The EU is developing a biodiversity taxonomy as part of its wider sustainable finance taxonomy intended to encourage biodiversity aligned investments. The Network of Central Banks and Supervisors for Greening the Financial System (NGFS) has extended its work beyond climate to consider how best to fit nature into its members' mandated efforts to ensure financial stability.

Those governing carbon markets are stepping up to ensure their linkages to nature-based solutions do not only deliver high integrity carbon offsets but also support nature positive investments and outcomes³². The Financial Action Task Force (FATF) and others are advancing the broader application of anti-money laundering rules to a wider range of nature crimes, and new mandatory corporate deforestation due diligence and reporting requirements will pressure the financial community to adopt equivalent measures.

So, the financial community, although historically behind the curve in considering either nature risks or opportunities, is now making progress. For even its most advanced members, nature remains at best a matter of risk management, dealing with new disclosure requirements, and the nature-related opportunities afforded by carbon markets. However, the climate journey for the financial community has raised its interest and its guard, creating interest amongst some of its members to better understand where nature fits more broadly into their world.

3



NATURE MARKET DEVELOPMENT

THE FUTURE OF
**NATURE
MARKETS**



Taskforce on
**Nature
Markets**

3



NATURE MARKET DEVELOPMENT

Markets may be subject to monopolisation, rent-seeking behaviour, and problems related to informational gaps and asymmetries

These features typically afflict markets in their early stage of development - hampering price discovery and affecting investor confidence.³³ Moreover, such problems can and do become embedded features of more developed markets.

Voluntary carbon markets exemplify such challenges. Many of the self-evident, and largely predictable problems and associated performance shortfalls arise because of their nascent stage of development. Such market development pains include entirely legitimate concerns about carbon reduction additionality, transparency, integrity, and accountability and the equitable distribution of benefits.

Without taking a position about the fundamental merits of voluntary carbon markets, it is clear that such problems can arise through immature or misconceived market rules and associated governance arrangements. As a result, it is possible - indeed likely - that the lack of domestic technical capacity in many nature-rich countries to value nature assets may lead to exploitation by unscrupulous buyers.

There is no 'one-size fits all' when designing nature markets

Market development is an iterative process, requiring experimentation, learning, and of course failures. At the same time, markets closely linked to public interest outcomes, such as nature markets, do need deliberative design, purposeful experimentation, and closely observed execution. It is not all right to 'let them rip' and see what arises. Damaging early experiences may prevent future nature markets from arising at all, irreparably damage nature and its stewards, or set us on a course that is path dependent and hard to divert or even stop.

For example, letting voluntary carbon markets 'rip', despite the efforts of the Taskforce on Scaling Voluntary Carbon Markets and its many advocates and critics, is resulting in a wave of inequitable deals with owners of nature assets. These deals are unfair, could sour and stall the market, or worse still, damage public and international trust. In addition they could undermine wider climate- and nature-related sovereign negotiations.

Nature markets involve natural systems, that is flora and fauna — as such, a careful and tailored approach is warranted.

Developing Nature Markets: Sell and Buy Side

Every market needs sellers (producers) and buyers in order to develop. Identifying the natural or likely sellers and buyers of a specific product is the first step. This enables us to understand the needs that each side of the market is seeking to meet by participating in it. Describing each side's objectives helps to define a space in which agreements between the sides are possible, so that trade can take place. This process also helps identify the potential obstacles that could prevent the market from working properly or that could lead to perverse outcomes. These obstacles, in turn, will later become the focus of the designers and regulators of the market.

The sellers of nature services are their ultimate owners, who include indigenous and forest communities, private parties and governments. Private parties generally own parcels of land and the flora on them, while governments own land, bodies of water within their territorial borders (including their ocean claims), and the wild animals within their territorial borders (with the exception of private reserves).

For the sellers of nature services, such a market could also attract extraordinary levels of financial flows to countries—many of them happen to be low- and middle-income countries (LMICs) and fragile states (FS)—and to their local communities, indigenous population and forest communities, leading to a significant uplift in benefits in a number of important ways. These benefits include:

- ④ The flows from the sale of nature services (carbon offsets/credits or other ecosystem services) represent a source of funding for nature conservation efforts.
- ④ By retaining ownership of nature assets while selling their services, these flows are regenerative as long as the asset is protected.
- ④ The new flows would substitute the government's conservation outlays as well as inject new funds into the government, either directly or indirectly from the expansion of the tax base.
- ④ For many countries, this revenue would change these governments' net worth with positive knock-on effect on their debt and credit rating profiles.
- ④ The flows would help to diversify the economy of such countries by reducing their dependence on tourism dollars or on the exports of their primary products.
- ④ The income and employment generated from nature assets would help stabilise communities in their land.
- ④ These flows would give the incentive for the government and local communities to protect and invest in a vibrant nature resulting in a cleaner environment and improved health for their peoples and beyond.

For the buyers of such nature services, the benefits are also many. In the case of the carbon market, for example, this would involve fulfilling their commitments to net zero carbon emissions, benefitting from the appreciation in the price of the nature asset, and fulfilment of their Sustainable Development Goals (SDGs), among other benefits. Beyond the carbon market, demand for nature products includes traditional ones such as wood, but also food and health products. Embedded nature is yet another market that is rapidly growing due to advancements in technology that allow traceability of such inputs such as soil or water into final consumer products.

A market for nature in essence converts buyers of nature services to long-term investors since these nature benefits would only accrue if the nature assets were protected and regenerated over time. As such these investors are now equity holders in a shared common and public good—a regenerative nature.

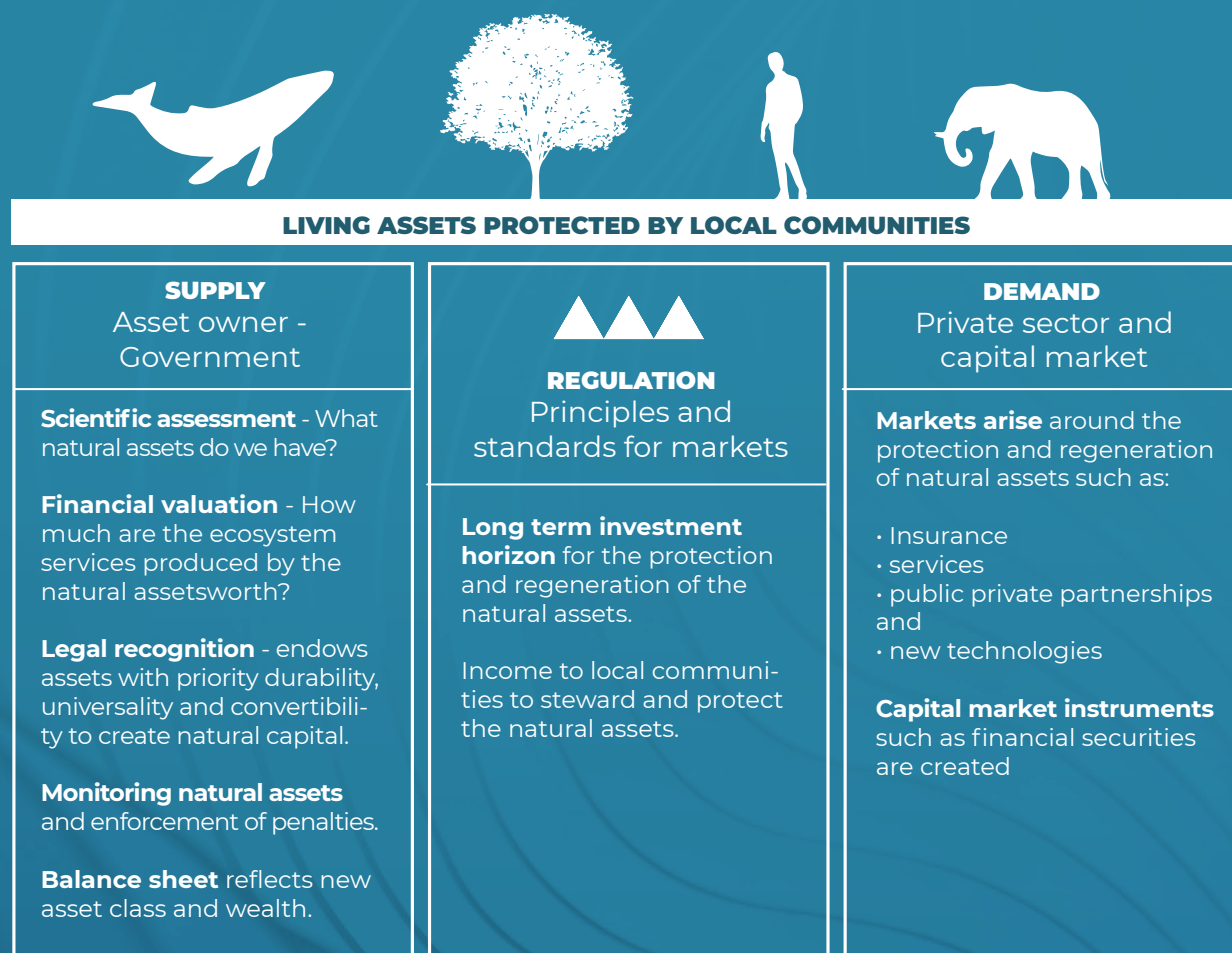
Nature market development needs suitable governance arrangements

The promise of nature markets is clearly considerable and could offer a win-win-win for the buyer, the seller, and the environment. All stand to benefit. But, as with any new market, the success of these new markets will largely rest on the quality of the governance of nature markets and on the management of the expected flows (and in many cases, transnational flows) from the trading of nature.

Many new nature markets will be similar to financial markets in that they involve the delivery of services whose quantity and quality depend on the performance of a chain of counterparties. Typically, markets for new financial instruments and services flounder due to informational gaps and asymmetries endemic to such markets—reflecting the opaqueness of the market participants, regulatory and legal uncertainties, and difficulties in enforcing contracts. These imperfections will doubtlessly characterise many new nature markets as well. All of them lead to high risk and price discovery problems, which result in cautious sentiments that in turn cause people to underutilise these markets or avoid them completely.

Often, the main remedy for these gaps is a set of rules that promotes transparency and minimises uncertainty, although information does not guarantee that problems will be effectively addressed. Therefore, these rules should be introduced thoughtfully and early in the development process. Moreover, they should aim to protect and regenerate nature and its biodiversity as well as provide sustainable income and meaningful employment for the local and indigenous communities (See Figure 3).

Figure 3 Developing the natural capital market for ecosystem services



Many nature assets reside in countries with either weak legal frameworks, or inadequate enforcement

Such weaknesses could subject nature-rich countries to a possible ‘natural capital curse’ akin to the well-known ‘resource curse’. Moreover, while in many cases these assets are owned by the sovereign, others are either privately owned or their legal status is in limbo. Further complicating the picture is that transnational financial flows cross different legal and institutional landscapes and associated frameworks, making it harder to establish consistent rules governing international nature markets.

Partly as a result of this, potentially important legal innovations, such as moves in some jurisdictions to establish a legal personhood for nature, have not yet entered the lexicon or practice of international market regulations. Trade policies and rules that take nature more systemically into account, despite initiatives such as the ‘bio-trade’ programme of the United Nations Conference on Trade and Development (UNCTAD), have struggled to be mainstreamed.

Unresolved governance issues in developing nature markets are likely to stifle their potential to mitigate the risks of nature loss, allowing for destructive effects on humanity

Market-based approaches are certainly not the only way to address the nature crisis and its spill over effects on the climate crisis. That said, they can be part of the solution, their existence is not hypothetical and their importance in the future is hardly in doubt. It is incumbent on us collectively therefore to do whatever we can to ensure they are designed and experimented in with nature and public interests in mind, overseen through effective and open governance, and constrained where necessary.

Nature market development needs to be a deliberative, collective process.

Dimensions of Nature Market Development

From a market design perspective, to ensure that the development of nature markets is based on solid foundations, there is a need for progress on a number of issues that involve market participants and instruments. Some of the highest priority issues include the following:

A. Management of Funds

How the money that flows into nature markets is allocated and managed is of critical importance to ensuring that they create shared and sustainable prosperity. Local communities and indigenous populations must be the net beneficiaries of these flows and have a voice in how these flows are managed. For example, these flows should provide opportunities for meaningful employment and sustainable income to the local communities and indigenous populations. Funds should also be earmarked for building local capacity in countries where knowledge and management of natural assets is absent. Finally, steps must also be taken to ensure these flows go to protect and regenerate nature in perpetuity.

B. Instrument Design

Creating new markets often requires the creation of new products and instruments. Nature markets will only thrive when they meet the demands of buyers and sellers. This means that products must possess attractive characteristics. At the same time, the products must be compatible with ensuring the long-term viability of nature assets, and the products must assuage any regulatory concerns (including those of non-government oversight bodies) over their production and use. Satisfying all these constraints will require both creativity and the ability to make decisions about inevitable trade-offs between competing needs.

C. Certification and Verification

Advice will also be needed on the design and use of new technologies to ensure the verifiability and transparency of nature transactions to alleviate the concerns of buyers while also ensuring that the sellers, and, in particular, the local communities and indigenous population — the true stewards of nature — are also the beneficiaries of this newfound wealth. This will require creative use whenever possible of nonintrusive sensing and monitoring technology to collect information essential to the functioning of nature markets. In addition, distributed ledger technologies such as blockchain will be needed to distribute both information and money, as well as to provide evidence that the market participants are living up to their commitments.

D. Avoiding Regulatory Arbitrage

Ensuring a unified approach to the definition of natural capital and to the pricing of nature services would help mitigate cross-border regulatory arbitrage pursued by buyers aiming to evade rules or minimise the cost of abiding by new rules, while benefiting from 'greenwashing' opportunities. Here, lessons from similar attempts by the Basel Committee to provide a unified definition of what constitutes capital and to set minimum requirements for it come to mind.

E. Outreach

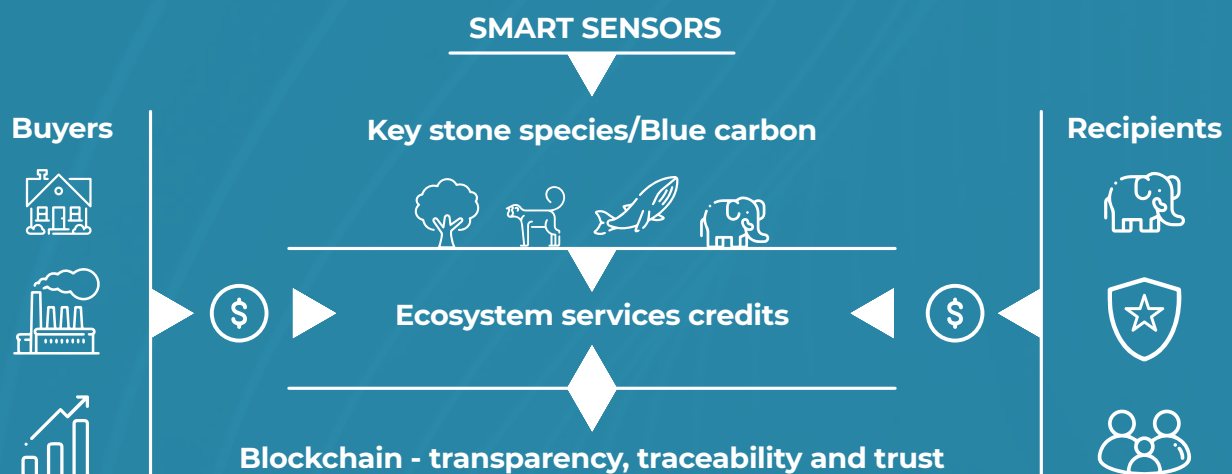
Galvanising the effort behind the development of nature markets and articulating their benefits to humanity and to nature would go a long way to help make this new win-win-win promise a reality. Key opinion leaders are needed to connect with, and influence, decision-makers and stakeholders across various sectors and at all levels.

Case Study: Elephant Carbon Offset Market in Gabon

Berzaghi et al. (2019) show that forest elephants in the Congo Basin enhance forest carbon sequestration by 14%. Currently, Gabon has 57,000 elephants spread over 17 protective forests. This population can grow to 195,000 elephants while maintaining an optimal density of 0.5-1 elephant/km² that maintains a positive impact of elephant activity on the forest. The current above ground carbon biomass from the services of the existing elephants is currently valued at over \$13 billion, at a current price of \$63.47 per ton of CO₂. The present value of the additional benefits from future generations would add an extra \$24 billion over 300 years, leading to a total present value of \$37 billion. A fund can be set up that would invest the funds at, say, 2% yr⁻¹ which would generate \$660 million yr⁻¹ in revenue from elephant carbon offset.

Buyers of carbon offsets, and of other ecosystem services, place their money in an escrow account which doles out tokens or digital currency that are used to pay the stewards of elephants or of other natural assets. Tokens are used to ensure money is received by the community and indigenous people and that they are spent on social programmes. Blockchain technology is used to ensure verifiability and transparency of all contracts and payments for both the buyer and seller.

PRODUCT: ECOSYSTEM SERVICES MARKETPLACE



A WIN WIN WIN FRAMEWORK

NATURE AND ENVIRONMENT

Protection & Regeneration

Conservation is a source of capital for sustainable and shared economic development

SELLER OF CARBON SERVICES

Government

Direct revenue
Indirect revenue
Reorient spending

Local & Indigenous communities

Sustainable income
Meaningful employment
Climate resilience

BUYERS OF CARBON OFF SETS

Retail

Reduce carbon footprint
Improve/meet ESG score
Meet SDGs: 1, 8, 10, 13-15
Invest in natural capital

Capital Markets

Price discovery
Enhanced liquidity in nature products
Risk management

4

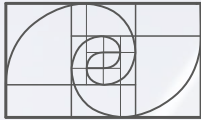


TASKFORCE ON **NATURE MARKETS**

THE FUTURE OF
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4



TASKFORCE ON NATURE MARKETS

We need to place nature and equity at the heart of nature markets

The rise of nature markets presents an historic opportunity to reset the relationship between us, our global economy, and nature. Nature markets need to be purposeful markets with their primary aim being to support equitable, nature positive outcomes, whilst rewarding those who make markets happen in practice.

To do that, they must at their core empower and reward those who steward nature, including at times its legal owners, often farmers, rural communities, and indigenous communities. At the same time, they need to attract entrepreneurs, traders, technologists, and investors, without whom markets cannot develop let alone flourish.

And to complete the mix, nature markets need those that can and should govern markets, who are open to new roles, actors and approaches in designing governing arrangements suited to enacting a principles-based approach in this 21st century.

Getting this right can help to correct current imbalances that are destroying nature, undermining our efforts to address climate goals, and ultimately contributing to our existential challenge.

*We need to
place nature,
not economy,
at the heart
of nature
markets*

Our 'Call to Action' is for an ambitious, practical strategy to shape principles-based nature markets

Our Call to Action is to move practically and with a sense of urgency, with this agenda in mind. We live in complex times, and so there is no one set of actors to call on to do the right thing, in the right place, at the right time. Yet it is possible to catalyse, nudge and curate key parts of our complex world in the right direction.³⁴ Indeed, the potential is all the greater if the world is at an early stage in its journey along a particular innovation curve, in this case developing a new generation of nature markets.

Needed in particular is:

- 🌀 To articulate a big-picture view of the likely scale of these imminent developments that will capture people's imaginations.
- 🌀 A clear picture of the potential and risks of nature markets, and the ways in which such potential can be realised and risks mitigated.
- 🌀 Establishing a framework for action will generate concrete policy recommendations as well as methods for measuring and evaluating progress.
- 🌀 Finally, highlighting and initiating best practices and approaches to developing nature markets that can encourage effective and ambitious innovation tailored to the specific needs of the market, the natural asset, and the community.

With this urgency and opportunity in mind, a Taskforce on Nature Markets has been established. The Taskforce on Nature Markets has been established with the core objective being: 'To shape a new generation of purposeful nature markets that deliver nature positive and equitable outcomes.' Individual initiatives, however high-profile, smart or well-resourced, can rarely make a difference by themselves.

The success of the Taskforce on Nature Markets will therefore depend on its ability to engage with, crowd-in, connect together and catalyse active, aligned communities of practice. In enabling such an approach, the Taskforce on Nature Markets is being guided by a remarkable group of leaders drawn from policy, market, technology, civil society and indigenous communities. They are in turn supported by an amazing group of knowledge partners and hosted by Finance for Biodiversity.

The Taskforce on Nature Markets' approach will be to advance an ambitious work programme over its lifespan that seeks to:

- 🌀 Landscape, analyse, and socialise existing and emerging approaches.
- 🌀 Build awareness of opportunities and risks across policy, business and civil society.
- 🌀 Build the basis for a community of practitioners with a shared vision and narrative.
- 🌀 Encourage synergies between innovations and innovative people and platforms.
- 🌀 Recommend and advance standards of practices and enabling principles, policies and supportive governance arrangements.
- 🌀 Initiate and support pathfinder initiatives that exemplify how to scale the implementation of recommended approaches and actions.

Effectively implementing such a work programme, with the help of many partners and allies, would enable it to contribute to the development of nature markets fit for the 21st century and beyond.



Taskforce on
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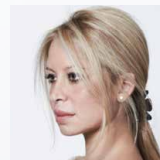
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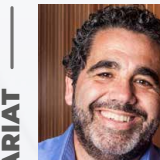
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*The members of the Taskforce on Nature Markets are participating in a personal capacity and are not expressing endorsements or commitments on behalf of their institutions

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The Taskforce on Nature Markets has been established to shape a new generation of purposeful nature markets that deliver nature positive and equitable outcomes. To deliver this objective, the Taskforce is advancing work across 6 interlinked areas: mapping approaches and experiences, building awareness of opportunities/risks, growing a community of practitioners, encouraging innovation, advancing supportive governance arrangements and launching pathfinder initiatives to scale the implementation of recommended approaches.

The Taskforce is an initiative of, and hosted by Finance for Biodiversity (F4B), and is supported by the MAVA Foundation.

Learn more at www.naturemarkets.net



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Finance for Biodiversity (F4B) aims to increase the materiality of biodiversity in financial flows and decision-making, and so better align global finance with nature conservation and restoration. F4B is advancing five workstreams that create and amplify the feedback signals that increase the value of biodiversity in private and public financing decisions: market efficiency and innovation; biodiversity-related liability; citizen engagement and public campaigns; responses to the COVID-19 crisis; and nature markets.

F4B has been established with support from the MAVA Foundation, which has a mission to conserve biodiversity for the benefit of people and nature.

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