



NATURE IN AN ERA OF CRISES

SHAPING PURPOSEFUL
NATURE MARKETS



Taskforce on
**Nature
Markets**



Initiative of

**NATURE
FINANCE**



NATURE IN AN ERA OF CRISES

About this paper

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 maps the learnings and findings of the first phase of work, and points to deeper dives to be explored in the next phase. The work aims to deliver on the **Taskforce mandate: ensuring the global economy interfaces with nature in ways that deliver nature positive, equitable and net zero outcomes**. The paper does not set out normative recommendations or conclusions, as the work is continuing to evolve and take shape following the landscaping activities and next phase of work, at both specific and general levels.

This paper was prepared by the Taskforce Secretariat for the Taskforce on Nature Markets.

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 on Nature Markets and its Knowledge Partners.

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The contents of the report, including any errors and omissions, remain the responsibility of the Taskforce on Nature Markets Secretariat.



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

About NATURE FINANCE

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

Our work is shaping the many dimensions, actors and change pathways at the nature-finance nexus to thrive and contribute to development.

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.F4B-initiative.net
(www.naturefinance.net will go live on October 5 2022)



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.



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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.



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EXECUTIVE SUMMARY

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1 EXECUTIVE SUMMARY

The Taskforce on Nature Markets has a mandate to ensure nature markets that explicitly value and trade nature deliver nature positive, equitable outcomes.

The context for such a development is that nature has historically been under-valued, often essentially ignored as a critical part of products and services. Being under-valued, the use of nature has too often been destructive and unsustainable, delivering related social and economic inequalities, negatively impacting nature's stewards, including indigenous groups and rural communities.

The Taskforce's initial phase has mapped key aspects of nature markets.

The initial landscaping phase has been advanced under the guidance of the Taskforce's exceptional membership of leaders drawn from science, policy, technology, business and finance, as well as civil and indigenous communities, and continues to receive technical support and expertise from its Knowledge Partners. The initial phase had advanced foundational areas of work including:

Development of a core definition and taxonomy of nature markets, alongside, for the first time, a basis for and an initial quantification of these markets.

Exploring improved governance due diligence and enforcement, specifically ways to strengthen the enforcement of rules governing the illegal exploitation of nature.

Research on the legal and regulatory dimensions of nature markets, drawing from varied experiences including carbon markets; as well as exploring high potential legal innovations such as the legal rights of nature.

Advancing two deeper dives, one into food-related nature markets, notably soft commodities markets, and the far smaller, immature but growing nature credit markets, including biodiversity credits and their links to carbon markets.

As the Taskforce moves from initial landscaping, into its next phase of deeper dives, it continues to explore and advance important pieces of work with knowledge partners and friends of the Taskforce in areas of importance as laid out in its original work plan:

Exhibit 1 The Taskforce’s Initial Work Programme



The results of the Taskforce’s initial phase of work highlight the significant and growing importance of nature markets in the global economy, and the opportunities and risks they bring.

Nature being explicitly valued and traded in nature markets creates an opportunity to deploy policy and market mechanisms that shape its value and the distribution of its economic benefits. This could enable purposeful nature markets to deliver nature positive and more equitable outcomes, with associated development and climate-related gains.

Equally possible, however, is that the mis-managed rise of nature markets may replicate or even accentuate an unsustainable use of nature, an inequitable distribution of related economic proceeds, and a reduced nature capacity to support efforts to address climate change.

Both pathways and outcomes are possible. Which happens in practice is a matter for policy makers and regulators, working closely with market actors and the public.

Whether nature markets are part of the problem or solution is essentially a matter of governance.

In today's era of crises, governance solutions cannot rely exclusively or even mainly on international policy cooperation and regulatory oversight. Classic governance problems – weak regulators, lags in policy and regulatory development, poor enforcement, and the challenges of governing markets that cross jurisdictions – are compounded as markets evolve ever more quickly, products come and go rapidly, driven by buyer demands, the interests of intermediaries and at times attempts to circumvent restrictive governance. Greenwashing is a real issue in nature markets and can only be resolved by a combination of detailed science-based metrics, oversight, and regulatory clarity.

In its next phase of work, the Taskforce will work at both specific and general levels in its efforts to shape nature markets to deliver equitable and nature positive.

In selected key areas, the Taskforce is already moving into its next phase. In practice this means advancing its work at the nexus of three intersecting axes.

Continued landscaping of existing nature markets: focusing on lessons from in-market innovations, governance arrangements, and evidence of nature and equity impacts and outcomes.

Deeper dives into specific nature markets, with the initial choices being to focus on three areas, namely: nature credit markets, soft commodity markets and nature crimes. These are critical nature markets due to their size, scope, or development potential.

Reviewing and developing specific tools, instruments, and processes for advancing nature positive and equitable outcomes, with a particular focus on legal and digital innovations and citizen action. Empowered citizens and consumers play a critical role in shifting market outcomes so educating and engaging them, thus facilitating their direct action in nature markets can have a positive impact.

The Taskforce has identified an imperative need to develop a broadly applicable approach to governance in nature markets, which will be informed by the on-going and planned landscape work and deeper dives in the coming phase of work.

Exhibit 2 Taskforce Members and Knowledge Partners



Members



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SECRETARIAT

*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



Knowledge Partners





THE NATURE OF ECONOMY

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2 THE NATURE OF ECONOMY

Our US\$95 trillion global economy is 100% dependent on nature.

This is evident in the food we eat, the water we drink, the homes we live in, and the air we breathe. Yet it is equally true in the less visible aspects of our lives, in the mobile phones we use, the movies we stream, and how we manage our health and energy consumption. Nature is also crucial to our efforts to manage the climate crisis because of its ability to store carbon and its role improving climate resilience.

The degradation of nature gravely threatens every aspect of the global economy and our way of life.

As Ana María Hernández Salgar, Chair of Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), concludes: “Biodiversity is being lost and nature’s contributions to people are being degraded faster now than at any other point in human history”. Moreover, the essential place of nature in our economic approach to date has proven to be the problem, not the solution, according to the most recent IPBES report².

The World Bank estimates that a US\$8 trillion a year global food system causes US\$12 trillion in negative externalities a year, a major element of which is the damage it does to nature. A cost benefit analysis of the global food system indicates a negative outcome. These massive negative externalities, or destructive outcomes, negatively affect the stewards of nature, especially indigenous groups and rural communities, as well as delivering inequitable outcomes.

“Economic and political decisions have predominantly prioritised certain values of nature, particularly market-based instrumental values of nature”

**Intergovernmental
Science-Policy Platform
on Biodiversity and
Ecosystem Services**

Can market-based solutions address market-driven problems?

Well-governed markets can channel investments towards economic assets that deliver equitable, nature positive outcomes, and away from those that do not. Moreover, markets can drive increases in the productivity, or in the case of nature, the regenerative conditions needed for natural assets. If markets can be shaped to treat nature as a regenerative asset, reliant on certain conditions to be productive, markets could be an important part of addressing the inextricable crises emerging at the finance-nature nexus.

What is needed is a new social compact regarding nature and our way of building and running businesses, markets, and economies.

Nature's continued deterioration and its consequences are drawing increasing attention and calls for action. Intergovernmental processes such as the Convention on Biological Diversity (CBD), are seeking to forge an agreement on global targets and the mechanisms to reach them.³ Similarly for the inter-governmental climate negotiation process, where nature finally became a major feature in Glasgow during COP26 in 2021.⁴ Despite the pressure from businesses and governments to set ambitious targets, and some progress, these intergovernmental processes are unlikely to have a significant impact on market behaviour in the context of the current energy and inflation crises.

If markets can be shaped to treat nature as a regenerative asset they could be an important part of addressing the inextricable crises emerging at the finance-nature nexus.



THE TASKFORCE ON NATURE MARKETS

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3 THE TASKFORCE ON NATURE MARKETS

The Taskforce on Nature Markets' mandate is to contribute to ensuring that the global economy interfaces with nature in ways that deliver equitable, nature positive, and net zero outcomes.

The Taskforce was established in March 2022 in response to a rise in markets that explicitly monetise and trade nature, that is, 'nature markets'. The broad contours of this development were set out in the Taskforce's formative white paper, 'The Future of Nature Markets'.⁶

BOX 1 - The Taskforce's Core Mandate Definitions⁷

The Taskforce's Mandate is underpinned by two key evolving terms, namely nature positive and equitable. These terms allow the Taskforce to centre nature and biodiversity gain, as well broader equity principles at the heart of the Taskforce's work, governance design and decision-making. Nature-positive as defined by the IUCN World Conservation Congress, describes halting and reversing current trends in biodiversity loss for the benefit of human and planetary well-being. The Taskforce is focusing on establishing a working definition for equitable in this context.

It is the Taskforce's belief, echoed by its member leadership, that properly governed nature markets, designed with the long-term public and environmental interest front and centre can be a bridge to a total shift in our economic system.

The Taskforce on Nature Markets has been formed to catalyse practical, progressive responses that can harness public and private interests shaping nature markets for the good.

If governed and designed with the long-term public and environmental interest front and centre, nature markets could deliver better and more sustainable outcomes. This could include nature positive outcomes, helping to address climate challenges, while delivering equitable outcomes and more equally redistributed economic gains for nature intensive countries and indigenous communities.

If governed with, and designed by profit seeking interest front and centre, they could lead to growing negative externalities, increasing nature's destruction, constraining efforts to reduce emissions and increase resilience, and failing to fairly distribute nature-linked economic value.

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NATURE MARKETS IN AN ERA OF CRISES

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4 NATURE MARKETS IN AN ERA OF CRISES

The Taskforce on Nature Market's context is one of an evolving, multi-faceted crises.

Two years into a zoonotic transfer pandemic, the world is experiencing a perfect storm of surging food (the oldest nature market) and energy prices, supply chain disruptions, inflation, growing poverty and inequality, escalating public debt and an associated fiscal crisis, as well as the human consequences of the war in Ukraine. Driving these crises is the soaring risk of climate crisis and biodiversity loss. Today, we face the prospect of a global recession that may dangerously deepen short-termism across the business and policy communities.

Countries are increasingly seeing both food and energy as national security matters that can no longer be left to a small number of global producers and traders who respond to market signals.

The war in Ukraine has clearly illustrated this across Europe and most strikingly beyond. In fact, it has exposed the deep cracks and dysfunctions in global food markets, and critically, in multilateral commitments to fossil fuel reduction and the drive toward an equitable global policy agenda on climate crisis. This crisis is felt across the world, but will have the deepest impacts in developing countries, especially in North and Sub-Saharan Africa, and South and South-East Asia. It will affect the poorest most acutely, and will have political impacts, some of which are being seen already. This poses governance and stability risks in regions prone to food and energy insecurity.

On the African continent, as in many other developing countries, the war in Ukraine has led to interrelated crises of food, energy, and finance shortages, which after several years of 'stagflation' is leaving many economies on a knife edge of default,

moving steadily toward the recent Sri-Lankan style uprising.⁸ Countries like South Africa and Colombia have avoided moving toward sovereign default due to the commodity boom, specifically in coal, driven by mounting European demand following the EU ban of Russian coal.⁹ This surge in European demand has increased the price of thermal coal to unprecedented levels, resetting the geopolitics of energy and leading to regressions in fossil fuel disinvestments in nature-rich countries.

This commodity boom appears to be further hardening the ‘environmental vs development’ schism dividing the Global North and South.

Given the exponential rise in the export price of coal, having increased almost 80%¹⁰ in a matter of months, leading many to raise an uncomfortable question as to how these European ‘coal grabs’ are less of a politically loaded question than buying Russian coal and gas.¹¹ Fossil fuel and related financial industries on the continent have long faced growing pressure internationally to divest from coal and other fossil fuel mining (including gas), move towards decarbonisation and decommission carbon power plants, even as Asian demand therefore has continued to rise.¹² For those who have long critiqued these blanket requirements and agreements in the name of global climate crisis efforts, while the African continent contributes less than 4% of carbon emissions globally with its own massive energy infrastructure gap, this commodity boom is hardening localised rather than multilateral commitments.

This cuts deeper into the frustration of many developing countries over the failure to deliver on the climate finance pledge of US\$100bn a year to emerging markets made by developed countries in 2009, which has not hit that target in any year since, and stood at just US\$79.6bn in 2019, according to the OECD.¹³ While the latest report from the Intergovernmental Panel on Climate Change, provides **more evidence of what billions of people are already facing: developing countries that have contributed the least to climate change are suffering the most from it, and the damage is escalating.**¹⁴ This points to a deeply flawed and deficient multilateralism, failing to collectively address an inherently global crisis.

International cooperation has steadily become more constrained in the last few years of global crisis.

Above and beyond these geopolitical shifts in global markets, international dialogue is increasingly fractured as we head towards the COP27 climate negotiations and the COP15 nature negotiations. Developing countries are rightly asserting their right to develop over their limited responsibilities to reduce emissions and are demanding short term action on poverty and debt before serious joint emissions reduction can progress. China’s engagement with many developing countries has deepened, whilst at the same time it has indicated its withdrawal from cooperative arrangements with the US. Other platforms for international cooperation, including the core of the multilateral system, the UN, and key plurilateral policy platforms such as the G20, are struggling to fulfil their potential.

Today’s multi-faceted crises are arguably a chronic condition, underpinned by historical global market inequalities and distortions, further fuelled by geopolitical change, economic transformation, and the effects of climate change and nature’s decay.

This era of crises is likely to extend into the foreseeable future.

Some of its elements may be tamed, tensions may be relieved, and wealthier countries could ease the debt burden of poorer countries that have often arisen through no fault of their own. Yet even with such positive possibilities, today's multi-faceted crises are arguably a chronic rather than a temporary or episodic condition, underpinned by historical global market inequalities and distortions, further fuelled by a perfect storm of geopolitical change, economic transformation, and the effects of climate and change and nature's decay.

Ambitious international agreements are necessary for policy makers, but their purpose is not to immediately set up practical and scalable solutions.

Rather, practical, and scalable solutions in an era of crises are likely to emerge from a smaller number of state and non-state actors. Their scalable impact, moreover, will probably not happen because of widespread, coordinated, policy adoption and execution. More likely is that they will be amplified by civil and market networks at the national and regional level predominantly, often linked to technology, business, and broader social innovation, at times supported by unilateral policy action.

Nature markets need to be considered in the context of this era of crises.

Shaping the surge in nature markets may be one part of this more networked response to our longer-term, as well as shorter-term challenges. These interrelated global crises highlight more sharply than ever before that nature is the essential input to global markets and economic value creation.

Increasing the price of nature and securing a more equitable distribution of the proceeds could greatly impact the distribution of wealth across nations and market players across value chains, as well as global appetites for investing in nature in addressing longer-term climate challenges. However, as surging commodity prices show, pricing can likewise lead to further degeneration.¹⁵ Likewise, one of the fastest growing markets, namely the technology and climate technology industries, has become a major driver of nature demand and rare-earth metal and mineral extraction. Not only does this demand mimic historical extractive patterns, but it situates nature markets in a tech-trade war between China and the USA and the associated rush for minerals.

The challenge is for the nature regenerative dimension of the exchange to be explicitly rather than implicitly valued.



UNDERSTANDING NATURE MARKETS¹⁶

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5 UNDERSTANDING NATURE MARKETS

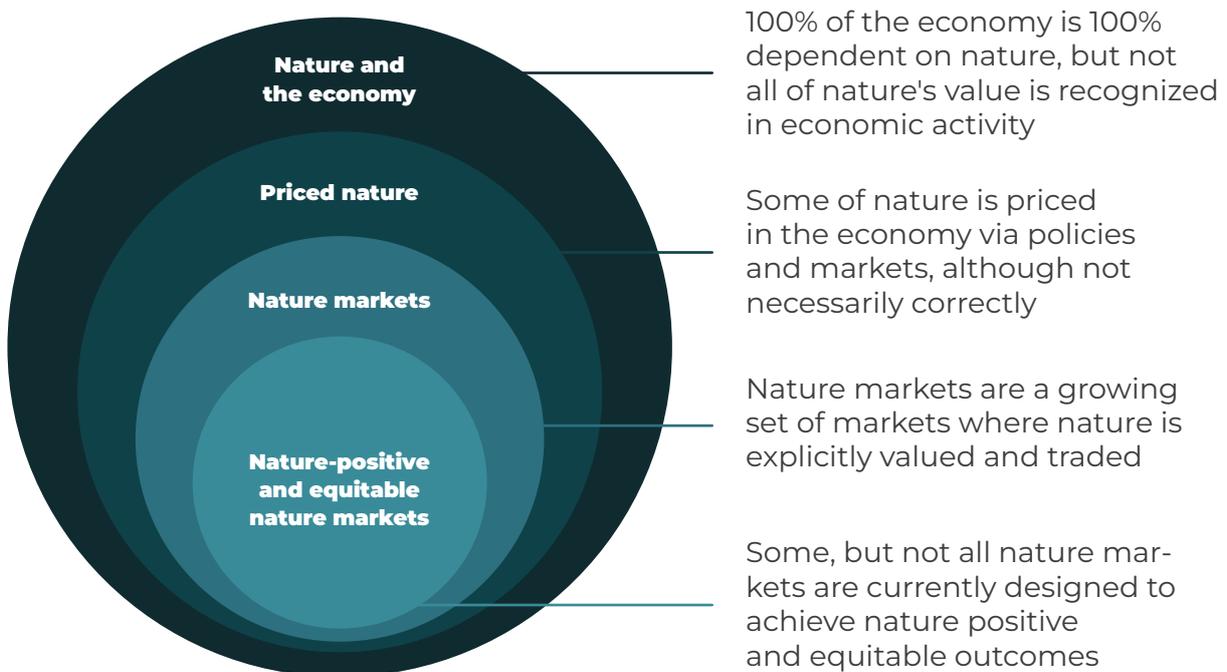
Nature is converted into monetary value across the global economy.

Indeed, this is the foundation of every product and service that is produced and traded across the global economy. In the main, nature’s contribution is not explicitly valued, but is part of the implicit value of what is traded. Think of the water embodied in the buildings that we live in, and the water used in producing what we wear, or of the value of the soil in which our food is grown. It is in part because of this implicit, largely invisible valuation where nature has been systematically undervalued and unsustainably used.

Nature markets are on the rise in terms of scale and importance.

Nature markets are a sub-set of the economy where nature is specifically traded and valued. This includes large markets that are already important to the global economy, such as agricultural commodities, as well as emerging markets that reflect an increasing recognition of the value of nature, such as nature-based solutions for carbon sequestration. Most nature markets are not designed or governed to achieve nature-positive and equitable outcomes. In fact, some may be net drivers of biodiversity and nature loss, such as agricultural production that overlooks sustainable practices and is associated with deforestation.

Exhibit 3 Nature, Economy, and Nature Markets



Source: Taskforce on Nature Markets

Nature markets are critical in whether and how they incentivize equitable conservation.

Prices in well-functioning markets signal the value of goods and services, helping allocate resources efficiently to the areas where people value them most. Markets fail to serve the needs of sustainable development when they do not effectively value outcomes for shared and sustainable prosperity. Nature markets are explicit in their pricing of nature but may still fail to effectively value these outcomes. However, these markets provide a unique opportunity to ensure that the three-fold objectives of equity, nature positive and net zero are adequately valued within the economy, presenting a possible bridge to a total shift in our economic system.

Exhibit 4 Nature Markets - Definitions and Taxonomy

WHITE PAPER DEFINITION

A nature market is trade where there is a specific price on nature and that generates nature-specific revenues

TECHNICAL DEFINITION

A nature market is a **system** composed of **transactions** between **separate buyers and sellers**, in which the transacted good or service **specifically** reflects a stock of ecosystem assets **or a flow** of ecosystem services from **terrestrial or aquatic ecosystems**

NATURE MARKET TAXONOMY

Intrinsic

Markets in which provisioning, regulating or cultural ecosystem services are traded

Credit

Markets in which credits that reflect efforts to enhance or conserve ecosystem assets or services are traded

Asset

Markets in which the right to use ecosystem assets with long-lived value are traded

Derivative

Markets for financial products which directly reflect ecosystem service values

Source: Taskforce on Nature Markets

Nature markets need to be clearly defined and categorized to better understand them and how to shape them.

The Taskforce in its first white paper, 'The Future of Nature Markets' defines a nature market as trading goods and services with a specific price on nature that generates nature-specific revenues. Such markets are to be distinguished from those in which nature is an embedded, unpriced part of a product. Moreover, it is to be distinguished from markets where nature or nature-related externalities are priced through a policy mechanism, but not traded. For example, a water tax does price water, but does not constitute a market where water is traded. Water could become part of a market via a policy mechanism if it were exchanged based on, say, tradeable water permits.

Nature markets are broken down into four related types.

These types of nature markets reflect the key motivations for exchange of nature-specific products and services and underpin how nature is valued in the wider economy and financial systems.

Intrinsic markets are markets in which provisioning, regulating, or cultural ecosystem services are traded. These markets have often developed naturally based on the value placed on some ecosystem services and represent an annual production value, comparable to GDP – they are the furthest upstream markets for ecosystem services. This includes commodity markets, as they involve the direct trade of provisioning services but excludes downstream markets which embed commodities. For example, soy is a direct product of nature; tofu is nature-dependent but does not specifically trade nature and is excluded because there is a market further upstream.

Credit markets are markets in which credits that reflect efforts to enhance or conserve ecosystem assets or services are traded. These markets have primarily arisen in response to climate or nature-related policies. Examples can include water quality or Agriculture, Forestry and Other Land Use (AFOLU) carbon credits.

Asset markets are markets in which the right to use ecosystem assets and their resulting services are traded. These markets require enforceable property rights and reflect demand for stable and long-lived value streams. Examples include Farmland, timberland, and biodiversity IP.

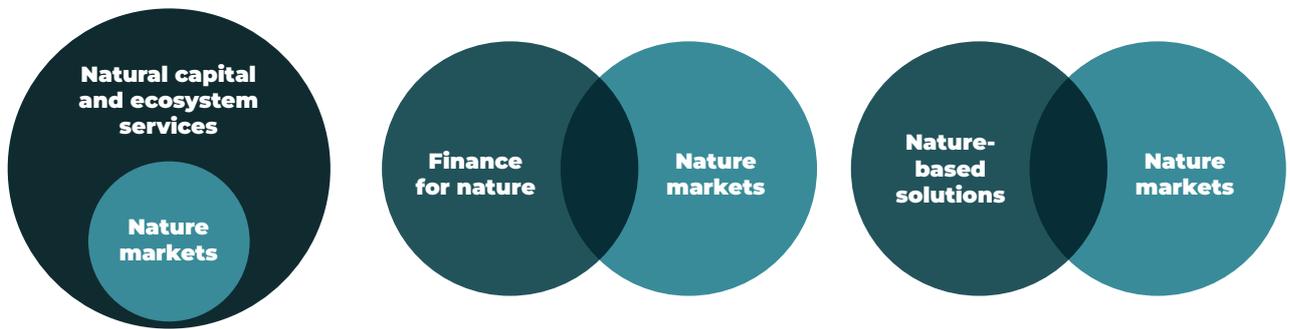
Derivative markets are markets for financial products which reflect the value of ecosystem services or assets. These markets reflect increasing recognition of nature's values and the need to manage nature-related risks. An example would be insurance against nature loss.

Exhibit 5 The nature markets taxonomy includes four types of nature-specific trade

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, biodiversity IP, additional ecosystems assets
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, voluntary biodiversity credits
		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, biodiversity loss insurance, securitization of ecosystem assets, water futures

Source: Taskforce on Nature Markets

Exhibit 6 Nature Markets Enhancing Existing Concepts



Source: Taskforce on Nature Markets

Nature markets are related to, but distinct from other nature-related concepts.

Some aspects of nature markets overlap with natural capital, nature-based solutions, and nature finance. However, there are nature markets that are not captured by any of these terms, necessitating a different definition. Key distinctions between these related terms are:

Nature markets vs natural capital

Ecosystem services are the benefits that natural capital provides to people. Some ecosystem services (e.g., food) are already widely traded in markets, while other services (e.g., pollination) are not often traded or valued. There are also some nature markets (e.g., nature Non-Fungible Tokens (NFTs)) that are linked to ecosystem service values but do not directly stem from a natural capital framing.

Nature markets vs nature-based solutions (NBS)

NBS are actions to protect and restore ecosystems while addressing social and economic challenges.¹⁷ Only a subset of nature markets is designed specifically to deliver nature positive outcomes (e.g., water quality credits), and there are also investments in NBS outside of markets (e.g., domestic conservation funding).

Nature markets vs finance for nature

There is increasing interest in the amount of investment directed towards nature. Nature markets require the trade of nature-specific products and services. Therefore, finance for nature (e.g., loans) where there is an expectation of repayment are not considered within the scope of nature markets. Some forms of finance (e.g., sustainability-linked bonds) can be considered effective nature markets because the reduced cost of finance implies a payment for nature.



THE CURRENT STATE OF NATURE MARKETS

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6 THE CURRENT STATE OF NATURE MARKETS

Nature markets have for the first time been systematically quantified for the Taskforce on Nature Markets.

Building on the definitions and taxonomy outlined above, it has been possible for the first time to quantify the current scale of nature markets, notwithstanding remaining categorisation issues and significant data challenges. This section highlights preliminary findings from the analysis of 24 current nature markets, as per the four categories explained above.

This data affirms the White Paper's assertion that nature markets are already a major part of the global economy, and on the rise.

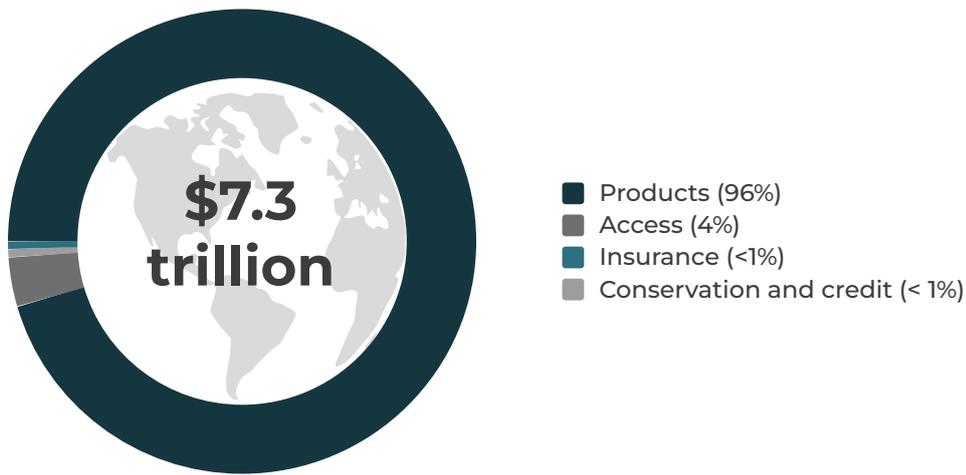
While nature markets may be perceived as small markets for conservation, nature represents some of the largest real and financial markets, which trade on nature and its derived values. Most strikingly nature markets produce more than US\$7 trillion worth of goods and services, equivalent to 8.6% of global GDP.¹⁸

Most strikingly nature markets produce more than US\$7 trillion worth of goods and services, equivalent to 8.6% of global GDP

Exhibit 7 Summary of current nature markets' annual production and asset values*

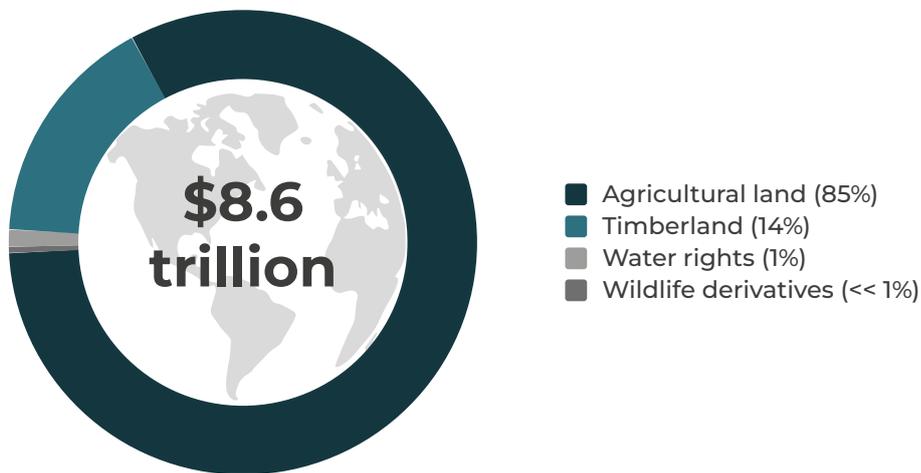
Annual value of traded goods and services

2021 USD trillion / year



Privately owned asset value

2021 USD trillion



*Figures exclude commodity derivatives, as market size is measured using non-comparable metrics.

Source: Draft findings from the forthcoming **Global Nature Markets Landscaping Study**, Vivid Economics for the Taskforce on Nature Markets (October 2022), which compiles data from multiple primary sources.

Conservation, an intrinsic market, is most often the first associated with being a nature market.

Most conservation and enhancement activities are funded through the public sector or policy-based mechanisms outside of nature markets, e.g., in the form of cash payments or tax exemptions. That said, payments for ecosystem services (PES) represent the largest market for regulating services (nearly \$10 billion per annum) but remains a fraction of domestic public spending on biodiversity protection.¹⁹ However, regulating ecosystem services (e.g., pollination, water quality regulation) are public goods and as a result, these services are often not valued or are significantly undervalued, and there are limited transactions for maintaining regulating services. These maintenance payments are primarily paid for by the public sector through conservation and enhancement action. Thus, capturing this wider value, the OECD estimates that public domestic expenditure on conservation and sustainable use of biodiversity is nearly US\$70 billion per year.²⁰ The most traditional market mechanism for conservation expenditure is PES, which makes up around 90% of the estimated value of conservation markets.²¹ However, there are an increasing number of additional financial mechanisms that reflect willingness to pay for conservation outcomes through results-based financing and philanthropy.

Nature-linked tourism is also a major nature, access market.

There are several types of nature-linked tourism, including nature-based recreation, wildlife tourism and so-called eco-tourism.²² In 2015, it was estimated that nature-based recreation and tourism generated approximately US\$600 billion per year in direct in-country expenditures.²³ While nature-related tourism can benefit local economies and conservation funding, not all of it generates nature-specific revenues.

Wildlife trade is a significant nature market.

Internationally, the value of legal wildlife production is US\$14 billion annually, primarily driven by inputs to Traditional Chinese Medicine and fur production.²⁴ However, estimates of the value of illegal wildlife trade indicate that \$8-27 billion of live and dead wildlife and plant specimens are trafficked each year.²⁵ Illegal wildlife trade and some aspects of legal wildlife production are facing increased scrutiny for disproportionate impacts on biodiversity. Despite growing pushback against the use of animal fur for clothing, in 2019 more than 50 million raw mink pelts were produced, supporting around US\$25 billion in fur retail value.²⁶ See Box 5 for more on nature crimes.

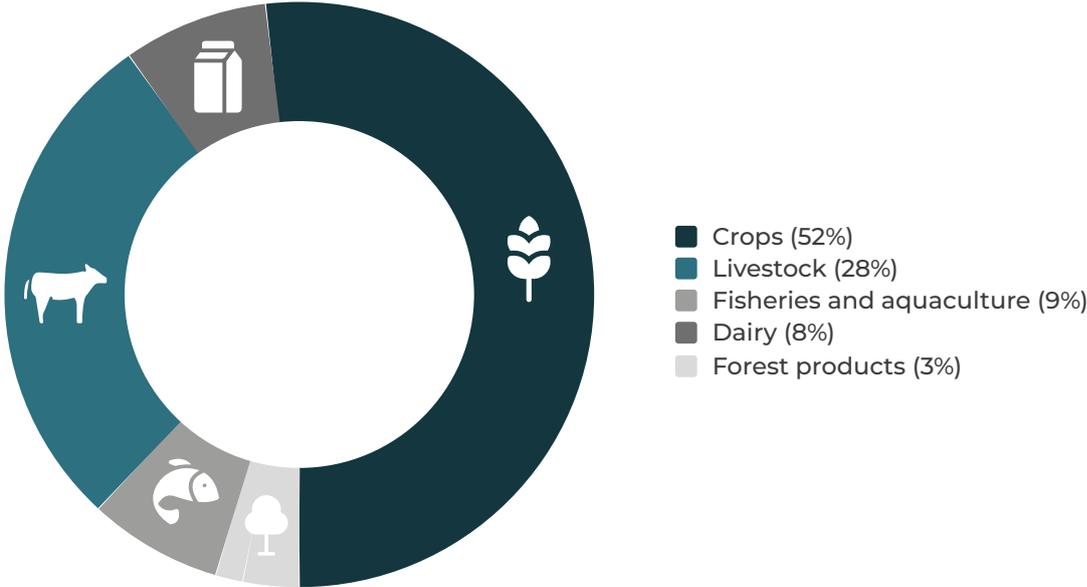
The largest nature markets by far are also the oldest: intrinsic markets, namely the trade in food-related commodities.

Agricultural commodity markets are valued at about US\$4 trillion annually.²⁷ Trading in extractives should be added to this to gain a full picture of commodity nature markets, which bring the total to about US\$7 trillion annually excluding oil and gas, and about US\$10 trillion a year all in, or about 11% of global GDP.²⁸

Exhibit 8 Animal-based production accounts for nearly half of the soft commodities market value

Soft commodity production value

Based on USD2021 billion / year

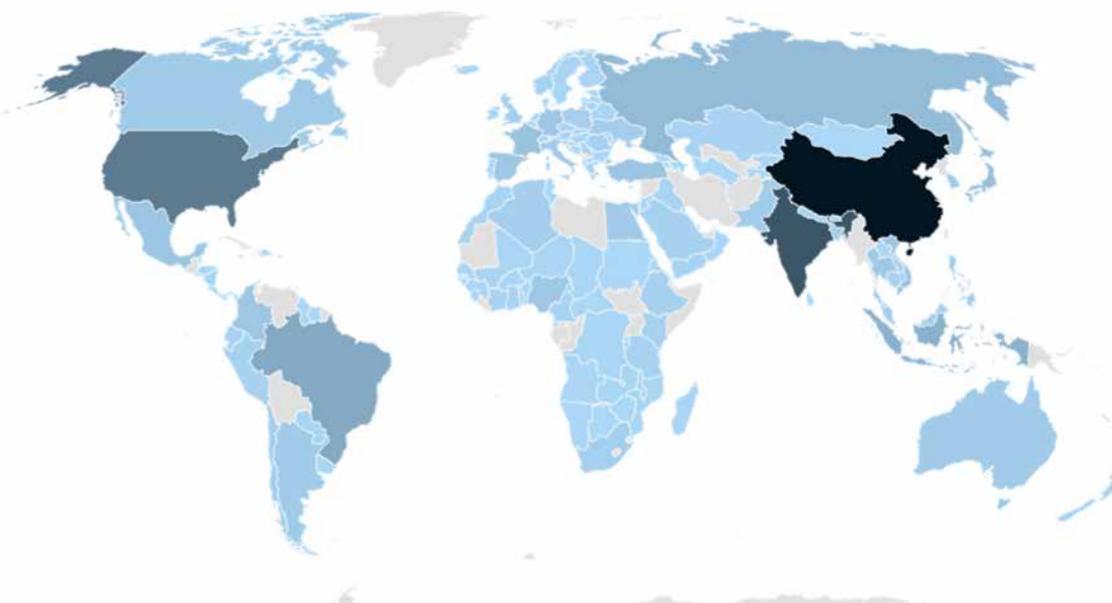


Source: Taskforce on Nature Markets

Commodity markets are a very visible part of today’s interconnected energy and food crisis. For energy, the workings of markets themselves have come under increasing scrutiny, both given the ballooning profitability of energy companies, and the underlying market structure problems that the current crisis has made visible. Soft commodity markets have been far less in the public or policy spotlight, with the focus of attention being on how best to unlock constrained supplies. Yet the current food price and supply crisis has brought to the surface many deeper structural concerns, from the opaqueness of soft commodity markets to the risks of over-concentration of supply in a world beset by increasing geopolitical tensions, rising demand for land intensive and thus nature destructive commodities to support the desires of a growing global middle class and climate impacts. Some of these market distortions are laid bare in this market sizing, in that soft commodities market value is concentrated in livestock and dairy production, with animal-based production worth US\$2 trillion and making up 44% of the soft commodities market value.²⁹ Furthermore, a large proportion of crop production is used to support animal-based agriculture, particularly in developed countries, in which more than 40% of cereals are used for animal feed globally.³⁰ This varies greatly by region, for example, only 11% of cereals grown in the United States are used for human consumption compared to 95% in Kenya.³¹

Exhibit 9 39% of soft commodities value is produced in China

Soft commodity production value
USD2021 billion / year



Source: Taskforce on Nature Markets and Food and Agriculture Organization Corporate Statistical Database (FAOSTAT)

BOX 2 - Soft commodity markets: a national security issue³²

The market for soft commodities plays a critical role in food security and is facing increasing pressures. Soft commodities include crops, livestock, fisheries, aquaculture and forest products. The sector faces at least three pressing challenges that signal a need to scale up and improve the efficiency of markets:

Population growth: The global population is expected to reach over 9 billion by 2050. Meat consumption is also increasing in developing nations due to rising incomes. Combined, these impacts could increase food demand by up to 56% in 2050 compared to 2010.³³

Climate change: Climate change can reduce the productivity of livestock, fisheries and aquaculture.³⁴ Climate-related extreme weather events like droughts and floods can also affect crop yields. These impacts are expected to worsen as water availability decreases and the frequency and magnitude of extreme weather events increases.

Security needs: As shown in Exhibit 8, production value is driven by China, India and the United States. Some regions rely heavily on food imports, creating large disparities in self-sufficiency. For example, in Europe, the entire population could be fed with crops produced within 2,500km. By comparison, only 40% of the population in Africa could be fed with production in this radius, creating risks of food shortages if international trade becomes limited or there are production shocks.³⁵ Evolving self-sufficiency needs may have implications for production patterns and pressures on land use.

In total, US\$1.3 trillion of soft commodities are traded internationally each year. International imports and exports are a key component of soft commodity markets, with around one-quarter exchanged globally. Moreover, soft commodities represent nearly 5% of annual global trade.³⁶ Even major exporters with secure food supplies are often major importers because they can benefit from lower production costs in other countries and consume seasonal goods year-round.³⁷ For instance, in 2020, the United States exported US\$120 billion of agricultural commodities and imported US\$100 billion.³⁸

The soft commodities market is rife with nature-related externalities that are unpriced and largely driven by livestock production. Agricultural production is one of the primary consumers of natural resources. The sector uses 70% of annual freshwater abstractions, has driven nearly 90% of global deforestation since 2000, produces 23% of annual GHG emissions and is one of the leading causes of nitrogen pollution.³⁹ Most of these impacts are driven by livestock production which uses nearly 40% of global habitable land area but provides only 18% of calories.⁴⁰ These environmental externalities are often underpriced or not priced at all in production. For example, there are no emissions trading systems that currently cover the agricultural sector and producers in most countries do not pay for the full cost of water abstractions. The lack of price signals may reduce incentives for more sustainable management and efficient production.

Sustainable market segments represent only a fraction of soft commodities production. Currently, the primary incentive structure for sustainable agricultural production is through sustainability certification premiums. For example, organic-certified goods are estimated to garner a 10-80% price markup compared to comparable non-organic goods.⁴¹ Across soft commodity market categories, the sustainability segment is nascent, but growing. Examples of key sustainability certifications in soft commodities include:

Agriculture: Only 1.5% of global farmland is currently certified organic.⁴² However, the size of the segment varies by agricultural product. For cocoa, only 7% of production is Rainforest Alliance certified.⁴³ By contrast, the production of Rainforest Alliance certified tea has grown 30% since 2017 to account for 22% of global tea production.⁴⁴

Fisheries: 14% of wild marine catch by weight, or around 6% of total fisheries and aquaculture production is certified by the marine stewardship council (MSC).⁴⁵

Wood products: The share of round-wood production certified by the Forest Stewardship Council (FSC) has more than doubled since 2015 to 17%.⁴⁶

Developing linked markets could create additional incentives for more sustainable soft commodities production that better accounts for nature-related externalities. While trends in consumer preferences indicate increasing demand for sustainable production, sustainability certification would be more likely to shift production towards more nature-positive outcomes in combination with other mechanisms.⁴⁷ In addition to regulatory mechanisms that can affect production standards or incentives for resource use (e.g., water pricing), linked markets could affect the incentives for sustainable commodities production. For example, accessible and well-developed nature-related credit markets could create incentives for sustainable production systems. In addition, commodity derivative market governance could influence commodity production. There is an emerging movement to embed sustainability criteria in derivatives trade. These initiatives are discussed further in the derivatives markets section.

Source: Draft findings from the forthcoming **Global Nature Markets Landscaping Study**, Vivid Economics for the Taskforce on Nature Markets (October 2022), which compiles data from multiple primary sources.

Market distortions are laid bare: soft commodities market value is concentrated in livestock and dairy production, with animal-based production worth US\$2 trillion, making up 44% of the market value.

Nature markets that trade nature assets are growing, especially as investment increases.

Privately owned and market accessible ecosystem assets are worth as much as over US\$8 trillion but represent only a fraction of natural capital and other privately traded assets.⁴⁸ Privately owned ecosystem assets are worth 26% of the value of commercial real estate assets. There is over US\$8 trillion in privately owned and market-accessible ecosystem assets, largely in agricultural land, with value concentrated in the US and Brazil.⁴⁹ Today, there is approximately US\$7.3 trillion in privately owned and market-accessible agricultural land and US\$0.8-1.2 trillion in timberland, but there is significant variation in market accessibility, market infrastructure and property rights.⁵⁰ There is anecdotal evidence that the value and structure of ownership of these assets is being impacted by the growth of carbon markets, but systematic evidence for this remains unavailable.

Nature credit markets remain a small but rapidly growing set of nature markets.

Nature credit markets, including carbon markets, are currently valued at over US\$5 billion per year, 73% of which comes from compliance-driven mitigation banks.⁵¹ The largest nature market is for credits issued from compliance driven mitigation banks worth over US\$4 billion, concentrated in wetlands and streams in the United States.⁵² Nature related voluntary carbon credits are currently worth US\$1.3 billion annually and represent two thirds of the total carbon market value.⁵³ Carbon markets have already proved to be contentious, raising questions about additionality and leakage, as well as the unintended impacts in slowing aspects of the transition to a low carbon economy.⁵⁴ Moreover, there are growing concerns about the economic distribution of benefits of carbon markets, particularly for owners and stewards of nature-based solutions. Despite such experience, the growing interest in nature is driving moves to expand to a range of biodiversity credit markets. It is too early to predict the course and development of these broader nature credit markets. What does seem certain, however, is that they will emerge, linked to carbon markets and independently, and the challenge is to shape them to ensure that they deliver on their potential and that good governance can mitigate their risks.

Strong governance principles will be key to scaling voluntary nature and biodiversity credit markets in a way that will support equitable outcomes for all, including indigenous peoples and local communities.

BOX 3 - Nature credit markets deep dive

Voluntary nature (biodiversity) credit markets have the potential to play a significant role in financing the positive outcomes for nature and biodiversity that are required for a nature positive transition. The development of new nature and biodiversity credit markets will raise a significant number of legal issues that voluntary carbon markets continue to grapple with, ranging from who has a legal interest in the natural capital assets that underpin a project, through to the legal infrastructure required to enable the approval and administration of projects, and the potential for 'greenwashing'.

One key consideration is that voluntary nature and biodiversity credit markets are likely to evolve in one of two ways: either the governance requirements and administration of the schemes that issue the credits will be set and performed by governments under enabling legislation, or by the private sector where there are no laws that would prevent this. Both approaches are already starting to play out globally, drawing on lessons learned from voluntary carbon markets and government-administered compliance biodiversity offsetting schemes.

In either case, we know from voluntary carbon markets that strong governance principles will be key to scaling voluntary nature and biodiversity credit markets in a way that will support high integrity markets, investor confidence, and equitable outcomes for all stakeholders, including Indigenous peoples and local communities. National and subnational jurisdictions can support these outcomes by implementing legislation or policies to either enable them to administer schemes themselves, or which clearly set out minimum requirements to carry out a voluntary nature-based solutions (NBS) project to generate nature or biodiversity credits in that jurisdiction under any private sector scheme. Beyond these high-level considerations, the development of voluntary nature and biodiversity credit markets is also likely to intersect with other significant legal trends in the nature space.

Source: Taskforce on Nature Markets and Pollination

Nature-related derivative markets are growing in providing tools for managing nature-related risks and capitalizing on nature-related opportunities.

Nature underpins US\$2 trillion of outstanding over the counter commodity derivative contracts and commodities represent around 20% of the trade volume of all derivatives. With the mounting global food security crisis, exchange commodity derivatives, often used for price speculation and in which only a minority of contracts result in physical delivery of a commodity, have come under recent fire. Beyond commodity derivatives, notably, nature-related insurance products accrue US\$36 to US\$44 billion in premiums per year, and demand is growing as climate risks increase.⁵⁵ These insurance products are an important way for asset owners and producers to manage risk exposures. Across most ecosystem assets, insurance penetration is relatively low but may increase as climate change poses increasing damage costs and business interruption risks to ecosystem services. There are currently four main types of nature-related insurance, as below:

BOX 4 - The four main types of nature-related insurance

Crop insurance: The crop insurance market is the largest nature-related insurance segment, with estimates of total annual premiums ranging from US\$34-US\$38 billion per year.⁵⁶ Multiple industry reports estimate significant increases in premium revenues over the next five years, with estimates as high as US\$55 billion by 2027.⁵⁷

Forestry insurance: The size of the forestry insurance market is more uncertain than other segments and major insurance providers have signalled opportunities for growth due to increasing risks from climate change like wildfire and currently low levels of insurance penetration. There are more mature markets for insurance in Chile, France, South Africa, and Sweden, but even these countries have low levels of insured areas relative to the size of forest assets. China has relatively high forest insurance coverage, with more than 90 of 210 million forested hectares insured and generating around US\$600 million per year in premiums.⁵⁹

Environmental liability insurance: Environmental liability insurance, which protects against environmental damages and risks, is also increasing as environmental legislation matures and there are increasing restrictions on environmental contaminants in North America, the EU, Australia, and Japan. This insurance market generates US\$2-3 billion in revenues per year.⁵⁸

Aquaculture insurance: Aquaculture insurance is a nascent market, with the top 10 largest aquaculture producing countries generating just over US\$130 million in premiums per year compared to a global market of US\$440 billion in global aquaculture production.⁶⁰ However, insurance penetration has the potential to increase to more than US\$1.4 billion given current low penetration rates.⁶¹ Aquaculture insurance may be increasingly important as climate change increasingly affects abiotic production conditions.

Source: Draft findings from the forthcoming **Global Nature Markets Landscaping Study**, Vivid Economics for the Taskforce on Nature Markets (October 2022), which compiles data from multiple primary sources.

What this landscaping data and reframing of our global economy reveals is undeniable: Nature markets are a significant part of today's global economy.

Differences in how quantitative estimates have been made mean that their aggregation could amplify data weaknesses and misinterpretations. That said, the numbers are clearly significant. Directly, the biggest numbers by far are for commodities. However, the scale of nature related tourism and the growing importance of credit, derivative and asset markets all point to an expansion of these categories going forward.

Moreover, today's nature markets are only a modest 'tip of the iceberg'

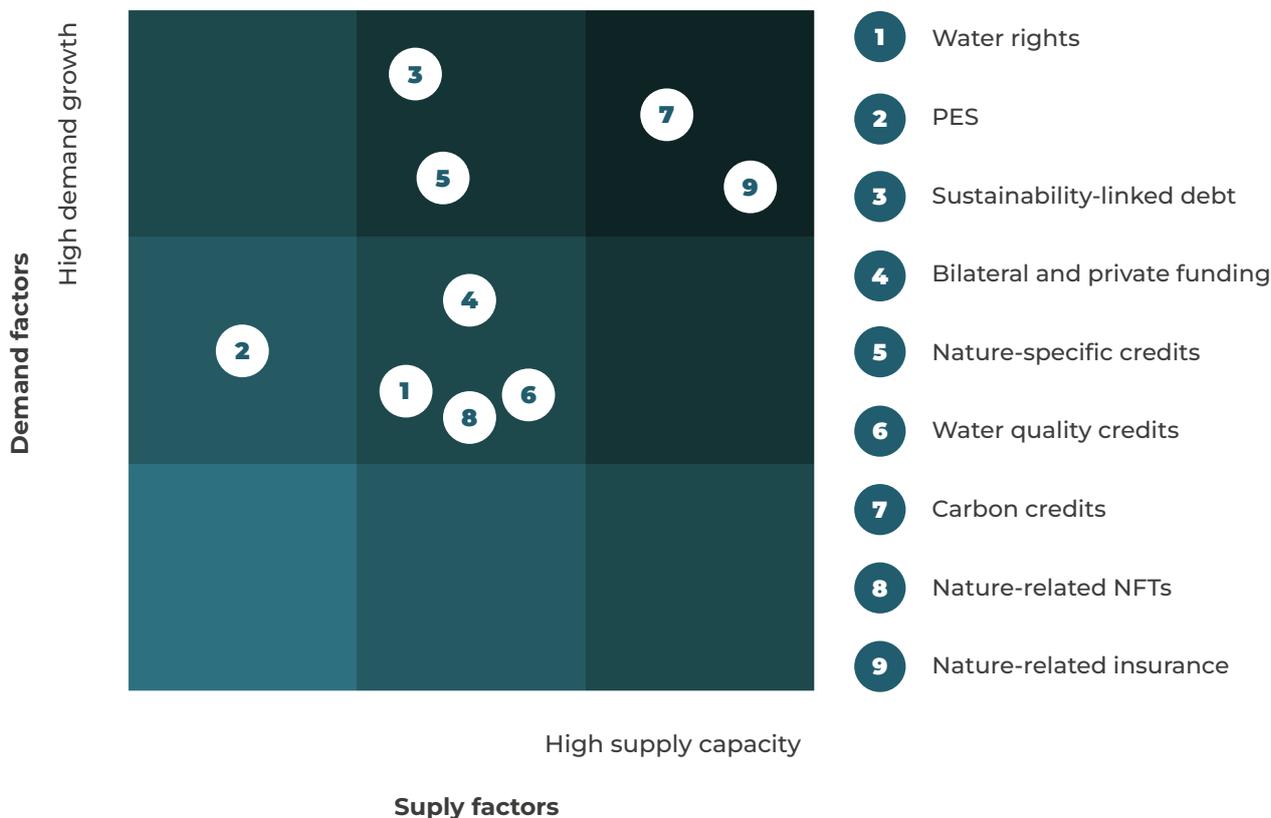
of nature's fundamental role across all markets and economies. Increased awareness of nature's vulnerability and value is already leading to a scaling in converting nature's part in the economy from one that is invisible and under-valued to one that is explicitly recognized, valued, and traded.

There are opportunities in both established and emerging segments to better align nature markets with nature-positive principles.

The current state of nature markets is clearly heterogenous in size, distribution, governance, and impact on nature. Most, although not all, of these markets can be classified into one of two categories: large established nature markets or small emerging nature markets.

Established markets include agricultural commodities and commodity derivatives, which are already a major part of the global economy and financial system. These markets are not typically designed to achieve nature-positive and equitable outcomes but reshaping them to do so presents an opportunity to re-align a significant portion of the economy. Emerging markets on the other hand, typically trade smaller volumes and many emerging segments are intentionally being designed to achieve nature positive outcomes through voluntary or compliance mechanisms. This includes emerging products such as NFTs for wildlife, established but small markets, such as water quality credits trading and growing markets for sustainability-linked debt. Emerging markets may provide opportunities to both shape and scale nature markets to better achieve nature-positive and equitable principles. With appropriate governance supports, both types of markets could be part of efforts to achieve nature-positive outcomes. However, a number of supply and demand side trends are narrowing this window of opportunity.

Exhibit 10 Qualitative assessment of trends in supply and demand factors for emerging nature markets



Note: See Annex for description of factors and rationale for qualitative assessment.⁶²

Source: Draft findings from the forthcoming **Global Nature Markets Landscaping Study**, Vivid Economics for the Taskforce on Nature Markets (October 2022), which compiles data from multiple primary sources.

The rise of nature markets provides a window of opportunity, but will not automatically deliver equitable, nature positive outcomes.

Nature markets explicitly value nature-based products and ecosystem services that are traded. In this, they make visible the form and extent of those goods and services, and the value attributed by markets to them. That information makes it possible to assess the impact of the market on nature, and the distribution of the associated economic benefits and the forms of nature that are valued in markets (as well as those that are not).

Illegal use of nature is large, profitable, and destructive and undermines many nature markets.

Criminal activities underpin many nature markets. Too often unnoticed is that nature crimes are often connected to entirely legal business activity and associated investments, often enhancing investment returns.⁶³ That is, legal and illegal nature markets are intimately connected and, too often, inter-dependent.⁶⁴

BOX 5 - Nature crimes undermine nature markets and their potential⁶⁵

Illegal use of nature is large, profitable, and destructive and undermines many nature markets. Nature crimes constitute illegal activity tied to the environment and generate US\$280 billion per year.⁶⁶ The most prominent crimes include illegal deforestation, mining, fishing, waste, and wildlife trafficking. Nature crimes are often connected to entirely legal business activity and associated investments, often enhancing investment returns.⁶⁷ For example, investments into soft commodity market segments, such as beef or palm oil, can be major direct or indirect drivers of illegal deforestation. Nature crimes can also be disruptive to legal nature markets. The sale of illegally harvested timber and mined minerals can undermine the commodities markets by lowering the price of legal production. As a result, legal and illegal nature markets are intimately connected and often inter-dependent.⁶⁸ Moreover, such illegal trading of nature and related ecosystem services is closely related to other forms of criminal activity, often involving drugs, violence, and other drivers of societal disruption.

Estimates of the value of illegal wildlife trade indicate that US\$8-27 billion of live and dead wildlife and plant specimens are trafficked each year.⁶⁹ Widely trafficked mammals include pangolins from China, African and Asian elephants, and African rhinos.⁷⁰ While illegal wildlife trade is relatively small in value compared to other nature market segments, it can have an outsized impact on biodiversity by threatening species extinction, introducing non-native species to new areas, and supporting the spread of zoonotic diseases.⁷¹

Source: Draft findings from the forthcoming **Global Nature Markets Landscaping Study**, Vivid Economics for the Taskforce on Nature Markets (October 2022), which compiles data from multiple primary sources.

Greater visibility is good, but does not alone guarantee nature positive, equitable outcomes.

Knowing that a business is benefiting from the illegal destruction of nature does not in itself prevent the illegal activity, the business from benefiting from such activity, nor an investor profitably ensuring that the capital is there to make it all happen. What is missing is the right market rules and their enforcement i.e. good governance.



GOVERNING NATURE MARKETS

**NATURE
IN AN ERA OF
CRISES**



Taskforce on
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7 GOVERNING NATURE MARKETS

Whether nature markets are part of the problem or solution is essentially a matter of governance.

In today's era of crises, governance solutions cannot rely exclusively or even mainly on international policy cooperation and regulatory oversight. Classic governance problems – weak regulators, lags in policy and regulatory development, poor enforcement, and the challenges of governing markets that cross jurisdictions – are compounded as markets evolve ever more quickly, products come and go rapidly, driven by buyer demands, the interests of intermediaries and at times attempts to circumvent restrictive governance. Greenwashing is a real issue in nature markets and can only be resolved by a combination of detailed science-based metrics, oversight, and regulatory clarity.

The initial landscaping phase of the Taskforce's work has reinforced that governance is the core element of the Taskforce's mandate and is a key cross-cutting theme across its work. Several key pillars are emerging as important for this work going forward.

● ● ● GOVERNANCE INNOVATIONS

Positively, governance innovations have proliferated in response to the limits of traditional governance.

Product-based governance has proved popular across many aspects of environmental sustainability, from consumer-facing certification through to the varied approaches for certifying carbon credits. Digital technology, when properly applied, is playing a growing role in governance (which supports transparency, traceability, and accountability), from the data acquisition benefits of everything from the 'internet of things' to the use of drones, satellites, and highly distributed data gathering systems including phones and other personal devices.

Distributed ledgers, blockchain and web 3.0 are presenting new pathways to make governance more transparent and more decentralised, empowering citizens on the ground. Citizens themselves are getting more involved in diverse ways, from classical campaigning including through litigation, to consumer-focused digital swarming as well as conscious consumers, financially and otherwise, and critically as political agents, as voters and disruptors. Across generations, countries, and industries, 85% of consumers have become more 'green' in their purchasing in recent years, speaking to the influence of empowered citizens and decentralised governance.⁷²

Governing nature markets requires significant, hard to deliver innovations in measurement and accounting.

The measurement and specification of nature in products is clearly a challenge that must be addressed if evidence-based governance can be put in place. The challenges are exemplified by the Taskforce's early attempt to define and measure the scale of nature markets, and even more so by the challenges in designing biodiversity credits that can be meaningfully traded between different localities.

● ● ● PRINCIPLE BASED GOVERNANCE

Principle based approaches are one way to advance governance frameworks across diverse contexts.

Such an approach is exemplified by the 'Key Governance Principles and Mandate for the Integrity Council for Voluntary Carbon Markets', which states that all voluntary carbon markets should be purpose driven, high integrity, transparent, interdependent, and inclusive.⁷³ These principles were informed in part by recent work on the governance of carbon markets that doubled down on the need for ambitious approaches to both transparency and the voice of impacted stakeholders.⁷⁴

Important foundational work needs to be advanced to operationalise core principles of nature capital accounting for market use.

This problem is being grappled with, for example, in developing a new generation of due diligence requirements associated with the deforestation impacts of global supply chains, and links between financing and nature crimes.

● ● ● EMBEDDING EQUITY IN GOVERNANCE

Equity and rights need to be designed into the governance of nature markets.⁷⁵

Some nature markets actors have sought, often under public pressure, to retrofit aspects of equity and rights, such as some of the sustainable commodity and related certification initiatives. For other nature markets, such as voluntary carbon markets, there is much talk of inclusivity (with transparency and stakeholder accountability) but little practical action to ensure for example, fair pricing and an equitable distribution of economic rewards.

Many tools can be used to embed equity considerations into the governance of nature markets. Restricting trade to regulated exchanges will help to overcome information asymmetries and encouraging transparency and healthy competition. However, one should be watchful for avoiding entry barriers for new players. Likewise, trust funds could be established to ensure that revenues from trades flow are used to protect, restore, and regenerate nature, as well as redistribute economic rewards to nature's stewards, especially indigenous communities in terms of sustainable employment and income. Contracts might be required to incorporate profit sharing arrangements, or in some cases certain agreed nature assets might not be tradable, with trading opportunities being restricted to associated ecosystem services.

● ● ● LEGAL INSTRUMENTS TO SUPPORT GOVERNANCE

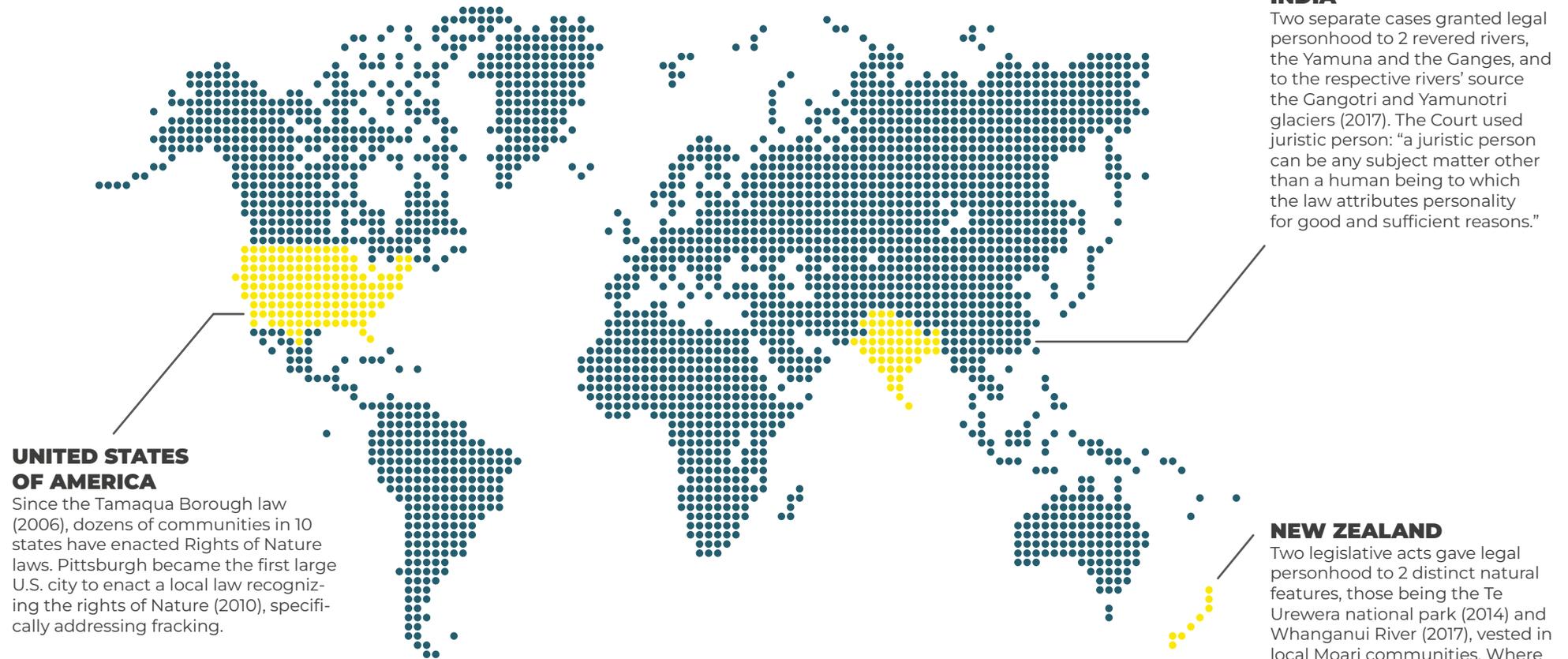
Legal frameworks may need to extend legal rights on nature.

Legal frameworks governing nature have in the main treated nature as property to be protected as a resource, or asset. This is the case for example in most recent legal developments to support voluntary carbon markets.⁷⁶ At the same time, there is a growing movement to extend legal rights to nature. The rights of nature are a recent eco-centric legal innovation with a steady adoption in nature-rich countries. Latin America has seen the most comprehensive development of the rights of nature with notable recent developments in India and New Zealand.⁷⁷ These rights centre around nature's right to exist, persist, and be restored. Built on preventative and precautionary principles and tying them to an acknowledgment of the intrinsic value of nature, including but also more than the value of the ecosystem services it provides to humanity.

Such rights have been introduced in constitutional, legislative, and judicial forms. In multiple cases they have been taken to court and successfully won using Legal Rights of Nature. A range of natural entities have been recognised and protected, from rivers to forests to individual animals.⁷⁸ Endowing legal rights on nature may be a keystone for nature markets in that it would broaden the interpretation of what and how nature can be protected, introduces the possibility of trans-sovereign legal action, and opens the way to any citizen being permitted to step in to protect nature's rights. While seemingly they are considered applying to an all-encompassing amorphous environment, legal rights of nature are at their most powerful when focused on the specific, either that of a specific ecosystem or of a specific community's reliance on their environment, as case studies across the globe illustrate.

Endowing legal rights on nature broadens the interpretation of what and how nature can be protected, introduces the possibility of trans-sovereign legal action, and empowers citizens to protect nature's rights.

Exhibit 11 The Developments of the Legal Rights of Nature Across the Globe⁷⁹



UNITED STATES OF AMERICA

Since the Tamaqua Borough law (2006), dozens of communities in 10 states have enacted Rights of Nature laws. Pittsburgh became the first large U.S. city to enact a local law recognizing the rights of Nature (2010), specifically addressing fracking.

INDIA

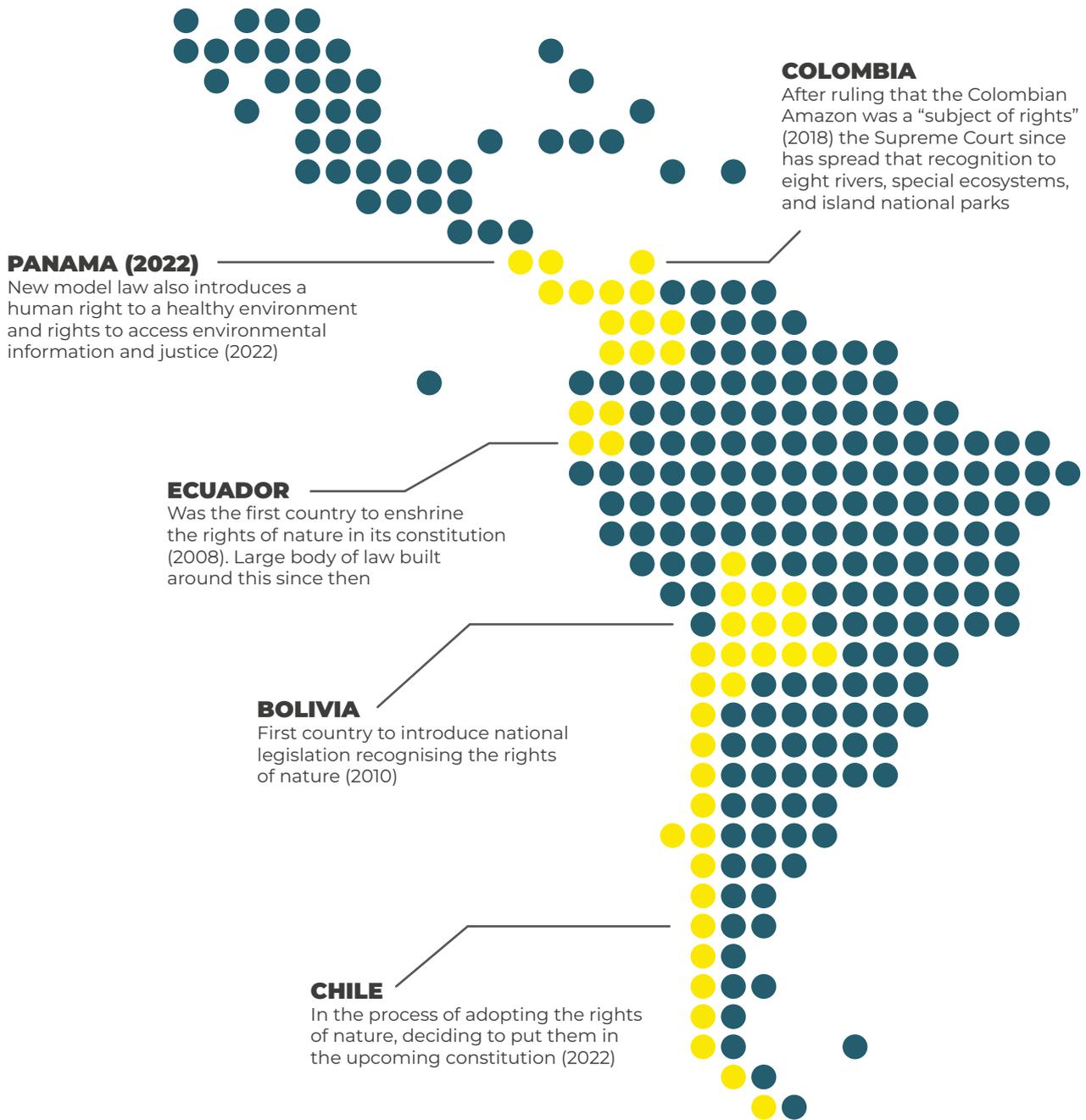
Two separate cases granted legal personhood to 2 revered rivers, the Yamuna and the Ganges, and to the respective rivers' source the Gangotri and Yamunotri glaciers (2017). The Court used juristic person: "a juristic person can be any subject matter other than a human being to which the law attributes personality for good and sufficient reasons."

NEW ZEALAND

Two legislative acts gave legal personhood to 2 distinct natural features, those being the Te Urewera national park (2014) and Whanganui River (2017), vested in local Moari communities. Where the rights have been recognized, significant damages awarded, and compliance enforced.

Universal Declaration on the Mother Earth Rights, Cochabamba (Bolivia), "We, peoples and Nations of the Earth: considering that we are all of the Mother Earth, an indivisible living community of interrelated and interdependent beings with a common destiny." (2010)

Exhibit 12 The Developments of the Legal Rights of Nature in South America⁸⁰



Latin America has seen the most comprehensive development of the Rights of Nature – it has the right to exist, persist, and be restored. It has been introduced in constitutional, legislative, and judicial forms and multiple cases have been taken and successfully won using the Legal Rights of Nature.

● ● ● GOVERNANCE ACROSS JURISDICTIONS

Governing principles need to be applied across multiple regulators.

Nature markets will never be homogenous. As a result, there is unlikely to be a single regulator tasked to ensuring that such markets deliver equitable, nature positive outcomes. Even in one country, there may be soft commodity trading, extensive nature credit markets, and derivative nature markets involving many financial actors, all involving different policy and regulatory bodies. This issue is more pronounced when it comes to cross-border trading. The absence of a mechanism for coordination among various legal bodies means private players are likely to legally arbitrage the gaps resulting in more harm to nature and its stewards. What is needed is a set of operationalisable governing principles and associated methods that can be objectively applied by diverse bodies in a consistent manner as part of a collective approach that ensures effective communication across the various legal entities in charge, akin to the club model exemplified by the Financial Stability Board.

Governance transition pathways are needed to get from here to there.

Just as businesses and economies need ‘transition pathways’ to move towards net zero, so too one needs pathways that enable governance innovations to evolve – a just Nature Market transition. Pathways can be established relatively easily for newly emerging markets such as biodiversity credit markets, with the opportunity to build on best practice and new thinking. For existing, larger nature markets, such as commodity markets, however, the transition will be more difficult given incumbent interests, existing regulatory arrangements, and the need to ensure that critical trading patterns are not disrupted.

8

NEEDED AND NEXT

**NATURE
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8 **NEEDED AND NEXT**

The Taskforce will work at both specific and general levels in its efforts to shape nature markets to deliver equitable, nature positive, climate protective outcomes.

The Taskforce is still completing its landscaping phase but is already moving into its next phase of advancing deeper dives in selected key areas. In practice this means advancing its work at the nexus of three intersecting axes:

- 1 Continued landscaping of existing nature markets:** focusing on lessons from in-market innovations, governance arrangements, and evidence of nature and equity impacts and outcomes.
- 2 Reviewing and developing specific tools, instruments, and processes** for advancing nature positive and equitable outcomes, with a particular focus on legal and digital innovations and citizen action. Empowered citizens and consumers play a critical role in shifting market outcomes - making visible their role in nature markets can therefore drive positive impact.
- 3 Deeper dives into specific nature markets,** with the initial choices being to focus on three areas, namely: nature credit markets, soft commodity markets and nature crimes. These are critical nature markets due to their size, scope, or development potential.

As always, the Taskforce will be led by its members, supported by its knowledge partners, and ultimately innovate and make a difference by convening and being part of a wider ecosystem of policy makers, businesses and civil society actors committed to new pathways forward toward a nature positive and equitable global economy.

This is an interim report and so an on-going exercise to learn, engage, debate, and seek insights on how to promote true impact. Please do send us your comments, ideas or suggestions to monique.atouguia@f4b-initiative.net.



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Annex Qualitative assessment of trends and growth factors in emerging markets⁸¹

Segment	Historical trends	Demand-side drivers	Supply-side factors
Water rights	There have been no significant developments in new markets for water rights trading, and mixed evidence on growth in existing markets	Climate change and socioeconomic factors are expected to increase demand for water resources	Water scarcity is likely to increase regulation on water resources, but water rights markets may not necessarily be the policy response due to high technical requirements and potential socioeconomic implications
Payments for eco-system services	Most forms of PES have increased in both number of programmes and value of markets over the past decade	Policy trends and climate risks indicate mixed potential in demand for PES; increasing nature regulations could decrease the need for PES, but climate risks could simultaneously exacerbate needs	The supply of small-scale and localized ecosystem services may increase particularly as technologies facilitate exchange, but it may be challenging for this market to scale due to monitoring and verification challenges
Sustainability-linked bonds and loans	Sustainability-linked bond issuance is expected to more than double in 2022; the market grew nine times in 2021	There is increasing consumer interest in ESG-related products	There are opportunities for aligning a greater proportion of bond issuance with sustainability KPIs, but the market may be limited by greenwashing concerns and verification challenges
Bilateral and private funding	Bilateral and private funding for conservation and nature-related outcomes has remained relatively stable over the past decade	There have been some calls for increasing the environment-related share of development aid, although climate remains a more prominent focus than biodiversity and nature among donors	There are no significant barriers to scaling funding beyond donor focus and some perceived concerns surrounding the efficiency of development aid
Nature-specific credits	Wetland and stream mitigation banks have increased in recent years, but conservation banks have decreased	Demand based on compliance is unlikely to significantly increase, but voluntary credit demand may increase due to increasing private sector interest in nature	While the market infrastructure for biodiversity credits does not yet exist, there are several nascent efforts towards creating systematic biodiversity credits

Segment	Historical trends	Demand-side drivers	Supply-side factors
Water quality credits	There have been limited recent developments in water quality trading programs and data on trading is sparse	Demand for water quality credits may increase in some locales in the US but transaction costs for participants may be high	Policymakers may face multiple technical, institutional and political barriers in developing credible water quality credit trading schemes
Nature-related carbon credits	Nature-related carbon credits have seen significant growth in recent years, both in aggregate market size and as a share of voluntary carbon credits	There is expected to be large growth in demand in voluntary carbon markets, with estimates as high as a 15-fold increase in demand by 2030 and 100-fold increase in demand by 2050	Carbon markets have historically faced challenges in scaling, but growth in recent years indicates that these issues may not necessarily restrict supply; however, growth in nature-related carbon credits does not guarantee nature-positive outcomes
NFTs for wildlife	The market for nature-related NFTs is growing, with several organizations developing the first products in 2022	Consumer and investor trends indicate that NFTs are an increasingly popular product but it is unclear if these trends could indicate the potential demand for nature-related NFTs	The infrastructure for buying and selling NFTs is well-developed and could support growth in the wildlife NFT segment, but there may be concerns of quality and credibility, and the ability to supply low-carbon NFTs
Nature-related insurance products	The market for nature-related insurance is growing across most segments and industry reports estimate further growth in premium volumes	Markets for nature-related insurance may grow as there is an increased need for nature-related risk management tools	Market penetration is low across most nature-related insurance, but there may be technical barriers in modelling risks that underpin insurance products

Note: Darker cells indicate a greater strength of evidence on future market growth. For historical trends, this is based on evidence of whether the market has recently been growing, stagnant or shrinking. For demand-side drivers, this is based on evidence of growth in factors linked to demand; lighter cells reflect a weaker evidence base or mixed demand factors. For supply-side drivers, this is based on evidence of factors showing ability to support market growth; lighter cells reflect mixed supply factors or evidence that supply factors may limit growth

Source: Draft findings from the forthcoming **Global Nature Markets Landscaping Study**, Vivid Economics for the Taskforce on Nature Markets (October 2022), which compiles data from multiple primary sources.

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