

THE Ethical CORPORATION MAGAZINE

FINANCING NATURE

December 2024 – January 2025

SEEDS OF CHANGE?

The fight to fill
the finance gap
for nature

- Brazil's plan to restore land with earnings from eucalyptus
- Can biodiversity credits help Africa turn nature assets into cash?
- Why insurers could be key to unlocking carbon finance



Welcome to the
December 2024 – January 2025 issue:

Financing nature briefing

The word silviculture has a bucolic ring to it. But I knew enough about the monoculture eucalyptus plantations that cover large swathes of Brazil’s agricultural heartland to correctly guess that plans to mix silviculture with restoration of degraded lands was likely to involve planting millions more of them.

And indeed, after BTG Pactual Timberland Investment Group announced at Climate Week that the UK government and Dutch development bank FMO were investing \$55 million to support its \$1 billion silviculture and land restoration strategy, the company’s chief sustainability officer, Mark Wishnie, confirmed in an interview that the trees involved would be eucalyptus, certified by the Forest Stewardship Council. It was also being advised by Conservation International Brazil.

He said the income from commercial forestry will help pay for the 50% of land that will be set aside to be restored as natural forest, far in excess of the

20% of land that is required under Brazil’s Forest Code. These in turn will generate another stream of income from carbon credits, millions of which have already been sold to Microsoft and Meta under long-term contracts.

Brazil is the biggest producer of eucalyptus, a non-native species that is fast-growing but sucks up high volumes of water. Beyond the implications for a country that is in the grips of its worst drought in 700 years, environmental groups say monocultures are vulnerable to pests and diseases, and are heavily reliant on pesticides, often sprayed by drones. These agrochemicals can easily drift into areas of natural forest, as well as on to farmers’ fields, with devastating impacts on biodiversity, they say.

I chose Mark Hillsdon’s feature to open our issue on finance for nature because it highlights the difficult trade-offs facing companies and countries as they seek to redress the [huge imbalance](#) in >



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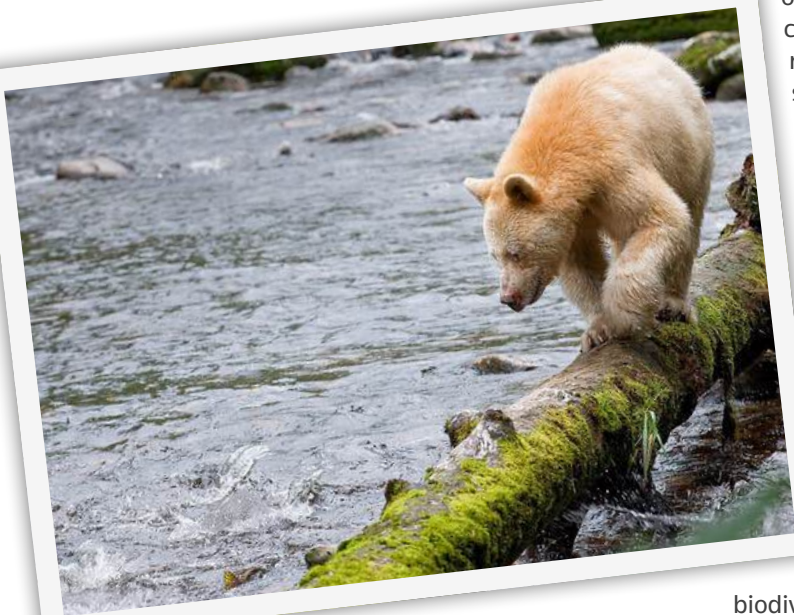
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financial flows that sees \$7 trillion invested annually into activities that have a direct negative impact on nature, 30 times larger than the \$200 billion a year that is invested into nature-based solutions.

The imbalance is even worse in private capital flows: the United Nations Environment Programme (UNEP) says nature-negative finance amounts to \$5 trillion annually, 140 times larger than \$35 billion invested in nature-positive solutions.

Why this matters is underlined by the [latest report](#) from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Service (IPBES), which finds that more than half of global GDP, more than \$50 trillion, is moderately or highly dependent on nature. It puts unaccounted-for impacts of current economic activity on biodiversity, water, health and climate change at \$10-25 trillion per year.

In another illustration of the trade-offs at play, much of the 7.6 million hectares of eucalyptus already planted in Brazil is to supply toilet paper companies such as Kimberly-Clark, which for the past decade has been working to [reduce its extraction](#) of primary and old growth boreal forests in the Global North.

In her feature on the plight of northern forests, Angeli Mehta reports on how increasing demand for toilet paper and biomass pellets are turning up the pressure, with Sweden on track to lose the rest

of its old-growth forests before the end of the century, while those of Estonia and Finland are rapidly turning from carbon sinks into carbon sources.

She looks at a couple of innovative projects in North America, where carbon finance and Indigenous leadership are helping to bring finance to achieve more positive outcomes.

One of the big developments at COP16, the biodiversity summit in Cali, Colombia, in October was the release of a proposed framework for the nascent biodiversity credits market by the International Advisory Panel on Biodiversity Credits.

As Ben Payton reports, the sale of these credits is designed to finance conservation projects, often by providing financial incentives to communities that assist in protecting biodiversity. While around 30 biodiversity credits projects are currently under way in Africa, they are still in an early stage, and there is much uncertainty over how biodiversity credits will develop, both in Africa and globally.

Another big discussion point at COP16 was around greater finance going into the bioeconomy, a broad term that refers to a more sustainable model for integrating the products of nature into the global economy, better compensating the Indigenous peoples and small-scale farmers that are stewarding nature and biodiversity.

Brazil's cosmetics firm Natura &Co has been a bioeconomy pioneer, sourcing ingredients from indigenous communities in the Amazon.

I spoke to Marc Palahi, chief nature officer of Swiss private wealth fund Lombard Odier and CEO of the newly launched Circular Bioeconomy Alliance, about how it is piloting projects to transform the way commodities such as coffee, cocoa and cotton are sourced, with coffee the most ripe for a circular bioeconomy approach.

A more established source of finance for nature-based solutions is voluntary carbon markets. According to the World Economic Forum, these could be worth between \$5 billion and \$30 billion per year by 2030, with up to two-thirds of this channelled into nature-based solutions.

However, with the carbon offsets market beset with integrity issues, only 1.2% of that annual cost-effective potential has been realised.

As Mike Scott reports, one sector that could be key to derisking and reducing transaction costs for >

carbon offsets and other nature-based instruments is insurance, with Howdens and Swiss Re two insurers that are leading the way.

With aquaculture responsible for much of the failing health of the ocean, an area desperately in need of greater finance is in the “blue food” economy, more sustainable ways of producing seafood. Robin Hicks reports on some of the challenges faced by blue economy startups in Southeast Asia, which relies on the ocean for 30% of its GDP and half its protein intake.

Meanwhile, Catherine Early looks at how cities, home to more than half of humanity, are struggling to introduce nature-based solutions, critical to adapt to climate change. While the Global Biodiversity Framework introduced a city-specific target to significantly increase the area, quality and connectivity of natural space, cities are experiencing huge difficulty in obtaining finance. However, carbon markets are emerging as a leading source of finance, including for cities such as Freetown, in Sierra Leone.

The focus of the magazine shifts to looking at the potential for corporates to raise finance to implement nature-based solutions in their own value chains. Mike Scott looks at how companies such as PepsiCo are seeking to reduce their exposure to water risk in their operations, as growing impacts of climate change wreak havoc, creating scarcity in some locations and flooding and poor water quality in others.

Oliver Balch, meanwhile, reports on the challenges faced by companies such as Reckitt, Danone and Nestle as they seek to invest in “insetting” rather than offsetting their emissions, by introducing more regenerative agriculture in their value chains.

With companies often sharing supply chains, major difficulties need to be ironed out to ensure that brands pursuing insetting strategies aren’t let open to some of the same greenwashing charges that have bedevilled offsetting.

Investing in nature is of obvious importance to companies in the agricultural sector. At COP16 it was also recognised how pharmaceutical companies, which are dependent on genetic resources for their drug formulations, should help pay to protect biodiversity-rich areas like the Amazon, with the establishment of the Cali Fund.

Jill Baker reports on how biomimicry proponents are arguing that the Cali Fund should be expanded



COAST 4C

Seaweed farmers in the Philippines

to include companies that benefit from mimicking how nature works as they seek to solve challenges as varied as sustainable packaging, clean transportation, and efficient energy production.

And we close the magazine with Oliver Balch’s interview with Satya Tripathi, former assistant-general secretary of UN Environment, who is advocating a bottom-up approach to shift finance into more regenerative directions through his latest venture, the Global Alliance for a Sustainable Planet.

Its first project will be formally launched at World Economic Forum’s annual summit in Davos in January, the next big date in the sustainable business calendar.

We’ll be back in February with our first issue of the year, on how the corporate agenda for diversity and inclusion is standing up amid the anti-woke backlash. But for now we wish all our readers a happy new year. ●



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Can planting more eucalyptus pay for the restoration of Brazil's degraded lands?

Governments and companies are plugging the climate benefits of a scheme that hinges on the spread of a water-thirsty tree species. [Mark Hillsdon](#) reports





REUTERS/PAULO WHITAKER

Abandoned cattle ranches cover huge swathes of Brazil; empty, degraded land, where the soil is like dust and any form of agriculture is impossible. Earlier this year, [Brazil announced](#) that it aimed to restore 40 million hectares of degraded pastures and turn them into “productive systems for food, biofuels and high productivity forests”.

During the G20 summit, President Joe Biden travelled to the Amazon to [pledge U.S. help](#), announcing a \$10 billion Brazil Restoration and Bioeconomy Finance Coalition, intending to mobilise public and private finance to conserve and restore at least 5.5 million hectares of degraded land.

Carbon markets are seen as key to driving finance, with the coalition saying its efforts would contribute to 1.5 gigatonnes of emissions reduction and removals through 2050.

BTG Pactual Timberland Investment Group (BTG Pactual TIG), the largest investment bank in Latin America, in September signed a long-term contract

with Meta to deliver 1.3 million nature-based carbon removal credits, based on restoring 270,000 hectares of degraded landscape across parts of Latin America, including Brazil’s Cerrado biome.

It followed a much larger one [signed with Microsoft](#) in June, for 8 million tonnes of nature-based removal credits between now and 2043.

While corporate buyers for carbon credits have been thin on the ground over the last few years, due to scandals casting doubt about the integrity of carbon credits, Microsoft and Meta, together with Google and Salesforce, are part of Symbiosis, a coalition that launched this year with an advance market commitment to buy up to 20 million tonnes of high-quality restoration credits by 2030.

At Climate Week in September, it was announced that the BTG Pactual fund’s \$1 billion restoration and reforestation strategy has also attracted government finance, with the United States’ Development Finance Corporation and International Finance Corporation each committing \$50 million in debt financing, and the UK government and Dutch entrepreneurial development bank FMO together committing \$55 million through the Mobilising Finance for Forests (MFF) programme.

While all parties have emphasised the conservation and restoration benefits, less attention has been paid to the more controversial fact that, along with carbon credit income, restoration will be paid for through commercial forestry – specifically the planting >

Brazil is littered with abandoned cattle farms.



BTG Pactual TIG has signed a contract with Meta to deliver 1.3 million nature-based carbon removal credits

of non-native eucalyptus plantations, known as “green deserts” by their detractors because they are famously water-thirsty.

Beyond biodiversity concerns about monoculture plantations, it raises questions about whether planting more eucalyptus is the best ecological option for Brazil, which is in the grip of a historic drought.

Speaking to *The Ethical Corporation* in New York after MFF funding was announced, Mark Wishnie, TIC’s chief sustainability officer, explained that half of the land will be restored as natural forest, which will generate the credits, with the other 50% given over to commercial forestry. It’s a split that, he says, is above the legal requirement for replanting natural forests set out in Brazil’s Forest Code, which is designed to protect native vegetation and regulate the use of private land.



At the end of the day what’s happening here is eucalyptus is paying for conserving and restoring way beyond compliance (with Brazil’s forest code)

MAURICIO BIANCO,
Conservation International Brazil

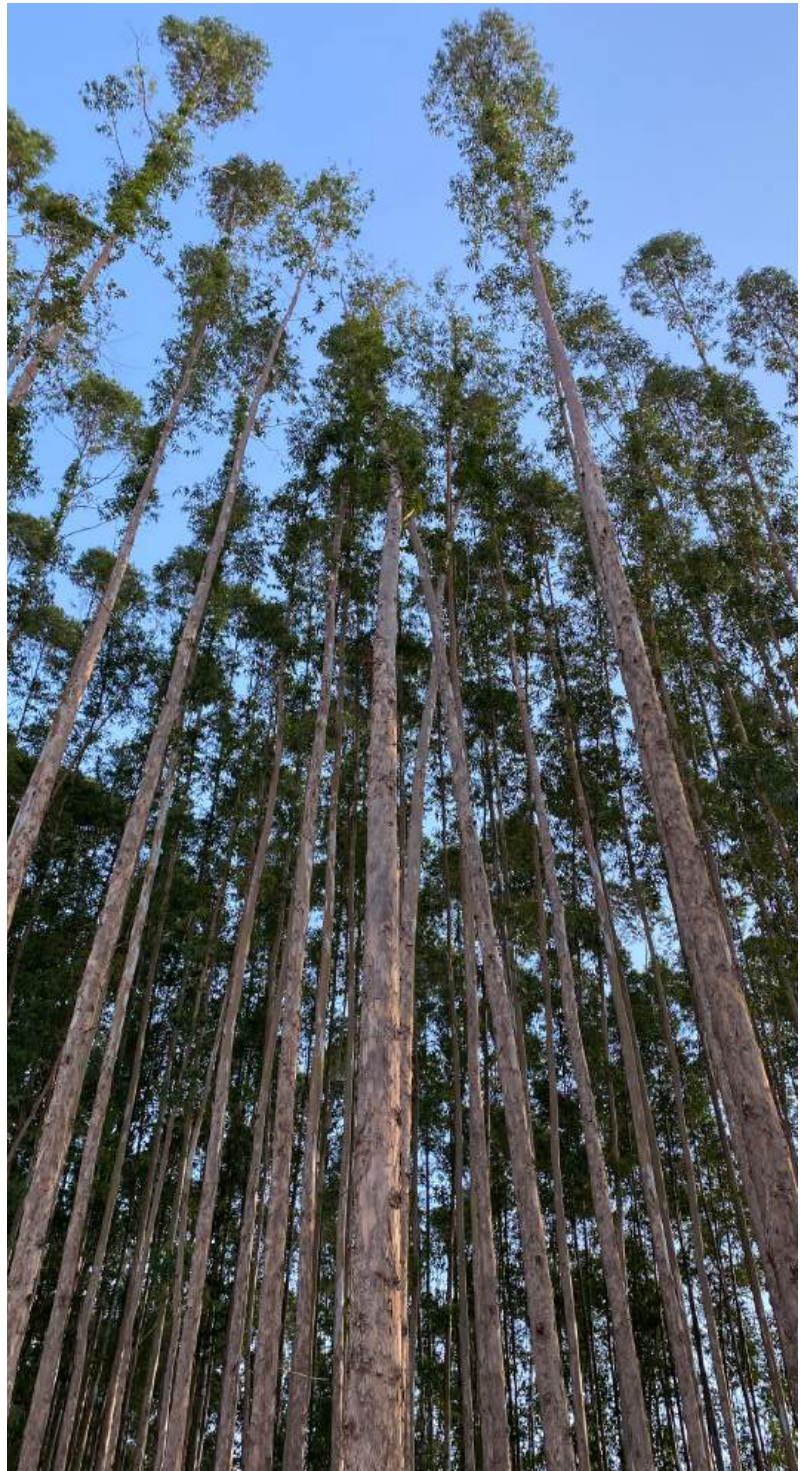
Wishnie confirmed that BTG Pactual will be planting eucalyptus monocultures, which he said reach maturity in just seven years. As well as sequestering carbon, says Wishnie, this rapid growth will help to meet the growing global demand for wood and fibre, with the U.N. predicting that demand for timber could have increased by 49% between 2020 and 2050.

The timber will all be Forest Stewardship Council (FSC) certified, and the scheme is being advised by non-profit Conservation International Brazil, which has established 14 impact criteria, against which projects will be constantly evaluated. Jobs, particularly in the restoration supply chain, will also be a key outcome, adds Wishnie.

LANDSCAPE APPROACH

Asked about the expansion of water-intensive eucalyptus plantations in Brazil, Mauricio Bianco, vice-president of Conservation International Brazil, said the landscape approach BTG Pactual is taking will diminish the risk, with the 50% regeneration quota met at a portfolio level.

“We aren’t looking at specific farms, but at the



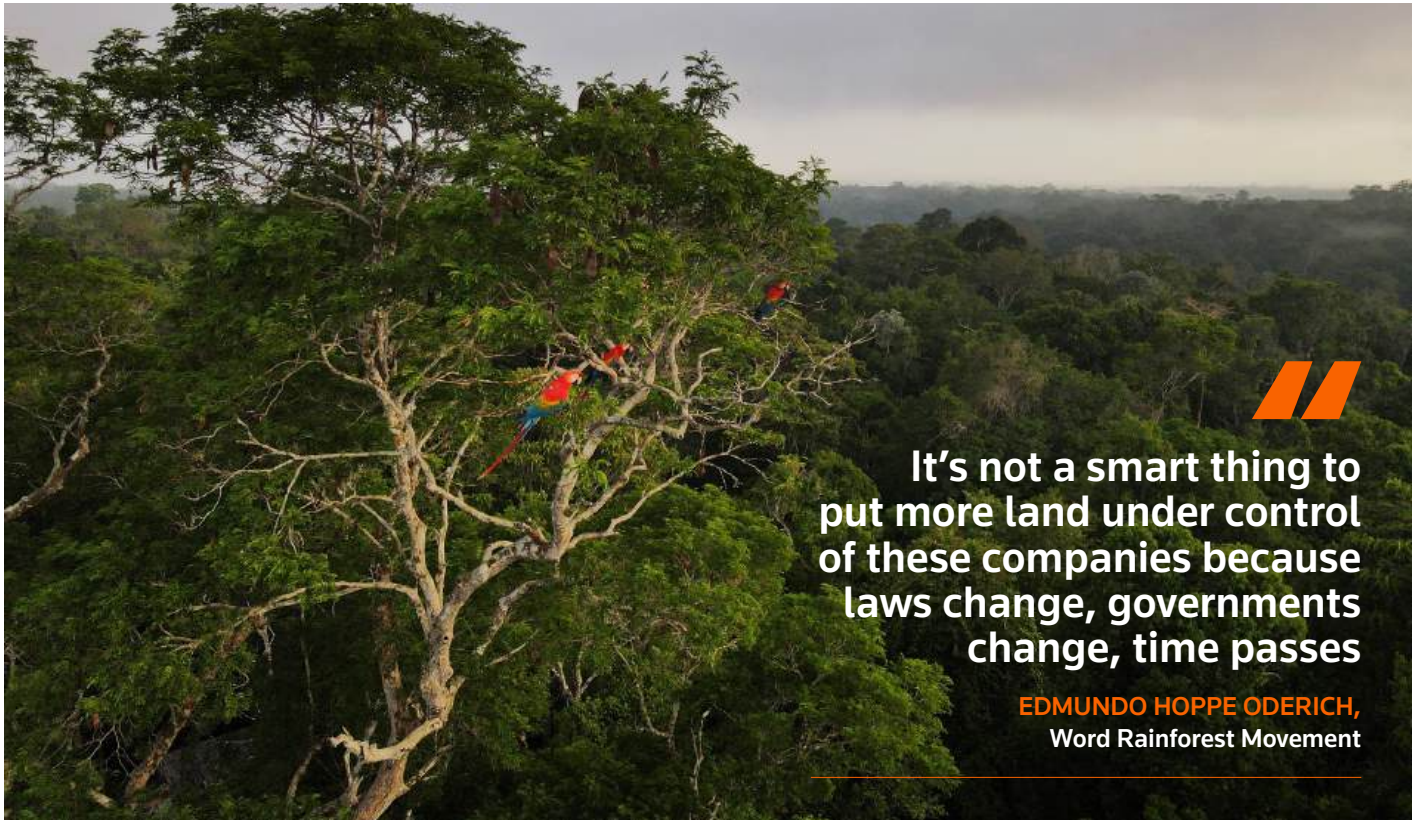
TERRY SLAVIN

A eucalyptus plantation in Brazil.

watershed. At the end of the day what’s happening here is eucalyptus is paying for conserving and restoring way beyond compliance” with Brazil’s forest code. He pointed out that many of Brazil’s eucalyptus farms are not complying with the law.

He added that Conservation International will also encourage BTG to introduce native species of trees so eucalyptus isn’t grown as a monoculture, but that hasn’t happened yet.

MMF’s manager, Floor van Oppen, said in an >



It's not a smart thing to put more land under control of these companies because laws change, governments change, time passes

EDMUNDO HOPPE ODERICH,
Word Rainforest Movement

interview its funding would help “make the risk (of investing in forests) acceptable for private investors”.

Van Oppen said she understands the concerns about eucalyptus, and the importance of not planting monocultures in the wrong place. To avoid this, FMO carries out environmental investigations before investing in a site, she explains, including research into the types of trees that are suited for the area, and the possible impact of local watersheds.

Julie Strong, director of Symbiosis said the coalition, which includes Microsoft, would only invest in high-quality credits, with strict quality criteria and due-diligence markers. “We acknowledge that these projects can be challenging and will require a detailed project-by-project evaluation to ensure we navigate any trade-offs between biodiversity, people and climate outcomes,” she adds.

However, Edmundo Hoppe Oderich, from the World Rainforest Movement (WRM), worries the restoration of degraded lands in Brazil is just another way to incentivise the expansion of land use for eucalyptus. Brazil already has 7.6 million hectares of eucalyptus planted, more than any country in the world. “It’s not a smart thing to put more land under control of these companies because laws change, governments change, time passes.”

Macaws in the Amazon rainforest. Proponents argue commercial forestry stops natural forest from being plundered.

Monocultures are also particularly vulnerable to pests and diseases, he continues, and are heavily reliant on pesticides, often sprayed by drones. These agrochemicals can easily drift into areas of natural forest, as well as on to farmers’ fields, often with devastating impacts on biodiversity.

Suzano is one of the largest pulp and timber companies in the world, controlling more than 2.7 million hectares in Brazil. One of its sites, the ARR Horizonte Carbon Project, in Mato Grosso, covers 15,000 hectares, says Hoppe Oderich.

But even though 93% of the land is covered by eucalyptus, small pockets of indigenous vegetation mean the company can promote it as a multispecies project. “To sell their business they need to show they are doing something that has the appearance of (being) good for climate issues and biodiversity,” he adds.

We put this to Helena Boniatti Pavese, head of environment at Suzano. In an interview, she said that the company only develops its plantations on degraded land, and that on average, 40% of these sites are given over to natural forests. The exact percentage varies, she says, and is determined by factors such as proximity to one of 44 critical watersheds that Suzano has identified across Brazil, when a special management regime reduces the intensity of the planting.

She also disputes the argument that plantations are devoid of biodiversity, emphasising the work >

Suzano is doing to reconnect 500,000 hectares of fragmented natural forests with ecological corridors, many of which run through their plantations.

“They are not green deserts,” she says, “there is a biological complexity there.”

While conservationists such as Hoppe Oderich may push for a system that shuns the allocation of restored lands to commercial forestry, and concentrates on natural reforestation, FMO’s Van Oppen says carbon credits alone are not enough to support the restoration of forests.

“There is so much uncertainty,” she says. “It’s not a robust market... there’s not a lot of trust in it yet, and it’s not foolproof.”

As well as meeting global demand for products such as toilet paper, commercial timber can also help cut carbon by offering an alternative to the steel and concrete that makes construction such a heavily polluting sector, she says.

The risk is that without commercial plantations, natural forests will continue to be plundered. “You need a business model that finds a balance,” she adds.



Whenever we take on a new property, we are looking at our surroundings to see how we can use restoration as a driver of positive social change

MARIANA BARBOSA, re.green

Brazilian business re.green believes it may have found this equilibrium. The company has set out to restore one million hectares of native land, with a science-based approach that uses an algorithm developed in partnership with Cambridge University. It pinpoints the most suitable land for restoration, explains Mariana Barbosa, the company’s head of legal and social relations, allowing them to focus on sites that offer the most in terms of income generation, carbon capture and biodiversity.

The policy has already proved attractive to Microsoft, which has brought 3 million carbon removal credits from the company. Barbosa believes the credibility of their credits is attracting clients, with a monitoring framework rooted in science and data “so that we can demonstrate to people and to clients .. that we are actually generating positive impact in the areas we are working”.



RE.GREEN

Re.green is restoring five sites in Brazil’s Atlantic and Amazon rainforests, using only native species, with income generated through the sale of carbon credits and limited silviculture, in which an area of forest is cut once, and then permanently restored.

As well as acknowledging the importance of biodiversity, Re.green has a strong social strategy that supports the local bio-economy, Barbosa said. “Whenever we take on a new property, we are looking at our surroundings to see how we can use restoration as a driver of positive social change.”

This includes jobs in the restoration value chain, growing and planting out saplings, while also helping to establish a women’s seed cooperative in the Amazon state of Maranhao.

But supporting the bio-economy isn’t just about livelihoods, adds Barbosa: “It’s also related to the permanence of the forest,” she says, and that if people feel engaged with it, then they have more interest in keeping it standing. ●

Terry Slavin contributed to this article

Brazilian business re.green aims to restore one million hectares of native land.



Mark Hillsdon is a Manchester-based freelance writer who writes on business and sustainability for The Ethical Corporation, The Guardian, and a range of nature-based titles including CountryFile and BBC Wildlife.

NORTHERN EXPOSURE

Angeli Mehta reports on how Indigenous leadership and carbon finance are seeking to keep old growth boreal forest from going up in smoke

T

oilet paper and biomass pellets are emblematic of the fight to save northern forests – and prevent some of the planet’s most important biodiversity from going down the toilet (or up in smoke). While much of the focus on deforestation is on the world’s tropical forests, the degradation of boreal and temperate forests continues apace, threatening their ability to store carbon and destroying ecosystems.

As [Climate Analytics](#) noted in a recent report: “Northern forests are critical in the race to net zero.” Alongside steep emissions cuts, its authors say protecting and restoring the forests is both essential to mitigating emissions and supporting forest ecosystem services and biodiversity.

Parties to the COP16 biodiversity talks are due to reconvene in Rome next February to try to agree how to mobilise funding for nature, after negotiations in Colombia were suspended. So far, Canada and Norway are the only countries in the Boreal region to submit an updated national biodiversity strategy and plan, as set out under the global biodiversity treaty signed in Montreal in 2022. Precisely what >



A spirit bear in the Great Bear rainforest in British Columbia, Canada.



//
We’re actually seeing northern countries continuing to try to find workarounds and to define themselves out of accountability

JENNIFER SKENE,
 Natural Resources Defense Council

action on forests will follow in Canada is unclear, in a country that clearcuts **one million acres** of boreal forest each year.

Jennifer Skene, a policy director at the Natural Resources Defense Council who covers northern forests, notes that Sweden is on track to lose the rest of its old-growth forests before the end of the century, while those of Estonia and Finland are rapidly turning from carbon sinks into carbon sources.

She told journalists at a press conference in Cali that where positive policies have been developed, “we’re actually seeing northern countries continuing to try to find workarounds and to define themselves out of accountability”.

She is, however, optimistic that there are signs of change. “Some logging companies are moving to better practices that avoid degradation, and there are sourcing companies that are increasingly adopting standards that ensure that they are both avoiding deforestation and degradation in northern and southern forests and respecting indigenous rights.”

Some money is flowing too. In October the U.S. government announced \$1.5 billion for more than 90 partnership projects on farm and forest lands. Some of these are to restore forests and watersheds in the south and eastern United States, where much of the old growth forest – one of the planet’s most valuable ecosystems – has been logged.

“There used to be old-growth in the eastern half the United States, trees that were as large (and) as wide as some of the sequoias and redwoods that we see on the west coast. But there’s only a few legacy trees that speak to what it used to be,” says Cakey Worthington, vice president of carbon operations at Aurora Sustainable Lands.

Aurora, which has focused on buying what was industrial timberland, is a joint venture between a group of equity investors and carbon credits developer Anew Climate. It now has 1.7 million acres across 14 states, under “active management”, to increase diversity across different ages and >

Dried out trees in a forest near Reiskirchen, Germany.

species of trees. Trees are still logged – albeit on a smaller scale than previously, so there is net growth.

The focus is on sequestering carbon, while also protecting biodiversity and managing water resources. “We can do active management practices that promote biodiversity at a really large scale, and take a mosaic approach,” adds Worthington.

That means maintaining a diversity of ecosystems and habitats across the landscapes. According to CEO Jamie Houston, a former forester himself, the forests contain over 130 different tree species and support more than 60 different species of mammals and 225 bird species. He adds that Aurora’s harvesting practices are designed to promote biodiversity, as well as carbon sequestration.

MANAGED TIMBER

Worthington estimates the forests will be removing four to six million tonnes of carbon dioxide from the atmosphere every year for the next 100 years, and argues that the carbon sequestration potential is greater when forests are actively managed for some timber production than if they are just left to grow.



If we imagine that certain areas will be hotter and drier, maybe more water stressed ... we want to develop a forest that will be resilient to those things

CAKEY WORTHINGTON, Aurora Sustainable Lands

“The world needs wood products, and we’d rather have people buying wood products than plastic,” she adds. Indeed, researchers have tried to assess the **mitigation potential** of products made of wood, instead of using their fossil equivalents. For example, for every kilogram of wood used in construction that replaces a non-wood product emissions could be reduced by 1.3 kg CO₂. For textiles, the emissions reduction could be greater – up to 2.8 kg CO₂ per kg of wood product. Aurora earns credits for the portion of its harvest that goes into long-lived products.

Houston says 90% of the company’s income is now generated by selling carbon offsets. In August, for example, Aurora agreed a \$100 million offset



REUTERS/RICHARD CLEMENT

deal with TotalEnergies, while its parent, Anew Climate, sold almost one million nature-based carbon removal credits to Microsoft, some of which will be derived from projects on Aurora’s land.

It is also taking decisions now to take account of what environmental conditions will be like in a few decades, drawing on science-based models developed by researchers.

“If we imagine that certain areas will become hotter and drier, maybe more water stressed, or potentially experience just a higher severity or frequency of natural disasters, we want to be developing a forest that will be resilient to those things” says Worthington.

“In Louisiana, we’ve got a few small stands that are 200-year-old cypress trees that are really well adapted to high, frequent water inundation. We might choose to preserve that area, but then do some selective forest management in neighbouring areas to help ensure there’s a bigger buffer around that type of forest.” In another area, more drought-tolerant species might be encouraged.

She adds that the carbon market is “directly funding our ability to do this climate adaptation management and (to) focus on biodiversity on the ground. There’s a reason that the traditional timber model doesn’t focus on those characteristics, because they’re not being financially incentivised to do so.”

In the Canadian province of British Columbia, on the opposite side of the North American continent, there’s funding to protect and restore forests, but within a very different model.

Here it’s being driven by the original stewards >

In the south and eastern U.S. much of the old-growth forest has been logged.

of the land, the coastal First Nations peoples of British Columbia’s Great Bear rainforest and Haida Gwai, which contain the world’s largest remaining coastal temperate rainforests.

In the nineties, protests against logging and mining by environmental groups and First Nations peoples who wanted to make their own decisions about how their territories were used garnered international attention and, with it, put economic pressure on industry and government. Eventually the first conservation agreements were signed with governments. However, “this wasn’t about establishing parks or conserved areas where nations wouldn’t have access. This was about ensuring that the stewardship of these territories went back to the nations through co-management with the province,” says Eddy Adra, chief executive of Coast Funds.

HUMAN FOCUS

The focus has been on community well-being, as opposed to solely on the environment. Adra explains: “A core concept was that the deforestation that was happening in their territories was impacting the rivers and the watersheds and the salmon that couldn’t come through, and the wildlife and the people who were also integral to that

system. So removing the people from the equation, as is often done in environmental projects, ignores the fact that people are not only interdependent, but also part of that system.”

Canada’s innovative multi-partner Project Finance for Permanence (PFP) model provided the funding upfront in one go, rather than in a series of piecemeal grants. The two Coast Funds, each managing C\$60 million, were set up in 2007. Funding came from national and provincial government as well as private donors.

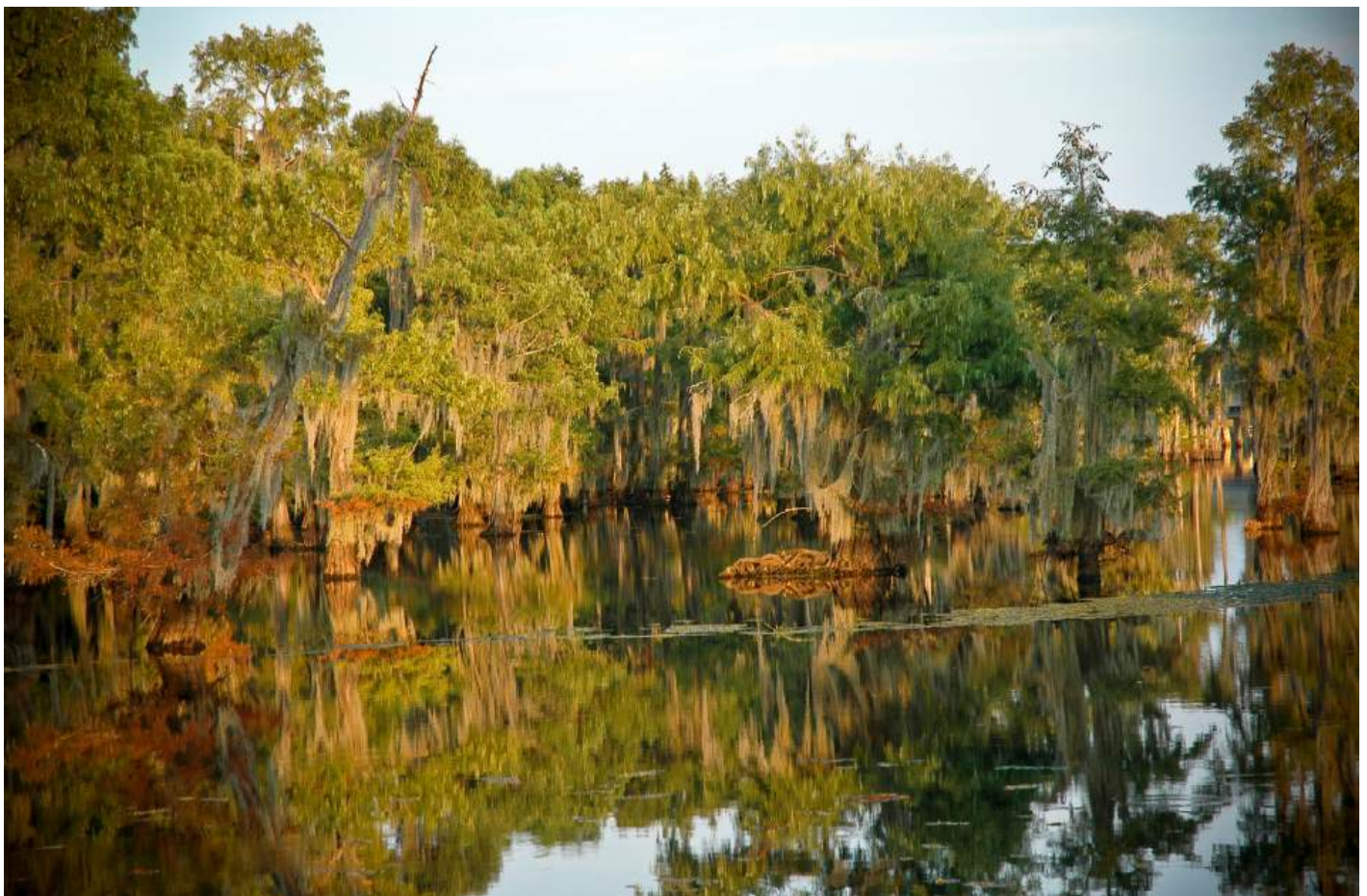
Since then the First Nations have leveraged almost \$300 million more for investment in projects such as renewables or eco-tourism, for stewardship and research, as well as creating new jobs and providing access to education and training.

Coast Funds has also identified new tools to fill funding gaps, such as payments for ecosystem services and salmon impact bonds.

The First Nations also sell carbon credits on the voluntary markets, using the British Columbia government’s forest carbon offset protocol. Annual verifications are regularly put out to public tender to try to capture the latest scientific thinking, explains Great Bear Carbon general manager Paul Kariya.

It also tries to sell to companies taking positive steps to reduce emissions, not just offset them. But >

Cypress trees in Louisiana are adapted to frequent water inundation.



WIKIMEDIA COMMONS

Great Bear Carbon doesn't sell removals, partly because these haven't been scientifically quantified.

"What we do say to buyers who inquire about removals and are sceptical about offsets is (that) there is very much a human and social component to what we're doing. These are First Nations, people who Canada and British Columbia have dealt very unfairly with, and part of the reconciling process is this negotiated agreement on the forest that has led to the offsets that leads to stewardship, and (job creation)."

Emitters in Canada pay a ratcheting carbon tax, but new legislation in BC means that from 2025 companies will be able to offset up to 30% of their carbon emissions (above a baseline), instead of paying the tax.



(Initiatives) really need to be led by communities and developed and grown with the community lens. They're the ones who are impacted on the ground

EDDY ADRA, Coast Funds

Kariya says the company helped ensure the offsets would be bought within the province. Negotiations on price are going on now, but emitters this year would be paying C\$80 in carbon tax for every tonne of carbon they emit.

At COP15 in 2022 the Canadian Prime Minister, Justin Trudeau, announced \$800 million for another four large-scale, long-term Indigenous-led conservation initiatives, using the PFP model.

One of these will establish a network of marine protected areas covering 30% of the waters that neighbour the rainforest, in the Great Bear Sea. It's an initiative that the First Nations have been working on since 2006 and is expected to deliver an economic impact of around \$750 million over the next 20 years.

Great Bear Carbon is now exploring a methodology for blue carbon credits. As kelp and seaweeds die and sink, carbon is stored on the seabed. A university team is researching that sequestration potential, with a view to establishing a protocol. At the same time First Nations people could potentially benefit from growing seaweeds for foods and supplements. Kariya is confident that within a couple of years or so, it could be offering blue carbon credits. However, there will have to be



REUTERS/CHRISTINNE MUSCHI

Elder Ka'nahsohon Kevin Deer performs a ceremony prior to Canada's Prime Minister Justin Trudeau making an announcement supporting Indigenous-led conservation at COP15.



COASTAL FIRST NATIONS

some thinking about how fishing is done, so the seabed remains undisturbed.

Coast Funds' Adra says a great many lessons have been learned over the past 17 years, but overall that, "they really need to be led by communities and developed and grown with the community lens. They're the ones who are impacted on the ground, the ones who are doing the work, and they're the ones who are going to be there 100 years from now." ●

Alec James Willie, a Wuikinuxv Guardian, poses for a picture after patrolling the Wuikinuxv Nation's territory on the North Pacific Coast.



Angeli Mehta is a former BBC current affairs producer, with a research PhD. She now writes about science, and has a particular interest in the environment and sustainability. [@AngeliMehta](#).

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Cali's legacy: Measuring what matters for biodiversity

'Making peace with nature' means closing the gap on funding nature. COP16 showed that industry efforts will need to accelerate and supplement the work of governments. That begins with measuring biodiversity using common global standards, say Ramboll's [Samantha Deacon](#) and [Vikki Patton](#)

COP16 is over and many of the questions it raised remain unanswered. Pledges to increase financial flows for protecting and rejuvenating biodiversity remain unfulfilled. Businesses and financial institutions, anticipating clear mandates and incentives to act at scale, came away unsure of the next steps. Closing the gap on the financing of biodiversity protection remains as urgent as ever, yet governments have dragged their feet. The one thing everyone can agree on is the need for standardised metrics to measure biodiversity impact, enabling organisations to set measurable biodiversity targets to support nature-positive outcomes, and underpin future nature markets.

A YAWNING GAP

Having attended COP16, we feel privileged to have played a part in the many positive conversations that took place in Cali. The COP highlighted just how important the Kunming-Montreal Global Biodiversity Framework (GBF), adopted in 2022, is in the efforts to halt the biodiversity crisis. It was uplifting to hear that businesses are prioritising action to build resilient supply chains, indicating that the market for nature action has matured rapidly in the past two years.

Yet there is a stark shortfall between existing financial resources and what is required for effective global conservation, including funding >

A porometer is used to take measurements from pigeon pea plants inside a solar dome.

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for protecting nature (avoiding harmful activities), sustainable landscapes and urban environments.

A 2020 [study](#) by the Paulson Institute estimates that an additional \$711 billion per year is needed from governments and businesses to meet the GBF’s 2030 targets. This is on top of the \$124 billion to \$143 billion already allocated to global biodiversity conservation efforts in 2019. The situation is further complicated by the \$7 trillion spent annually on activities that degrade nature, as [reported](#) by UNEP. To meet globally aligned targets, funding for nature-based solutions must nearly triple from its 2022 levels of \$200 billion to \$542 billion annually by 2030.

Ecosystem collapse could cost an additional \$2.7 trillion annually by 2030, [according to the World Bank](#). Achieving the goals of the GBF could help ease these economic losses but much work is needed to turn ambition into reality.

BRIDGING BUSINESS AND NATURE GOALS

To tackle the biodiversity crisis, we must protect what is left and restore degraded ecosystems. This means focusing business and financial institutions on both biodiversity dependencies

and impacts. Central banks are being urged, via frameworks such as the Taskforce on Nature-related Financial Disclosures (TNFD), to include nature-related financial risks in their mandates and incentivise private finance. While the TNFD has been successful in raising awareness of business dependencies on nature to financial institutions, it falls short on business impacts and driving action. This includes creating sustainable investment opportunities and regulations to cease harmful activities. Actions must go beyond reporting to deliver real change. The private sector, which has the means and expertise to scale biodiversity efforts, must step up the pace.

While public and private biodiversity expenditure must rise to help meet national biodiversity strategies and action plans, public finance continues to lead nature investments. The GBF Fund, for instance, aims to scale up financing from private, philanthropic and government sources. It has already [raised \\$243 million](#), meeting its initial target, although doubts remain about its capacity to meet long-term needs. Progress toward the \$20 billion international biodiversity finance goal for the Global South by 2025 stands at 41%. >

A speaker at the Special Emergency Session on Coral Reefs at COP16 in October.



REUTERS/LUISA GONZALEZ

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REUTERS/RICARDO MORAES

The Green Guanabara Project restored around 12.5 hectares of mangrove and planted a total of around 30,500 trees to preserve marine biodiversity and clean rivers, in Rio de Janeiro, Brazil.

COMMON BIODIVERSITY METRICS, OF COURSE

The business case for nature action is made when businesses are able to measure their biodiversity impact and demonstrate a return on investment. At COP16, there was consensus that biodiversity metrics are crucial to kick-start businesses on their journey to map, measure and scale their nature-positive impacts. Though some participants criticised the time devoted to this discussion, we are firmly of the opinion that scientists and businesses need to debate how best to measure biodiversity value and how to evidence decision-making with data. How else can we advise on the extent and severity of harm or the appropriate course of action, or measure success against the GBF targets?

Our experience tells us that businesses want to measure nature value to demonstrate action and share the return on investment with those in the boardroom, leveraging funding for more nature-positive action.

A common international standard for assessing our planet’s biodiversity using key indicators of ecosystem health is an essential prerequisite to corporate biodiversity efforts. That is why **Ramboll**, a global architecture, engineering and environmental consultancy company, launched the free, open-source **Global Biodiversity Metric** at COP16 as a first step towards measuring the biodiversity value of habitats on sites around the

world. Offering a transparent and repeatable methodology to support decision-making in line with the mitigation hierarchy and based on the now 12-year-old Natural England biodiversity metric, the metric has broad application across business, finance and governments to support positive outcomes for land use change.

We believe that COP16 could help draw a line under ‘business as usual’ and, with its renewed impetus on financing and standardised metrics, give companies a springboard to meeting their promises and improving their biodiversity impact. ●



Samantha Deacon is Ramboll’s Global Lead for Biodiversity & Ecosystems, working with a team of over 300 ecologists, conservation and marine biologists, ecotoxicologists, and environmental economists to advise businesses and financial institutions on their risks and opportunities to protect and restore nature.



Vikki Patton is a Senior Nature Positive Manager at Ramboll with more than 25 years’ experience in biodiversity conservation advisory, from achieving biodiversity net gains in development projects through to supporting clients to develop their corporate strategies for nature.

Can Africa use biodiversity credits to turn its rich carbon stores into hard cash?

Ben Payton asks whether the novel finance mechanism can help fight the economic forces threatening the world’s most biodiversity-rich continent



REUTERS/JOSEPH OKANGA

For more than 1,000 kilometres, from Kenya in the north to Mozambique in the south, the coastline of eastern Africa is fringed by a vast network of coral reefs. This underwater jungle is among the richest and the most diverse in the world, supporting over 200 varieties of coral and more than 11,000 species of plants and animals.

But the region’s marine environment is under pressure. Rising sea temperatures, caused by global

greenhouse gas emissions, are threatening the coral’s survival. Local factors – including marine pollution and over-fishing – are compounding the damage. “Economic incentives are very strongly in favour of depletion, rather than conserving and sustaining stocks,” says David Obura, director of CORDIO East Africa, a research and conservation group.

The coral coast is far from the only important African ecosystem facing growing threats. Across >

Farmers harvest seaweed off the coast of Mombasa, Kenya.



//
The challenge for biodiversity credits is to translate theory into practice. If it was easy, it would already have been done

BETSY HICKMAN, Anthesis

the continent, rapid human population growth and economic development is putting increased pressure on hotspots of biodiversity.

One solution attracting much attention is “biodiversity credits”. The sale of these credits is designed to finance conservation projects, often by providing financial incentives to communities that assist in protecting biodiversity. Around 30 [biodiversity credits projects](#) are currently under way in Africa.

“Biodiversity credits have considerable potential to support conservation in Africa,” says Muhtari

Aminu-Kano, director of policy and government relations at The Nature Conservancy. These instruments could “serve as a critical funding source for ecosystem preservation and restoration”, he adds, through aligning ecological and financial incentives.

Obura was initially sceptical of biodiversity credits, but says his thinking shifted as he realised their potential. In a coastal ecosystem, for example, he suggests that projects that fund mangrove restoration can sequester carbon while also supporting fish species and helping to protect villages from flooding.

Betsy Hickman, nature lead for the Americas at sustainability consultancy Anthesis, says the challenge now for biodiversity credits is to translate theory into practice. “If it was easy,” she says, “it would have already been done.”

It might be assumed that biodiversity credits are simply a biodiversity equivalent of carbon credits. This assumption, to some extent, informed the initial thinking behind the International Advisory Panel on Biodiversity Credits (IAPB). >

A man from the Assolongo ethnic group fishes for clams in the Mangrove Marine Park in DRC.



REUTERS/THOMAS MUKOYA

The panel was established following the landmark COP15 biodiversity summit two years ago to help spur the growth of the biodiversity credit market. "I think when we all started, we kind of thought this was carbon 2.0," the IAPB's co-chair Dame Amelia Fawcett told *The Ethical Corporation*.

However, it soon became clear to the IAPB that key concepts from the carbon market cannot be copied and pasted into biodiversity credits. Perhaps most crucially, whereas carbon emissions in one part of the world can be "offset" by removing carbon from the atmosphere elsewhere, it is now widely accepted that international offsetting cannot work with biodiversity.

In issuing a framework for biodiversity credits at the COP16 summit in October, the IAPB clarified it does not support international biodiversity offsetting. "It is, to my mind, odd to think that you could create harm in Para state in Brazil, and mitigate that harm by giving to a habitat land bank in Wales," says Fawcett. "Biodiversity credits are obviously going to be much more locally specific."

While this stance reflects an emerging consensus, in the absence of international offsetting it is unclear where demand for biodiversity credits in Africa will come from. Indeed, there is still much uncertainty about how biodiversity credits will develop, both in Africa and globally. The approximately 30 projects in Africa are still at an early stage. Globally, [BloombergNEF estimates](#) that credit purchases total less than \$1 million.

A key sticking point relates to how projects measure their impacts. Project developers need robust measurement systems to prove credit sales

Farmers carry harvested rice at a paddy field following the effects of a drought in Mwea, Kenya.

benefit biodiversity.

Fred Teo, CEO of GenZero, climate investment platform for Singapore's Temasek Holdings, told *The Ethical Corporation* that biodiversity credits don't meet the pre-conditions needed to function as market mechanism. Unlike CO₂, there is no single metric that investors can track.

"In some cases we don't have the science to understand the exact impact on biodiversity So how are we supposed to price them? We think it's much better to treat biodiversity as a co-benefit to carbon, and tag on a premium."

VERIFIABLE NATURE UNITS

Nevertheless, several initiatives are underway to create simple ways to compare nature outcomes. African Parks, which manages protected areas

across the continent, partnered with nature equity company The Landbanking Group earlier this year to launch a new product called Verifiable Nature Units (VNU). These "fiduciary-grade" units can be used as the basis for a variety of nature finance mechanisms, such as corporate nature contributions, philanthropy, development assistance, or nature-linked bonds.

The first 14,000 VNUs, raising \$35m to maintain four critical landscapes in Africa, were purchased by two European foundations in September. They appear to have been motivated by the desire to demonstrate a contribution to global biodiversity goals.



In some cases we don't have the science to understand the exact impact on biodiversity So how are we supposed to price them?

FRED TEO, GenZero

Stuchtey said, while not labelled as biodiversity credits, they are based on improved outcomes for nature, such as increase in soil carbon, water retention, or biodiversity, on a one square kilometre parcel of land over the course of a year.

Martin Stuchtey, founder of The Landbanking Group, said that its platform uses AI and remote sensing technologies to monitor and verify the VNUs.

These "fiduciary-grade" units can be used as the basis for a variety of nature finance mechanisms, >



REUTERS/BAZ RATNER

such as corporate nature contributions, philanthropy, development assistance, or nature-linked bonds.

The first 14,000 VNUs, raising \$35m to maintain four critical landscapes in Africa, were purchased by two European foundations in September. They appear to have been motivated by the desire to demonstrate a contribution to global biodiversity goals.

Stuchtey said while VNUs could also be used in voluntary carbon markets, carbon markets set up under the Kyoto Protocol were “never designed to absorb institutional capital in the order of magnitude that we need to fix the problem. That’s why we are trying to shift it away from this paradigm of being just a compensation (offsetting) approach towards being an asset investment approach of treating nature as if it was critical infrastructure”.

Indeed, the IAPB warns that buyers of biodiversity credits can’t claim that purchasing them mitigates their own nature impacts.



To drive demand at a local level, we are going to need to see some kind of enabling policy environment

MONIQUE ATOUGUIA, NatureFinance

Fawcett adds there is “increasing interest” in supply chain insetting. (see [Can insetting stack the cards towards more sustainable supply chains?](#))

This involves companies making investments to boost nature and make their supply chains more resilient. The IAPB gives the example of a project where farmers are paid to adopt practices that reduce the amount of nutrients entering marine ecosystems and harming coral reefs.

And the IAPB recognises that offsetting can be appropriate at a local level. Regulations requiring companies to offset certain nature impacts have operated in several western countries for decades. Applying a similar model to biodiversity credits could allow a company to offset negative impacts to an African forest by buying credits that rehabilitate a nearby part of the same ecosystem.

Monique Atouguia, nature market programme manager at non-profit group NatureFinance, who is based in Johannesburg, hopes that African governments will adopt regulations to foster credit purchases. “To drive demand at a local level, we are going to need to see some kind of enabling policy environment,” she says.

NatureFinance is also optimistic about linking biodiversity credits to bond issuance. Several sovereign “biodiversity bonds” have already been launched with the support of multilateral development banks, particularly the Inter-American Development Bank. These bonds allow issuers to refinance their sovereign debt at lower rates of interest, in return for committing to increasing >

A member of the Ogiek forest inhabitants community climbs a tree to extract honey from beehives, inside the Eburru forest reserve, Kenya.

finance for conservation.

If demand for credits can take off, the potential benefits for conservation are considerable. [The World Economic Forum claims](#) the biodiversity credits market could reach \$2 billion by 2030 and \$69 billion by 2050.

OFFSET CONCERNS

Yet biodiversity credits face significant opposition from conservation groups. During COP16 in Colombia, a global coalition of NGOs – including dozens from Africa – presented a letter voicing strong concerns.

“Biodiversity offsets and credits build on a top-down, fortress conservation model, which is highly ineffective, costly, has often involved human rights abuses and is the wrong response to address biodiversity loss,” the letter stated. It is “either naive or false to claim biodiversity credits would not be used for offsetting”, it continued, warning any credits not purchased for offsetting reasons “are most likely purchased for greenwashing purposes”.



What we don’t want to do is to have people avoid the high-integrity principles for biodiversity credits by coming in through the back door for a carbon credit

DAME AMELIA FAWCETT, IAPB

One of the main criticisms of forest carbon projects is that Indigenous peoples, the traditional stewards of ecosystems, are often bypassed when revenues are delivered and in extreme cases might be forced off their lands.

Atouguia notes that African credit projects have struggled to receive good prices owing to perceived risks. “But when the same credits were bought and then sold by intermediaries in other markets,” she says, “suddenly the price could triple or quadruple, and then the original project developers would not get that money.”

Stuchtey says he believes Landbanking Group’s approach minimises the risk of land grabs because it doesn’t require proof of ownership, only that land stewards are materially improving the land. “We are making sure that they have an ability to bring nature or ecosystem services to market without us having to buy the land.”

Fawcett insists that the IAPB, in designing



REUTERS/JAMES AKENA

principles for biodiversity credits, has deliberately tackled the “issues that have bedevilled the carbon markets”. In particular, she emphasises that the IAPB has worked extensively with Indigenous peoples in designing its principles.

The IAPB is also seeking to differentiate biodiversity credits by clarifying that they cannot be a tradable instrument, at least for the time-being, though some credits could be “stacked”, meaning that a single project could sell both carbon and biodiversity credits separately, or carbon and biodiversity credits could be “bundled” and sold together.

Fawcett argues the IAPB’s principles for biodiversity markets should apply to any carbon credit project that attracts a biodiversity premium. “What we don’t want to do is to have people avoid the high-integrity principles for biodiversity credits by coming in through the back door for a carbon credit.”

She believes that governments and multilateral development banks must work closely with the private sector to get the biodiversity credit market off the ground. However, they are just one of several mechanisms that will be needed to help close the \$700 billion gap in finance for nature. “There will be lots of different ways that African conservation project can be financed.” ●

Terry Slavin contributed to this article

An aerial view of a settlement in Mabira Forest Reserve in Uganda.



Ben Payton is a freelance journalist focused on responsible investment, natural resources and the energy transition. Ben also writes for titles including Responsible Investor, African Business Magazine and fDi Intelligence.

Putting power in the hands of small-scale producers

Terry Slavin reports on how taking out the middle men in commodities like coffee, cocoa and cotton could allow farmers to afford more nature-friendly practices



N

ews earlier this year that Asian clothing factories supplying H&M and Zara were buying cotton linked to deforestation and land-grabbing in Brazil doubtless come as a shock to the two global fashion giants, who pointed to the fact that the cotton had been certified sustainable by the Better Cotton initiative, which in turn said an independent audit had found the three farms named had not breached its standards.

But the [report, by NGO Earthsight](#), reinforces Marc Palahi's conviction that the only way to protect the reputation of big brands, and the biodiversity-rich areas of the world where the raw materials for

VIEW ONLINE

their products come from, is through dramatically shortening supply chains so that much greater value is left with the producers.

"When you look at the value chain of coffee, cocoa, cotton, it's very long and complex, with 15 to 20 intermediaries. Most of the capital goes downstream in branding, distribution, et cetera. And less than 10%, sometimes it's 1% or 2% in the case of coffee, goes to the farmers," he says. "So, what we need to do is to shorten these value chains and mobilise the capital that is lost here, so that we can increase the investments in the horizontal, in the landscape level." >



REUTERS/AMANDA PEROBELLI



Cotton is one of the most environmentally destructive commodities, with the production of a single cotton T-shirt requiring around 2,700 litres of water and outsized amounts of polluting pesticides and fertilisers

Palahi is CEO of the Circular Bioeconomy Alliance, a charity founded in 2020 by King Charles, which was officially launched in November during a reception in the opulent setting of St James’s Palace in London.

The Spaniard, who until last year was director of the European Forest Institute, recalls being invited to have tea with then-Prince Charles at his Balmoral estate in 2019 after giving a speech in Aberdeen on how to transition from a linear, fossil-based economy towards a circular bioeconomy, focused on maximising the use of the Earth’s biomaterial resources, and minimising waste.

The prince asked him to accompany him on a trip to the Solomon Islands, to provide advice on sustainable forestry and the opportunities that a circular bioeconomy approach could offer the island country, which lies to the east of Papua New Guinea.

Four years later, it was clear from companies and communities represented at the St James’s Palace reception, that some of the seeds sown during that first trip together have already begun to bear fruit, with several “living labs” established to demonstrate the potential for brands to source directly from producers.

Two of them have to do with cotton, one of the most environmentally **destructive commodities**, with the production of a single cotton T-shirt requiring around 2,700 litres of water, and outsized amounts of polluting pesticides and fertilizers.

Next year, Armani Group will begin selling T-shirts produced from its Apulia regenerative cotton project in the Italian state of Puglia, among the first field experiments in Europe testing cotton grown as part of an agroforestry system.

Intercropping cotton with alternative tree species leads to improvements in soil health, water usage and helps control pests, reducing the need for expensive chemical inputs. Importantly, farmers are also able to diversify their income.

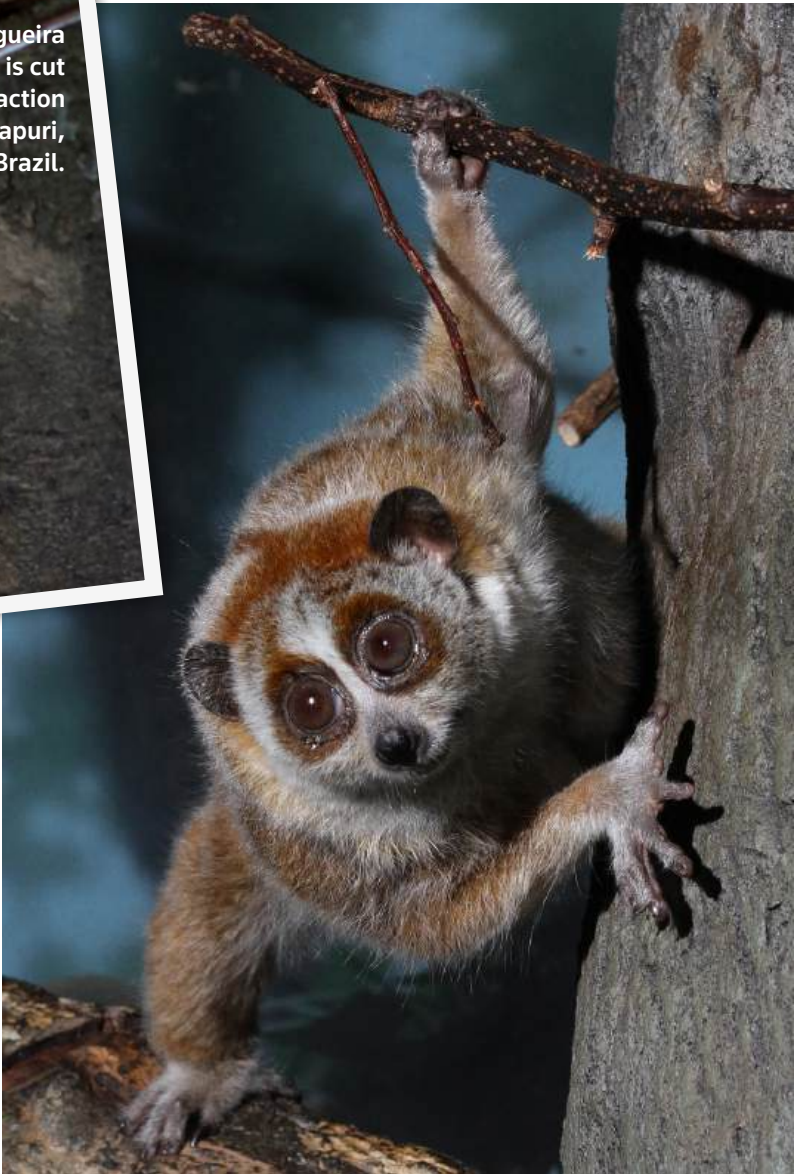
Although at an earlier stage of development, >

Plastic-wrapped bales of cotton in a field in Bahia state, Brazil.



A Seringueira rubber tree is cut in an extraction reserve in Xapuri, Acre state, Brazil.

REUTERS/RICARDO MORAES



CINCINNATI ZOO & BOTANICAL GARDEN

agroforestry-grown cotton is also being introduced in the more challenging environment of Chad, in Africa, where water extraction for industrial agriculture, largely cotton production, has seen Lake Chad shrink in volume by 90% from 1963 to 2001.

Luxury brand LVMH, which has set a target of implementing regenerative agriculture in all its strategic supply chains by 2030, has partnered with the Circular Bioeconomy Alliance and the International Rescue Committee on the project.

But Giorgio Armani is selling its organic T-shirts for 390 pounds. What will it take for agroforestry-grown cotton to enter the supply chains of H&M and Inditex?

Palahi, who is also chief nature officer of Swiss private banking firm Lombard Odier, says the CBA at this stage is working with influential companies that have the interest and resources to devote to it, developing blueprints that others will be able to follow.

CIRCULAR APPROACH

"We are testing how to make these transitions from an extractive, synthetic approach (to commodity production) towards a regenerative, circular bioeconomy approach. It doesn't mean that what we are going to do with cotton and other products (will be) so expensive that we can only do it with the luxury sector."

He points to coffee as a commodity that is ripe to take to commercial scale. In fact Lombard Odier, operating separately from the Circular Bioeconomy Alliance, for years has been developing a strategy to transform agricultural value chains, starting with coffee, by converting farmers to using regenerative and organic agroforestry methods.

Lorises, which are in danger of extinction in Indonesia due to habitat loss and poaching, are valued by organic coffee farmers because they pollinate coffee shade plants and feed on larval and insect pests.

It is now gauging interest by offtakers for finished roasted beans, including a global fast food company, a UK supermarket and a major catering company

Michael Urban, Lombard Odier's chief sustainability strategist, said at the Building Bridges sustainable finance event in December that its strategy, which will invest directly in three coffee landscapes, makes strong financial sense.

A "modest amount of capex", in shade trees, irrigation systems and production apparatus, along with investing in better wages and social security for workers, was enough to enable one coffee farm in Laos to go from selling 1,000 kilograms a year of green coffee beans into the commodity markets for a margin of 40 cents per kilograms, to selling finished roasted beans directly to specialty coffee offtakers for a margin of \$5 per kilograms.

The attraction for buyers, says Urban, is that the >

REUTERS/PAULO SANTOS (BRAZIL)



slashed, affected by heat-induced spread of plant disease.

Palahi says this shows why the move to a circular bioeconomy is so critical. "During these four decades of extractive chemical farming, we have altered the immune system of our land," he says. "We have weakened our natural capital, which is the basis to produce any ecosystem service - and food is an ecosystem service. So now, we are having the lowest resilience in the moment where we are seeing the most extreme climate shocks ever. Just like when you alter the immune system of our bodies, any disease spreads faster and can kill you."

The development of a bioeconomy was a hot topic at the G20 meeting in Brazil, which has championed it as a [path to sustainable economic growth](#).

BIOECONOMY MARKET

And it was a major focus at the COP16 biodiversity talks in Colombia, which saw the launch of a [Pan-Amazon Network for Bioeconomy](#), uniting stakeholders including Indigenous peoples, local producers, impact investors and financial institutions to promote a nature-based economy in the Amazon biome, which is under grave threat from deforestation for timber and illegal mining.

According to the Inter-American Development Bank, the nine countries and 50 million people of the Amazon are [well-positioned](#) to contribute to the global bioeconomy market, which is estimated to be worth about \$4 trillion and to grow to [\\$7.7 trillion](#) by 2030. There are more than 200 natural products that are used by local people in the Amazon, with at least 60 of these identified as having commercial potential.

Materials sourced from the Amazon that are found around the world, including nutrient-rich superfoods such as açaí, natural rubber, which makes up 20%-40% of the soles of [French footwear brand Veja](#), and ingredients for cosmetics companies, notably Brazilian cosmetics company Natura &Co

In an interview at COP16, Angela Pinhati, chief sustainability officer of Brazilian cosmetics company, said Natura sources 45 natural ingredients, working in collaboration with 44 communities across the Amazon.

Earlier this year Natura &Co secured a 1.3 million Brazilian real [sustainability-linked loan](#) connected to regenerating bio-inputs from the Amazon.

"It is a relationship based in transparency and in long-term relationships, and we have a dedicated team, based close to the Amazon, to visit the communities and ensure all the communities are complying with international certification," she says, "We have a goal of reaching 55 bioactives by 2030, we're currently protecting 2 million hectares of >

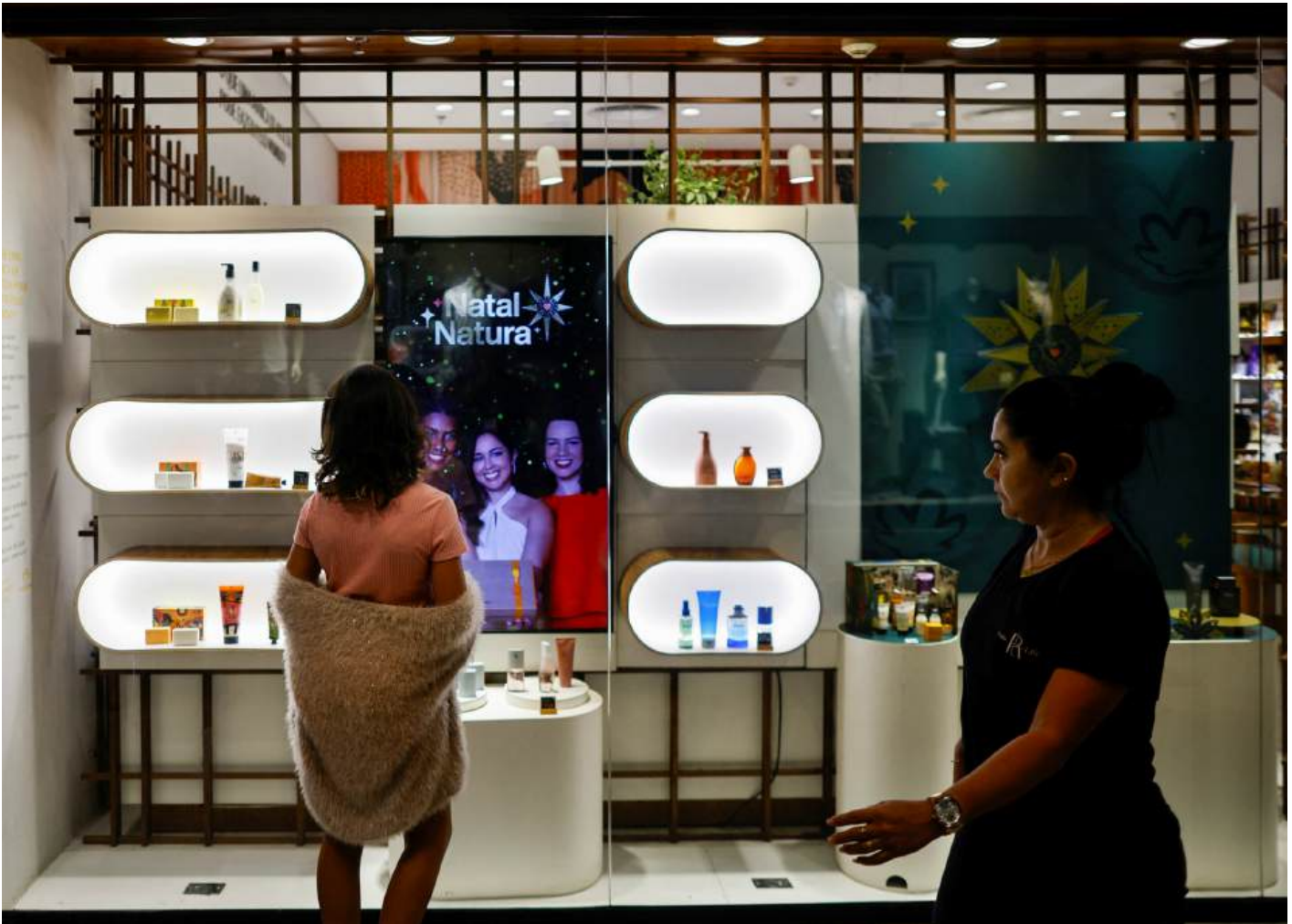
coffee comes with 100 key performance indicators about the beneficial climate and social impact of its coffee, including the increase in soil organic carbon, clean water and biodiversity, along with social capital benefits.

Palahi points out that coffee is the commodity that is most under threat from climate change, with 50% of coffee-producing regions predicted to become unsuitable as the planet warms. Organic coffee firm Slow Forest Foods, a vertically integrated firm selling roasted coffee beans from farms in Laos and Indonesia, is part of the Circular Bioeconomy Alliance.

"We felt confident to start with coffee," says Palahi, "but we will continue with cotton, and cocoa. You know, all of these products need to be produced in a totally different way."

This year coffee prices rose to record highs as drought, including in the coffee heartland of Brazil, badly affected yields. Cocoa yields have also been

Baskets of acai berries destined for market in Abaetetuba, near the mouth of the Amazon river, Brazil.



standing forest, reaching 3 million by 2030.”

But Indigenous people warn that there is a risk that in the rush to grow the bioeconomy, over-extraction will lead to their traditions of respect for nature and ecological balance being lost. This has already been seen in the [intensification of acai](#) into monocrop plantations to meet explosive global demand for the super-food, which one study found was threatening the integrity and biodiversity of the Amazon. There are also rising health and safety risks to workers who have to climb high up the trees to collect the fruit, and carry heavy baskets long distances on foot to markets to sell them.

Fany Kuru, who is the current head of the Coordinating Body of Indigenous Organisations of the Amazon Basin (COICA), said in an interview: “We’re looking at (the bioeconomy) as products that are unique, that come from traditional knowledge, that are done sustainably and benefit local people,” she says, “We interact with the ecosystem according to our view of the universe and our traditional calendar. That needs to be respected.”

Palahi agrees that Indigenous leadership is key to the success of the bioeconomy. One product that

A Natura store in a shopping mall in Brasilia, Brazil.

his alliance is looking to develop commercially is vanilla, which grows wild in the Amazon, working with Indigenous leaders in the Amazon Sacred Headwaters Alliance of Ecuador and Peru.

He points out that the bioeconomy will be in the spotlight in 2025 at the G20 meeting in South Africa and at COP30 in Brazil.

“It’s very important that we use the right definition of circular bioeconomy, otherwise I am very much afraid of some countries using the bioeconomy as a concept to continue doing extractive activities... Even if you are going to replace plastics by biological products coming from monocultures, in the end you are not regenerating nature. I think if we get this wrong, it can be a disaster.” ●

Andrew J Wight contributed to this article.



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Key metrics

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Action lead discussions

**Implementing
business-wide
sustainability strategy**

**Impact of CSRD on
US business**

**High quality data
collection for Scope 3**

**Supply chain
engagement and
investment**

**Communicating
sustainability
ambitions & impacts**



A tree is measured at Mere Plantation's teak forestry project in Ghana.

How insurers could be key to unlocking finance needed for nature

New products from Howden and Swiss Re are helping to restore confidence in the integrity of carbon credits and other nature-based solutions, reports [Mike Scott](#)

With some 55% of the world's GDP either moderately or heavily dependent on nature, [according to PwC](#), much more finance needs to flow away from activities that harm nature towards activities that support it.

Indeed, the [U.N. Environment Programme](#) estimates that annual investments in nature-based solutions (NbS) need to increase from \$200 billion to \$542 billion by 2030 to tackle the planet's climate, biodiversity and land degradation crises.

One important channel could be voluntary carbon markets, with the World Economic Forum saying it could be worth between \$5 billion and \$30 billion per year by 2030, with perhaps two thirds of this channelled into nature-based solutions.

However, in the last three years, only 1.2% of the annual cost-effective potential of NbS has been unlocked by the voluntary carbon market, the WEF says.

One sector that could be key for expanding the >



A hammerhead shark swims in the Galapagos Marine Reserve, which is covered by Ecuador's debt-for-nature swap.

voluntary carbon market and other forms of nature finance is the insurance industry, according to a [recent report](#) from insurer Howden and investment and advisory firm Pollination.

"The industry has a significant opportunity to scale and adapt existing products, as well as deliver new solutions, to drive a step-change in nature finance," the report points out.

"We need to unlock more finance to directly invest in nature restoration," says Dr Carter Ingram, managing director at investment and advisory firm Pollination. The insurance industry "can de-risk

voluntary carbon markets and credits tied to NbS, and provide an incentive to restore or conserve nature by providing lower premiums if companies do so".

He adds: "About \$7 trillion is invested in activities that degrade nature, so there is also a case for exploring where insurance incentives cause loss of nature today."

Charlie Pool, head of carbon insurance at Howden, says insurers' expertise in managing risk means they can de-risk projects and enhance governance, making "the economics more attractive to people who want to find this space".

Earlier this year Howden announced the placement of the first Carbon Credits Warranty and Indemnity (W&I) policy, which provides assurances that the buyers of carbon credits from a forestry project in Ghana can be compensated if social, environmental or financial issues arise that undermine the integrity of the credits.

Such assurances have enabled Mere Plantations, a UK-based company that owns and operates a teak plantation in Ghana, West Africa, to charge a premium for the credits.

Buyers can be confident that the company's credits "are legitimate, verified, and have delivered >



About \$7 trillion is invested in activities that degrade nature, so there is also a case for exploring where insurance incentives cause loss of nature today

CHARLIE POOL, Howden

on their actual emissions removals," says Mark Hogg, CEO of Mere Plantations. "I am particularly excited to witness the positive impact this product will have and its role in reinstating confidence and integrity in the voluntary carbon market."

Water and nature-based solutions will be just as important as land-based projects, and insurance will be key to fulfilling the potential of the blue economy, says Lubomir Varbanov, head of public sector solutions at Swiss Re.

"Having robust insurance programmes in place helps to minimise the impact of adverse events on biodiversity, eco-services and related business activities. By sharing data, we can support deeper insights, product development and innovation."

An example of this is China's first Gross Ecosystem Product (GEP) insurance programme, which insured wetland carbon sinks at Hangzhou Bay National Wetland Park in the Ningbo region.



REUTERS



Ecuador has led the way with its pioneering debt-for-nature swap covering the Galapagos Islands, which deployed \$656 million of private sector funding for marine conservation

Swiss Re provided the risk platform that establishes how ecological products can help to mitigate the risks of major natural disasters, using agricultural risk model algorithms and big-data modelling.

"It's a prime example of how the partnership between government, insurance, banking and wetland management helps achieve carbon neutrality goals," Varbanov says.

DEBT-FOR-NATURE SWAPS

Transferring the risk of projects can also significantly reduce transaction costs, boosting the efficiency of NbS. The government of Ecuador has led the way here with its pioneering debt-for-nature swap covering the Galapagos Islands, which are part of its territory and an important contributor to its economy as well as a globally important ecosystem.

The deal deployed \$656 million of private sector funding for marine conservation and eliminated \$1 billion of foreign debt.

Several de-risking mechanisms were incorporated into the bond offer, including political risk insurance provided by the U.S. International Development Finance Corporation (DFC); reinsurance for half of the DFC's commitment from 11 private insurance companies and a credit guarantee from the Inter-American Development Bank (IADB).

The combination of these solutions increased the credit rating of the bond issuance, in the process cutting Ecuador's cost of borrowing by two-thirds.

Another emerging tool is parametric insurance, which pays out in the event of a natural disaster. The success of the world's first insurance policy for a natural asset, the Mesoamerican Reef Insurance Programme, covering a reef system in the Caribbean Sea, has inspired other countries to look at similar solutions for reefs and mangroves.

The programme's parametric insurance is triggered by weather events that reach an agreed level of severity for factors such as rainfall and wind speed. After Hurricane Lisa in 2022, the Mesoamerican Reef Fund received a \$175,000 payout within two weeks of the storm to finance reef restoration activities.

In the same year, a coral reef insurance policy was developed for Hawaii, with a maximum payout >

A diver repairs coral damaged by a hurricane in the Caribbean Sea.



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Natural catastrophe insurance, often linked to solutions such as satellite and ground temperature monitors, can help to increase investor appetite (by decreasing risk)

CHARLIE POOL, Howden

of \$2 million a year and \$1 million per storm.

The advantage of parametric insurance is that it pays out rapidly on the basis of parameters related to the weather event, rather than by examining the damage done to the insured asset. That enables a rapid response after a storm, which increases the chances of restoring damaged corals.

Pool adds. "Natural catastrophe insurance, often linked to technological solutions such as satellite and ground temperature monitors can help to

increase investor appetite." He points out that while insurers are starting to adapt existing products and design new ones for regenerative agriculture, coastal and forest systems, they can be challenging to price because nature and biodiversity is very localised.

"There's obviously a big difference between a rainforest and the Arctic or a desert but, equally, two fields a mile apart in Oxfordshire can also be completely different," he says.

Still, such products are developing fast and will continue to evolve. "I have no idea what products will exist in a year's time, but I can guarantee that there will be a new suite of products. Encouraging investment in nature is super critical. Insurers play a key role in making these markets investable." ●



Mike Scott is a former Financial Times journalist who is now a freelance writer specialising in business and sustainability. He has written for The Guardian, the Daily Telegraph, The Times, Forbes, Fortune and Bloomberg.

Can more sustainable seafood farming **SAVE THE OCEAN?**



Sustainable ways to harvest marine plants and animals could be key to conserving the ocean. But new financing models are needed, writes **Robin Hicks**

Aquaculture is a leading contributor to the failing health of the ocean. Shrimp ponds in Lombok, Indonesia, have devastated climate-critical mangrove forests and contaminated the groundwater. Seaweed farms in Mindanao, in the Philippines, have smothered seagrass beds and coral reefs, and worsened microplastic pollution.

But experts say that done differently, aquaculture can help to reverse the problems it has contributed to. Sustainable fish farming can relieve pressure on depleted fish stocks. Seaweed farming can sequester carbon and improve air quality.

In fact, “blue food” has higher climate mitigation and economic potential than either ocean-based >



REUTERS/CHAIWAT SUBPRASOM

renewables or transport, according to a [new report by Standard Chartered Bank](#), which estimates that the blue economy could unlock \$15 trillion in value and mitigate up to 40% of current greenhouse gas emissions.

The number of impact-driven ocean-based startups – which include food firms as well as other ocean-based sectors such as renewables and shipping – grew by 91% between 2019 and 2022. The value of early-stage private ocean funds exceeded \$1 billion for the first time in 2022, according to data from Systemiq, an impact investment consultancy.

In Southeast Asia, home to the most biodiverse marine ecosystem, the Coral Triangle, \$72 billion has flowed into sea-based startups since 2020 – a tripling in value over the previous five years.

Though brisk, this growth is far too slow, considering the region’s reliance on the ocean for 30% of GDP and half of its protein intake, says Dr Meri Rosich, chief executive of Oceanomy, a nature-focused finance consultancy in Singapore.

The Standard Chartered report supports that view, estimating that \$1.5 trillion of sovereign funding and \$1 trillion of private market investments will be needed by 2030 – a flood of finance

Workers sort fish at a wholesale seafood market in Thailand.

compared with the trickle going into it today.

According to the Asian Development Bank, only 1% of global finance flows to the blue economy, while ocean protection is the least funded of all 17 of the United Nations’ Sustainable Development Goals (SDGs).

Standard Chartered, which placed the first blue bond in 2018, points out that blue-economy-related solutions are largely located in some of the world’s most under-developed areas, and carry too much risk to attract funding in the form of early-stage equity investing or loans.

Instead, debt-for-nature swaps and blended finance, which uses a combination of guarantees, concessional loans and impact bonds to reduce private investors’ exposure will be key instruments, especially across the developing world. In 2023 there were fewer blended finance deals than in 2022, but they were worth a total of \$15 billion, up from \$9 billion in the previous year.

Disease outbreaks are one of the risks for entrepreneurs, particularly small operators struggling with limited cash flow, who are trying to rear fish or plants in high densities. Many experiments with open-ocean farming have failed, while startups fish in a limited talent pool for >

people with the requisite experience to navigate a nascent sector.

And it is not only a problem that plagues small startups. Singapore-based Barramundi Group, which rears Asian sea bass on mainly plant-based feed in the Johor Strait between Malaysia and Singapore, was forced to restructure this year amid high operating costs and a disease outbreak, having lost \$24 million in the 2022 financial year.

Robert Jones is director of global aquatic food systems for The Nature Conservancy, an NGO that is working in 10 countries helping to develop aquaculture systems that generate positive results for both nature and local communities.



Small-scale seaweed farmers are vulnerable to boom and bust cycles, when they can go from earning money to losing everything

Part of this work involves spacing seaweed farms to avoid overcrowding and nutrient pollution. Jones says small-scale seaweed farmers are vulnerable to “boom and bust” cycles, where they can go from earning money to losing everything when their farms succumb to disease, are overwhelmed by plastic debris or poisoned by cyanide, an illegal fishing practice used to immobilise fish, and highly destructive to coral. “Not to mention these folks are not bankable,” he says.

Nicholas Hill is co-founder and CEO of Coast 4C, an Australian company that claims to be building the largest supply of regenerative seaweed.

The company was a finalist for this year’s EarthShot prize for its work with seaweed farmers in the Philippines to build sustainable supply chains for products that replace petrochemicals in cosmetics, fertilisers and industrial gums and bioplastics. Coast 4C’s regenerative farmers are integrated with community-based marine protection areas, and can generate four times the yield as traditional seaweed farmers.

While Coast 4C has funding from innovation grants and a range of global impact investors and funds, it has not been easy. “Before they bite, they (investors) have to see scalability. It’s chicken- ➤

A man steers a wooden boat through dead fish in a breeding pond in West Sumatra province, Indonesia.



ANTARA FOTO/MUHAMMAD ARIF PRIBADI/VIA REUTERS MARKET



and-egg,” says Hill, who suggests that too much investor focus has been concentrated in the Global North and on processing, and not enough upstream in the Global South, where most seaweed is grown.

The Asian Development Bank (ADB) is among the frontrunners in lowering the early-stage risk for sustainable blue economy ventures in Asia. Last June, ADB signed a \$15 million convertible bond to promote climate-resilient seaweed and barramundi aquaculture in Vietnam through producer Australis Holdings.

Earlier this year, the government of Indonesia forged the [world’s first coral bond](#) through the World Bank, with partners including the Global Environment Facility, The International Union for Conservation of Nature and BNP Paribas. It aims to protect coral reefs and improve fisheries by better managing four priority marine protected areas.

Darian McBain, the former chief sustainability officer of Thai Union, agrees. She is working with the Monterey Bay Aquarium and London School of Economics on a “just transition lab” to explore how small-scale shrimp farmers in India can access microfinance and insurance to help them farm more sustainably.

“If we’re being genuine about a sustainable transition, we need to be investing in people, so that



If we’re being genuine about a sustainable transition, we need to be investing in people, so that they can invest in their activity

DARIAN MCBAIN

they can invest in their activity. Only then will we see a longer term, sustainable outcome,” she says.

McBain says that a misunderstanding of the way the marine environment works among financiers, and the notion that the ocean is “too big to fail” has shortchanged the blue economy.

Fabien Cousteau, grandson of famous aquanaut Jacques, argues that attempts to fill the investment gap are rarely aligned with the way nature works. The ocean explorer, who is behind a plan to monitor the ocean depths in a deep-sea “space station”, [said at a conference in Singapore in September](#) that the pursuit of short-term gains is the cause of many of the problems >

Coast 4C works with seaweed farmers in the Philippines to build sustainable supply chains.



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If we keep funding software and high-cost consultants, we won't scratch the surface of the problem ... we need to understand humanity's impact on nature, whether that is positive or negative

FRED PUCKLE HOBBS, Tathva

that bedevil the ocean. "Nature does not work like the Nasdaq," he says.

Similarly, Cousteau says that standards are sorely needed for the blue carbon market, which is projected to be worth \$190 billion by 2030, to ensure the viability of blue carbon credits in providing genuine ocean protection.

Fred Puckle Hobbs of Singapore blue-economy focused consultancy Tathva, says sustainable aquaculture doesn't typically fit with the get-rich-quick mentality of investors, although investment frameworks such as the Taskforce on Nature-related Financial Disclosures (TNFD) should help

businesses work out how to better assign value to life-giving ecosystems such as mangroves, seagrasses and coral reefs.

What is certain is that better data is needed to guide investments in the blue economy, and smallholders need more capacity support and funding to generate that information.

While there has been a hyper-focus on software to generate the data financiers need to monitor their investments, he says it is the people at the top of the supply chain who need support the most.

"If we keep funding software and high-cost consultants, we won't scratch the surface of the problem," he says. "At the sharp end of the ocean economy, we need to understand humanity's impact on nature, whether that is positive or negative." ●

A man feeds shrimps at a farm in Vietnam's Mekong delta province of Ben Tre.



Robin Hicks is the associate editor of Eco-Business, where he reports on the latest trends in sustainability in Asia Pacific. He has lived and worked in Asia since 2006, and has 20 years' experience in journalism, writing about media, government, technology and sustainability. Robin has a degree in zoology from the University of Bristol, and spends his weekends rescuing wildlife as a volunteer for Singapore animal welfare charity ACRES.

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	Q4 2024	Q1 2025	Q2 2025	Q3 2025	Q4 2025
Reuters Events	Reuters@ COP29 (November, Baku)	Reuters@ Davos (January, Davos)	Net Zero USA (May, TBC) Sustainability Reporting Europe (10-11 June, London) Responsible Business USA (23-24 June, New York) Reuters@ LCAW (June, London)	Reuters@ CWNyc (September, New York)	Sustainability Reporting USA (October, TBC) Sustainability Europe (October, London) Global Sustainability Awards (October, London) Reuters@ COP30 (November, Belém)
Insights Reports	Reuters IMPACT Report 2024 (October)	Sustainability Reporting & Data Management Report 2025 (February)		Reuters IMPACT Report 2025 (September)	
Ethical Corporation Magazine	The Skills Gap Financing Biodiversity	Diversity & Inclusion	AI and Sustainability Sustainable Tourism	Addressing Human Rights Risks in the Supply Chain CWNyc Key Takeaways Report	Paris Agreement 10 Years On Mobilising Finance for the Energy Transition
Webinars	Reuters IMPACT Report 2024 (October) Integrating Software to Meet the Requirements of CSRD Reporting (November)	AI's Role in Scope 3 Data Collection (January) Meeting CSRD's Mandatory Audit & Assurance Requirements (February)	Sustainability Reporting in the Era of AI (April) Sourcing & Managing High Quality Scope 3 Data (May)	Reuters IMPACT Report 2025 (September) Identifying and Investing in High Quality Carbon Credits (September)	Leveraging the CSRD to Support the Decarbonisation of your Business (November)

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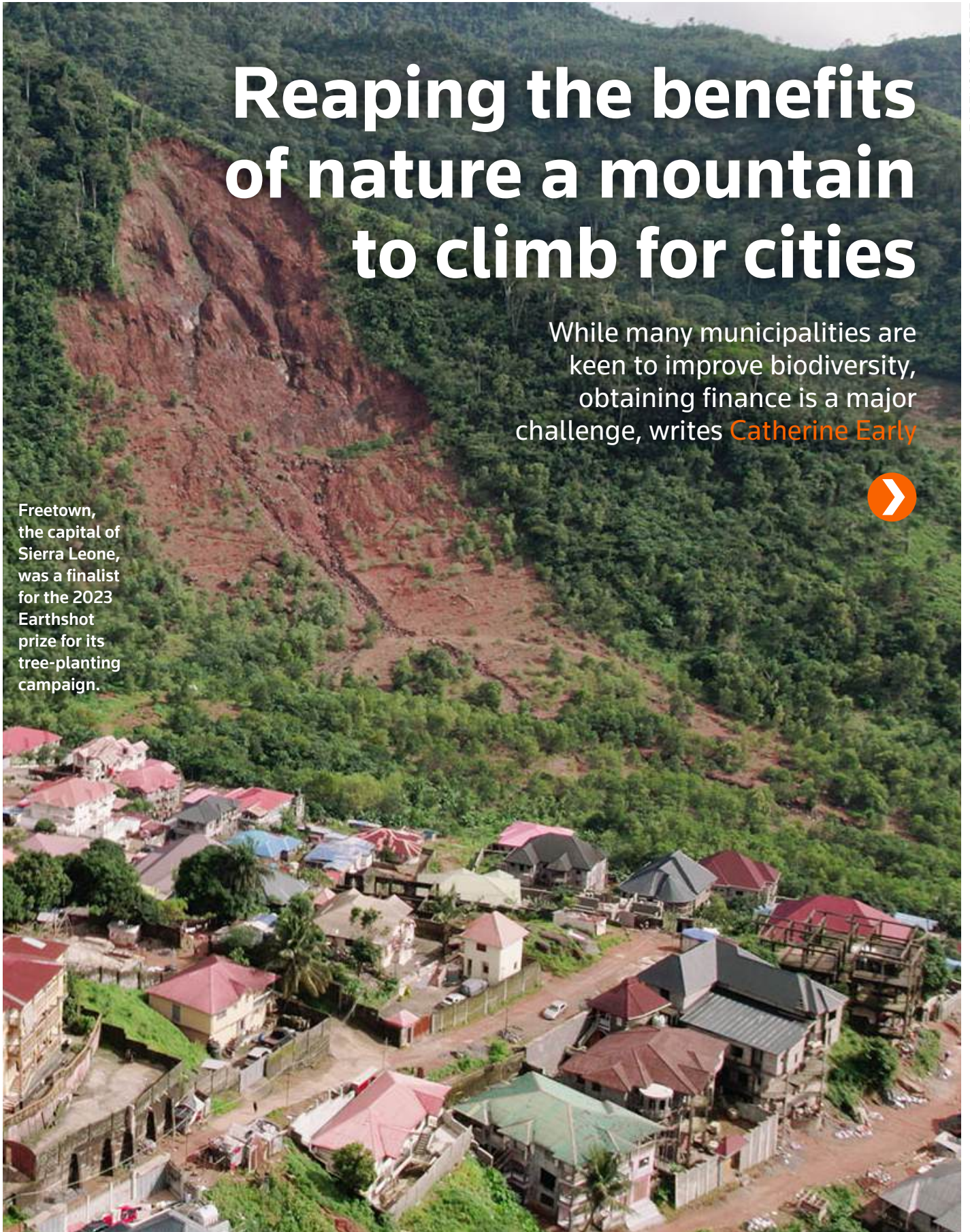
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Reaping the benefits of nature a mountain to climb for cities

While many municipalities are keen to improve biodiversity, obtaining finance is a major challenge, writes [Catherine Early](#)



Freetown, the capital of Sierra Leone, was a finalist for the 2023 Earthshot prize for its tree-planting campaign.





REUTERS/GEORGE ESIRI FOR/LA

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ore than half of humanity lives in cities, and the importance of nature has risen rapidly up the urban agenda in recent years, alongside awareness that green spaces can provide clean air, flood protection, cooling and mental health benefits.

This is reflected in the introduction of a target specific to urban areas in the global biodiversity deal agreed in Montreal in 2022. Signatories agreed to significantly increase the area, quality and connectivity of natural space, both on land and in water, in cities.

However, progress has been patchy because of the huge difficulty many cities encounter in obtaining finance, with larger municipalities in developed countries typically implementing more projects than cities that are smaller, or located in poorer nations.

According to the UN Environment Programme (UNEP), investments in nature and nature-based solutions in cities are “drastically underutilised and underfunded”.

In a [report](#) published in October, UNEP cites a lack of data to support integration of nature in city budgets as one of the key barriers.

Although city authorities have control over local operating and capital budgets, they need to be able to comprehensively track nature and nature-based solutions across budget processes and programme planning to demonstrate the value of all the

Carbon markets could finance trees to benefit highly urbanised environments, such as Lagos in Nigeria.

benefits nature projects bring, it states.

Dr Robert McDonald, lead scientist for nature-based solutions at The Nature Conservancy (TNC), says city authorities lack the skills needed to develop investment plans for nature projects, and this is often linked to data gaps.

“You need to know what the important elements of biodiversity are in the city and what investments would safeguard them before you can write the funding proposal,” he says.

Ingrid Coetzee is director of biodiversity, nature and health for the Global Cities Biodiversity Center at ICLEI, a network of more than 2,500 local and regional governments. She concurs about the lack of expertise in local authorities. In a recent bidding round for grants of up to \$100,000 for nature-based projects, more than 400 cities applied, but few applications met the grade.

“Though the ideas were great, they were nothing more than ideas, so we couldn’t actually use them,” she recalls.

Another issue is that most of the funding for nature projects comes through multilateral development banks (MDBs) and the UN’s Global Environment Facility, which were set up to provide finance to countries rather than at the city level, Coetzee says. “It’s quite a convoluted process and can take years,” she says.

ICLEI is working with the World Bank and UNEP in the [Urban Nature Program](#), which was launched at >

the U.N. climate talks COP28 in 2023. The initiative aims to scale up financing for cities and subnational governments. Several other MDBs are partnering the programme, Coetzee says.

“Often cities don’t have the ability to work directly with the MDBs. The programme brings them into the fold so that they (MDBs) can see what cities need.”

INNOVATION

Nevertheless, some cities are developing innovative ways of obtaining the finance they need. For example, water companies are funding projects that decrease surface water runoff to reduce flood risk and improve water quality.

“They realise it’s cheaper to deal with it before it goes down the sewer than afterwards,” says Tom Butterworth, regional nature director at consultants Arup. Similarly, an insurance provider helped fund naturalisation of a watercourse through a park in east London because it helped reduce flood prevention to homes it insured, he says.

Also in the UK, biodiversity net gain (BNG), where developers must pay for a 10% improvement in habitat either on site or nearby, came into force earlier this year. The regulation is being watched carefully by cities in France, Germany, Spain and Scandinavian countries, according to Butterworth. The International Standards Organisation is developing a BNG standard that could be applied globally.

Another approach is being taken by Sierra Leone’s capital, Freetown, which was a finalist for the 2023 Earthshot prize for its innovative tree-planting campaign.

Rapid population growth has seen 70% of Freetown’s trees cut down, impacting the forested, mountainous peninsula outside the city. The loss of trees contributed to floods and landslides in 2017, which killed 1,000 people. In response, the West African city’s #FreetownTheTreeTown campaign aims to plant one million trees to reduce flood risk, landslides, coastal erosion and extreme heat, while boosting biodiversity and creating good green jobs.

In 2021, the city secured \$1.8 billion from the World Bank and Global Environment Facility for the project, which it followed up in 2022 with \$1 million from the Bloomberg Global Challenge.

It developed a natural capital investment strategy and carried out a natural capital valuation with the International Institute for Sustainable Development (IISD). The World Bank then funded the creation of up to 500 jobs to grow the trees.

The city has passed its one million tree milestone, and now plans to plant, track and grow an extra 15 million trees by 2030, financed through carbon markets.



Because we have been able to not just plant trees, but monitor growth, we have now signed an agreement with a carbon developer

YVONNE AKI SAWYERR, mayor of Freetown

Freetown mayor Yvonne Denise Aki Sawyerr, far left, at the Urban 20 Mayors forum in Brazil.

Freetown’s mayor and co-chair of the C40 Cities network, Yvonne Aki Sawyerr, told the World Biodiversity Summit in September that this had been made possible through the project’s community involvement. Each tree has a GPS-location digital tag, with planters paid to monitor the growth of the tree over a three-year period, and upload that to a digital platform.

“Because we have been able to not just plant trees, but monitor growth, we have now signed an agreement with a carbon developer, which is enabling us to access finance to keep this work going, and also to have platforms where this inspires others,” she says.

Carbon markets are also being used to boost tree planting in U.S. cities. Non-profit carbon registry City Forest Credits (CFC) launched in 2015 in response to the lack of public funding for declining city forests. It enables the private sector to either purchase carbon offsets from urban forest projects, or invest in certified planting projects with health, equity and environmental impacts. >



As of April 2024, the organisation has issued offsets for more than 55 [carbon offset projects](#) in U.S. cities including Cincinnati in Ohio and St Paul in Minnesota. Nearly 300,000 trees have been planted, 2,000 acres of woodlands preserved, and more than 400,000 tonnes of carbon stored over the projects’ lifetimes.

Butterworth cautioned that though the idea of carbon markets for city trees was good, the number of trees that could be planted would typically be lower than in rural locations.

“We need to gain income for the carbon, water management, cooling and other benefits the trees are providing if we are going to get adequate, long-term payment for creation and management of these places,” he said.

CFC’s model accounts for this, tracking and calculating the dollar value of other benefits from the trees, such as reducing stormwater runoff, improving air quality and reducing energy consumption, in addition to the carbon impacts.



In urban areas, there are generally higher project costs, and some challenging issues for permanence. This is the fastest period of urban growth and construction in human history

DR ROBERT MCDONALD, The Nature Conservancy

McDonald of TNC agrees that carbon markets could be an important source of finance for urban trees, as long as projects are carefully monitored to ensure permanence, additionality and avoid leakage issues associated with carbon transactions.

“In urban areas, there are generally higher project costs, and some challenging issues for permanence,” he says, adding: “This is probably the fastest period of urban growth and construction in human history. There are some good first steps, but I think everyone would acknowledge there’s more to do.”

In Freetown, Aki Sawyerr reveals the scale of the challenge. While the city is ramping up its tree-planting ambitions, the neighbouring district where the forest reserve is located, vast numbers of trees are still being cut down. “In 2023, 520 hectares of forest was lost, and in the first four months of 2024, it was 550 hectares.” “The drive to cut down trees is almost going as fast, if not faster, than we are planting,” she says. ●



REUTERS/JOHN SIBLEY

In the UK, biodiversity net gain, where developers must pay for a 10% improvement in habitat, came into force earlier this year.



Catherine Early is a freelance journalist specialising in the environment and sustainability. She writes for Dialogue Earth, Economist Impact, and the ENDS Report as well as Ethical Corporation. She was highly commended in the 2023 Aviva Investors Sustainability Media Awards.



An aerial view of Lake Powell in Page, Arizona, where water levels have declined dramatically as the Colorado River has shrunk.

Bridging the water finance gap

As climate impacts bite, **Mike Scott** reports on how companies are starting to work together to reduce increasing risk

When it comes to corporate exposure to nature risk, water has to be the most salient. Agriculture uses **70% of the world's freshwater**, but it is also critically important to sectors ranging from textiles to pharmaceuticals and semiconductors.

For many years companies took for granted that water would be available in sufficient quantities for whatever they wanted to do. That perception, however, has started to change as the impacts of climate change – from droughts to catastrophic floods to changes in rainfall patterns – start to make themselves felt on water supplies, infrastructure and business operations around the world. Water risks now feature prominently in the World Economic Forum's annual **Global Risks Report**.

At the same time demand is increasing, in part

from new sources, such as the data centres that help to drive the AI revolution. There is also growing concern about pollution from substances such as PFAS forever chemicals, and over-exploitation of reserves.

In the U.S., the Ogallala Aquifer, which runs from South Dakota to Texas, provides a quarter of the water used in U.S. agriculture, irrigating fields that produce \$7 billion of crops a year. But water levels in the aquifer have dropped precipitously thanks to drought and abstraction by farmers.

"There's either too little or too much," says Alison Gilbert, water stewardship lead at consultancy Anthesis. "Companies are having to deal with scarcity, floods and poor quality as well as growing regulatory and reputational risks. And they >

Cows wade through a flooded field after heavy rain.



REUTERS/ENRIQUE MARCARIAN

recognise that they need to do something about it.”

Recognition, however, is not necessarily translating into action. At COP16 in Cali in October, Nature Action 100, the investor-led initiative to engage with companies deemed systematically important in stemming nature loss, [reported in its inaugural benchmark](#) assessment that while over two-thirds disclose a commitment to protect nature, only one had done a comprehensive materiality assessment of nature-related dependencies, impacts, risks or opportunities.

There are a number of initiatives specifically aimed at helping companies report on and manage their water use, including CDP’s water disclosure programme, the Taskforce for Nature-related Financial Disclosures and the Valuing Water Finance initiative at sustainable investment advocacy group Ceres.

Ceres’ water lead, Kirsten James heads up the latter initiative, which involves more than 100 investors responsible for \$17 trillion in assets engaging with some of the world’s largest water users.

“Investors are concerned about the water risks in their portfolios. They see that water crises are increasing in scope and scale. At the same time, companies are at very different stages of their water stewardship journeys,” says James.

“Many companies have looked at the risks in their own operations but are pretty much ignorant about the risks in their supply chains and the water footprint of their suppliers. ... You can do all the work inside your own fence line and still not have enough water.”



REUTERS/DADO RUVIC

She says water risks reside along companies’ entire value chain. “For example, there is a lot of focus on the water consumption of data centres in the tech industry, but the sector is also affected by disruptions in the semiconductor supply chain and also at the miners that provide the raw materials for chips.”

One company that isn’t taking water for granted is PepsiCo, the beverages and snacks producer. “Water is a key ingredient for our agricultural raw materials and a central pillar of our sustainability strategy,” says David Grant, senior director for global climate and water solutions at the company.

Besides exceeding targets to improve water efficiency by 25% from 2015 levels by 2025 and to cut water use in agriculture by 15%, PepsiCo is also one of a number of companies with an ambition to have net-positive water impact (NPWI).

The concept was developed by the [CEO Water Mandate](#), and aims to ensure that a company’s >

PepsiCo has an ambition to have a net positive water impact.



In a watershed that provides water to Phoenix, Arizona, PepsiCo worked with TNC to help local farmers convert from growing water-thirsty alfalfa to barley

contributions towards a healthy water basin exceed their impacts, with a focus on availability, quality and accessibility.

During a session at Climate Week New York, PepsiCo’s chief sustainability officer, Roberta Barbieri, explained how the company is working with The Nature Conservancy to quantify the “stacked benefits” of investing in replenishment of watersheds, beyond just saving water.

In one project in Guatemala, TNC used bio-acoustics to get a baseline measure of insect species in that part of the watershed, identifying them by the fluttering of their wings. It will go back in a year’s time to see what impact PepsiCo’s work has had on insect populations.

In another project, in a watershed that provides water to the city of Phoenix, Arizona, PepsiCo worked with TNC to help local farmers convert from growing water-thirsty alfalfa to barley, which needs

less water, and is grown at a time of year when there is greater availability.

The farmers have increased their revenue stream because a local distillery is buying the barley and malting it for use in the local craft brewery.

“We’ve expanding our thinking, and are moving from just water-saving benefits, to climate benefits from sequestration and biodiversity benefits,” Barbieri said.

WHOLE WATERSHED

Gilbert of Anthesis says addressing water risk is challenging because water supplies need to be looked at from the perspective of the entire watershed rather than just where the water is withdrawn.

The Colorado river in the U.S., for example, is vital to the economy of California but spans many different states, each with its own regulations, before reaching California.

That means that conservation or restoration projects to improve water resilience, such as restoring wetlands, can happen many miles away from a company’s operations.

It also means that cooperation and collaboration are vital. “Even the most ambitious company cannot do it alone. We see a big movement towards collective action really starting to gain momentum among companies and investors,” she adds.

One initiative that is facilitating more cooperation is the CEO-led Water Resilience Coalition. It’s Water Action Hub collects information on 100 priority >

Alfalfa fields, amid extreme drought conditions in Arizona, U.S.



basins “with the highest level of opportunity for collective action from an economic and shared water risk perspective”.

Last year the coalition and NGO WaterAid launched the [Women + Water Collaborative](#) programme, which aims to improve access to clean water and sanitation in water-stressed communities in India. Partners in the project are clothing group Gap, food producer Cargill and pharmaceutical company GSK – companies from different sectors that are all hugely water-reliant, but in different ways.

Besides risks, there are also a lot of economic opportunities arising from the drive to conserve water. PepsiCo, for example, has used advanced water treatment technology such as membrane bioreactors to cut consumption by up to 70%. “At some sites in Latin America, we are effectively independent of the water utility because we can treat the water we consume and reuse it,” Pepsi’s Grant says.

Justin Winter, co-portfolio manager of asset manager Impax’s Water Strategy, says “Water efficiency and reuse are two of the biggest opportunity areas. There are already significant issues around water supply conflicts,” he says. “Semiconductor manufacturers require ultrapure water free from contaminants, for example, so

companies like TSMC are looking at reuse rates of around 90%.”

In the UK, water retailer Everflow, which sells only to business customers, expects to see new markets and products open up thanks to the spread of smart meters for water customers. “There is a huge opportunity to improve water efficiency, reduce consumption by incentivising water-saving and provide better visibility on water use for suppliers and consumers,” says Lois Gill, head of public affairs at Everflow.

And in the U.S., OriginClearis offering decentralised water treatment using the as-a-service model to provide companies with onsite water treatment. Riggs Eckelberry, chairman and CEO, says: “If you can take industrial users off grid and get them to treat their own effluent, you can provide cheaper water to households and corporates can manage their costs.”

Gilbert of Anthesis says it is vital that businesses take action to reduce their dependence on what is a finite resource. “It’s not about doing a good deed. It makes strategic business sense to invest in resilience in the face of growing water stress and the risks that creates for business.” ●

Terry Slavin contributed to this article.

Women carry containers filled with water from an abandoned stone quarry in Uttar Pradesh, India.

Can insetting stack the cards towards more sustainable supply chains?



Reckitt is trialling agroforestry in its rubber supply chain in Southeast Asia.

Reckitt, Danone and Nestle are investing in more regenerative agriculture rather than offsetting, but the practice is full of challenges, writes **Oliver Balch**





As corporate 2030 climate targets creep ever closer, brands are under growing pressure to reduce not only their direct greenhouse gas emissions, but those in their supply chain, which can account for 70% or 80% of their carbon footprint.

This year has seen a flurry of investments in early-stage firms offering solutions. Notable examples include Australia-based AgriWebb,



As a food company, having a positive impact on nature is not only a question of responsibility, it's also a question of resilience and competitiveness

HENRI BRUXELLES, Danone

offering software to help farmers manage livestock, and Germany-headquartered Klim, assisting companies to introduce regenerative agriculture in their supply chains. They landed \$7.2 million and 22-million euros in successful Series C and Series A fundraising rounds, respectively.

Most recently, Earthworm Foundation and University of Oxford spin-out Nature-based Insights, announced a tie-up to help companies quantify the biodiversity impacts of nature-based solutions in their supply chains.

The pair is working with consumer goods giant Reckitt, maker of Durex condoms, to trial the introduction of agroforestry in its rubber supply chain in Thailand, Malaysia and Indonesia.

Unlike offsetting, which permits brands to balance their carbon emissions through third-party projects carried out anywhere in the world, insetting specifically targets emissions created within a brand's own supply chain or industry (so-called Scope 3).

Another platform that facilitates shared action at a landscape level is SourceUp, which connects >

A cocoa farmer holds his produce in the Ashanti region of Ghana.

buyers in agri-commodity supply chains with landscape and jurisdictional initiatives in production areas.

Henri Bruxelles, chief sustainability and strategic business development officer at Danone, is an advocate of insetting: “As a food company, having a positive impact on nature is not only a question of responsibility, it’s also a question of resilience and competitiveness. And if you don’t act now, you’ll be faced with multiple business challenges in five years’ time.”

Nestle is similarly looking to build up its insetting activities. The Swiss food giant is currently supporting 15 [landscape initiatives](#) around the world, aligning with its 2030 goal of sourcing 50% of its goods from producers deploying regenerative farming techniques.

One of these is the public-private [Cocoa and Forests Initiative](#), a forest protection and restoration scheme supported by cocoa and chocolate brands under the umbrella of the World Cocoa Foundation, in collaboration with the governments of both Ivory Coast and Ghana and sustainable trade initiative IDH.

While the seven-year-old project has seen a “high



Brands may initially invest in their supply chain with a carbon-reduction lens, but then they realise that the same investment may increase water availability and improve the livelihoods and resilience of growing communities

number of trees planted” and some ecosystem restoration activities, PUR’s Nobrega acknowledges that progress has been modest. He partly puts this down to the fact that there is not yet a framework in place that will allow companies to unlock carbon finance. “What we need is support from actors like UNFCCC to say to governments, ‘Look, when you’re orienting your NDCs (nationally determined contributions), you should be considering the actions being taken by the corporate sector, and how those overlap.”

One organisation that is trying to establish rules of the road for corporate insetting activity is the [International Platform for Insetting](#) (IPI), part of the brand-led Business for Nature coalition.



TERRY SLAVIN

Other members include fashion brands Kering, Burberry and Chanel, as well as Switzerland’s largest supermarket chain Migros and the French hospitality group Accor.

While the chair of IPI’s technical committee Nikol Ostianova is quick to point to the [numerous upsides](#) of insetting, she is not blind to the challenges for brands looking to address their Scope 3 impacts in a way that is seen as both credible and effective.

While leading standard setters such as the [Science-Based Targets initiative](#) (SBTi) and the [Greenhouse Gas Protocol](#) have offered a degree of guidance on insetting as part of wider advice on Scope 3 land-based removals, the subject is still finding its place within the existing standards landscape.

However, moves towards greater clarity are afoot, Ostianová states, referencing two separate standards currently in development on Scope 3 emissions reductions: one from the Washington DC-headquartered certification body [Verra](#), and the other from the UK nature-based solutions charity [Social Carbon](#). >

A coffee farm in Brazil producing regeneratively grown coffee for Nespresso.

CALCULATING IMPACTS

Underlying this is the fear that brands pursuing insetting strategies could find themselves open to the same charges of greenwashing that have bedevilled offsetting. In a [2023 report](#), for example, two influential environmental groups, Carbon Market Watch and the NewClimate Institute, argued that, without the right oversight, insetting projects could easily take on the guise of “low-credibility GHG emission offsetting”.

The report, which included an examination of insetting efforts by brands such as Nestle, PepsiCo,



Let’s say 100 seedlings come from company A, but 100 also come from company B, but then the farmer might decide to replace the seedlings himself because they die. So what then?

NIKOL OSTIANOVA,
International Platform for Insetting

JBS and Deutsche Post, singles out insetting’s reliance on “non-permanent biological carbon dioxide removals”, such as reforestation and regenerative farming (as opposed to permanent solutions such as geological sequestration).

Feeding these early criticisms are the difficulties that brands face around calculating insetting’s impacts, especially in relation to causation (why an impact occurred), additionality (would it have occurred anyway) and attribution (who is responsible for the impact).

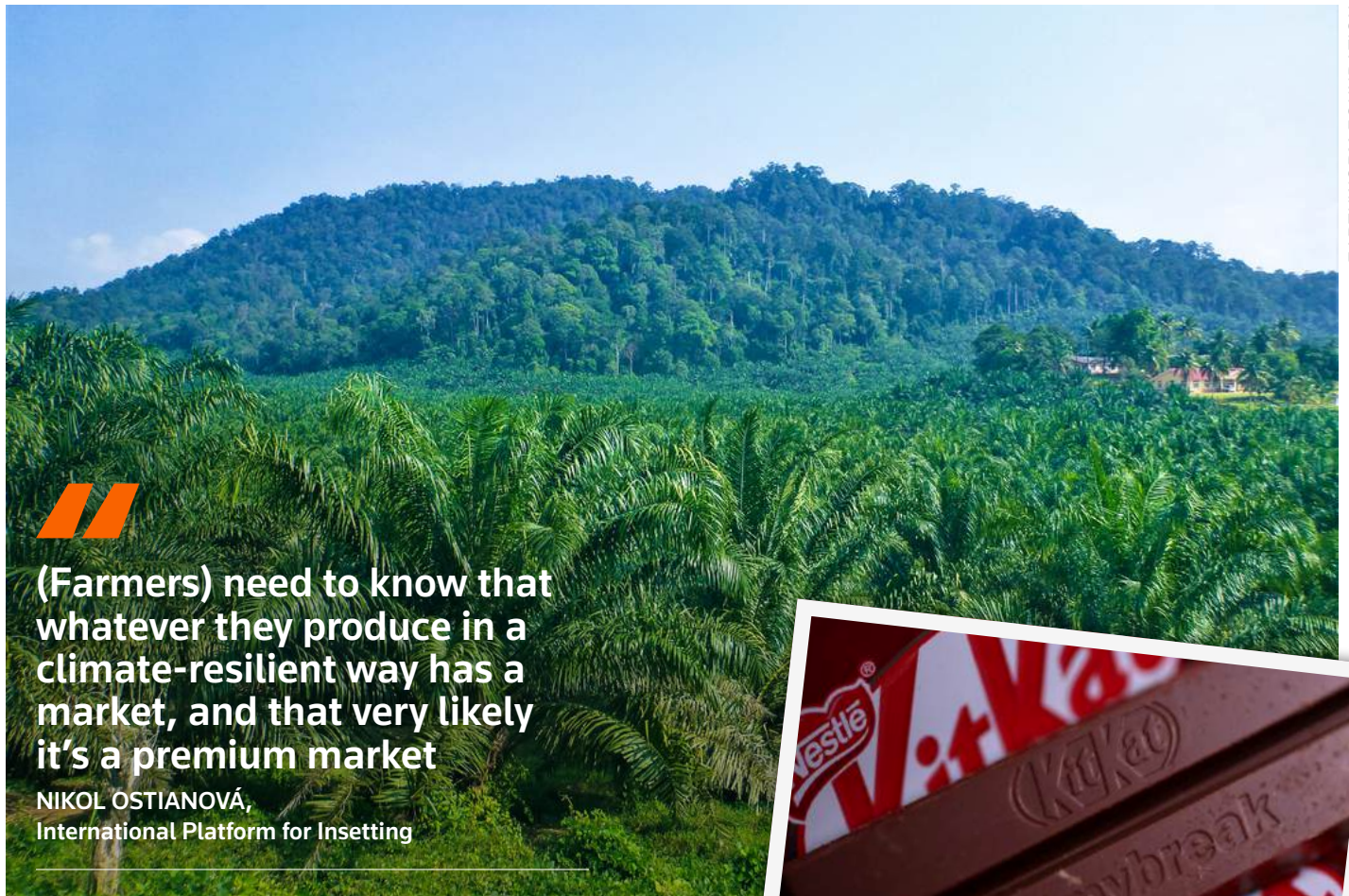
The latter challenge is compounded by the multiple actors that are often involved in insetting projects, Ostianova explains. She gives the example of an organic agriculture project: “Let’s say 100 seedlings come from company A, but 100 also come from company B, but then the farmer might decide to replace seedlings himself because they die. So, then what?”

To avoid brands overclaiming or finding themselves guilty of [double counting](#) (a common criticism in the offset market), she proposes putting the supplier “at the centre” when it comes to providing Scope 3 decarbonisation data. More specific guidance on the topic should emerge in the European Union’s [Carbon Removals and Carbon Farming regulation](#), which was provisionally agreed in April 2024 but still awaits further clarification and formal adoption. >

Agroforestry in Ghana.



MARS WRIGLEY



REUTERS/PHIL NOBLE/ILLUSTRATION



(Farmers) need to know that whatever they produce in a climate-resilient way has a market, and that very likely it's a premium market

NIKOL OSTIANOVÁ,
International Platform for Insetting

A final challenge centres on incentivising suppliers to get on board. While brands may typically cover the bulk of the costs for project management, capacity-building and a certain level of inputs, transitioning to a more sustainable mode of production will inevitably incur upfront capital investment on the part of suppliers.

The fact that nature-based projects typically take a number of years to mature and start delivering positive returns makes economic incentives even more important. Options here include financing mechanisms such as grants or project-based loans, or market-based solutions such as off-take agreements or price guarantees.

For farmers, in particular, who are often culturally resistant to major change, the latter would be preferable, according to IPI's Ostianova: "They need to know that whatever they produce in a climate-resilient way has a market, and that very likely it's a premium market."

It is an argument that Nestle says it has taken on board, in the form of financial support for equipment or inputs (such as biodigesters on a dairy farm) as well as price premiums (through initiatives such as the [Nescafe Plan 2030](#) and the [Income Accelerator Program for Cocoa](#)).

A palm oil plantation in Malaysian province of Sabah, where deforestation risk has been reduced.



A Nestle spokesperson said enlisting expert partners to work alongside participating suppliers is especially helpful, while local farmers advocating for the positive outcomes of insetting can help attract support from public authorities.

Nestle advice for other brands embarking on an insetting? "Start small and show evolution as you progress", the spokesman said. Suppliers are "more confident to join when they see some of their peers enrolled and being successful". ●

Terry Slavin contributed to this article.



Oliver Balch is an independent journalist and writer, specialising on business's role in society. He has been a regular contributor to The Ethical Corporation since 2004. He also writes for The Guardian among other UK and international media. Oliver recently completed a PhD at Cambridge University, focusing on corporate ethics in foreign investment.

COMPANIES 'OWE A DEEP DEBT TO NATURE: THEY SHOULD PAY BACK'



Jill Baker talks to biomimicry pioneer Janine Benyus about why she thinks innovation based on nature will be more critical in future



Japan's bullet train designer Eiji Nakatsu was inspired by watching a kingfisher dive.



W

hen Japanese engineer Eiji Nakatsu was designing the new 500-series Shinkansen bullet train in the 1990s, he was looking for ways to reduce the explosive boom made by the train when it rocketed out of tunnels travelling at 320km an hour.

As well as being an engineer, Nakatsu was a bird lover. And after observing how kingfisher birds slice through the air and dive into the water while hardly making a splash, his team re-designed the train’s nose, shaping it to mimic the bird’s beak. It was an innovation that not only fixed the problem, but allowed the trains to travel 10% faster, and consume 15% less electricity.

It was an example of biomimicry, a term coined by the American science writer Janine Benyus from the Greek bios, life, and mimesis. Biomimicry describes a practice that learns from the strategies developed by living organisms over 3.8 billion years and applies them to solve modern challenges such as sustainable packaging, transportation, energy production and crop production.

As she wrote in her seminal book “Biomimicry: Innovation Inspired by Nature”, released in 1997: “Unlike the Industrial Revolution, the Biomimicry Revolution introduces an era based not on what we can extract from nature, but on what we can learn from her.”

As nature-based solutions gain greater prominence, amid the deepening climate change and biodiversity crises, 66-year-old Benyus believes the movement she created will be even more critical.

Over the last 30 years, Benyus has helped more than 250 companies to adopt biomimicry principles through her Biomimicry 3.8 consultancy, a B-Corp social enterprise she co-founded with Dr Dayna Baumeister.

Clients have included carpet-maker Interface, Boeing, Colgate-Palmolive, Nike, General Electric, Herman Miller, HOK architects, IDEO, Natura & Co, Procter and Gamble, Levi’s, Kohler and General Mills.

In an interview on Zoom, Benyus said: “What we do (with clients) is, we basically ask, ‘what in the natural world has already solved the problem you are trying to solve?’”

John Lanier, the grandson of Interface founder



WIKIPEDIA

UK startup Sparxell makes high performance, plant-based iridescent pigments, inspired by the cell structure of the African Marble Berry.

Ray Anderson describes how, in 1999, Biomimicry 3.8 helped his grandfather transform Interface, maker of Flor carpet tiles, into one of the most sustainable carpet companies in the world.

Other members of the “eco dream team” included RMI co-founders Amory and L Hunter Lovins, and Swiss architect and economist Walter Stahel.

One innovation was a carpet called Entropy. By using colours that mimicked the randomness of nature, it significantly reduced manufacturing waste caused by variations in dye lots and printing.

Another biomimicry inspired innovation Interface adopted was to eliminate glue, and with it the emission of toxic off-gas. The carpet tiles stick to the floor using a non-toxic adhesive, and link together in a way that keeps them from buckling – inspired by the wall clinging properties of geckos and the feather-smoothing motion of birds.

In 2019, Biomimicry 3.8 launched [Project Positive](#), a collaboration of forward-thinking companies, including Google, Kohler and Jacobs to apply biomimicry principles in design of buildings. The U.S. Coast Guard Headquarters in Washington, >

Seprify in Switzerland manufactures a cellulose-based white pigment inspired by *Cyphochilus* beetle exoskeletons.



ANDY PARNELL/WIKIMEDIA COMMONS



INTERFACE

and the Bentley Foundation, sees 250 to 300 applications per year.

Two promising graduates of the programme are UK startup Sparxell and Switzerland’s Seprify.

Founded in 2022 by Cambridge scientists, Sparxell makes high performance, plant-based iridescent pigments, inspired by the cell structure of the African Marble Berry, a perennial plant that sprouts clusters of electric-blue berries, for use in cosmetics and textiles. It helps solve the problem of microplastics in oceans, of which [paint](#) has recently been recognised as being the largest source.

Seprify is a manufacturer of cellulose-based white pigment intended to replace whites using titanium dioxide. Researchers were inspired by [Cyphochilus beetle exoskeletons](#), which are covered with nonuniform scales that scatter all wavelengths of light.

Another example of biomimicry is in Australia, where UK company [Mitravita](#) is trialling a synergistic system that combines 100% solar power, desalination and biofuel technologies to grow food crops on previously degraded land. The system is modelled on nature, using waste products from one process as useful inputs to another.

The Biomimicry Institute, which unveiled a 10-year strategy at a high-profile event at Climate Week New York in September, was also on the ground at this year’s Conference of the Parties to the Convention on Biological Diversity in Cali, >

D.C. is an example. Sitting on a hill overlooking the Anacostia river, the 1.2 million-sq-ft LEED Gold certified campus [emulates](#) the surrounding watershed. It captures and filters water with a multi-tiered green roof that supports pollinators and birds and provides cooling. Rainwater permeates through the plant roots and soil and into a drainage system that leads to a stormwater pond for reuse in irrigation.

An indication of how many companies use biomimicry can be found in the Ray of Hope Accelerator at the Biomimicry Institute, a non-profit Benyus co-founded in 2006. Ray of Hope, which is funded by the Ray C Anderson Foundation, L’Oreal,

Interface’s carpet Entropy mimicks the randomness of nature and reduces manufacturing waste.

REUTERS/FRANCIS KOKOROKO



Colombia, together with New York University's More-Than-Human Life (MOTH) Program.

Benyus and Cesar Rodrigues Gavaria, who heads up the MOTH program at NYU, announced that they wanted to broaden the remit of the Cali Fund agreed at COP16, a facility by which large companies with patents based on DNA found in plants and animals will be asked to contribute 1% of their profits or 0.1% their revenues to preserve biodiversity.



It remains to be seen how the push to expand the remit of the Cali Fund to include patents that rely on biomimicry will succeed, given the hard-fought efforts to establish it in the first place

At least half of the money raised will be earmarked for Indigenous peoples in countries in the Global South, whose territories contain much of the genetic riches relied upon by drugs, cosmetics, food and technology companies.

The Biomimicry Institute and MOTH's initiative calls for new language in the protocol that suggests companies that profit from "bio-inspired innovations" also contribute to the fund.

One example Benyus points to is Sharklet, a significant player in the \$45 billion global antimicrobial coatings market. Sharklet's bacteria-resistant surface technology, used widely in

A Brazilian researcher holds the *Violaceae* plant from the Amazon rainforest, which contains genetic riches relied upon by drugs, cosmetics, food and technology companies.

hospitals, mimics the diamond-shaped patterning of the Galapagos shark.

Benyus's message to companies is that "this initiative we are proposing is a good way to be both be nature-positive and tie it to your innovation story".

She points to the Taskforce on Nature-related Financial Disclosures (TNFD), which has thus far been adopted by 500 companies. The goal of the TNFD is to support a shift in global financial flows away from nature-negative outcomes and toward nature-positive ones, aiming to halt and reverse biodiversity loss by 2030, with a goal of "living in harmony with nature" by 2050.

Benyus says TNFD plays to the strengths of a biomimetic outlook by breaking down the silos between climate and biodiversity planning. In building their [nature transition plan](#), a key component of compliance with the protocol, companies are encouraged to ask, "How can halting and reversing nature loss help climate action?"

However, it remains to be seen how the push to expand the remit of the Cali Fund will succeed, given the hard-fought efforts to establish it in the first place.

[Carbon Brief reported](#) that while many African and Latin American countries had sought a legally binding mechanism on DSI, the fund is voluntary, and payment rates are indicative rather than non-binding. Also, a clause that had asked companies to demonstrate that they were not using DSI was dropped from the penultimate draft.

Negotiators had met with significant resistance from, among others, the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA), which issued a statement warning that proposals for a Cali Fund "could undermine the objectives they aim to support by introducing regulatory and financial barriers that would stifle innovation, delay R&D, and complicate compliance."

Benyus is undeterred. She feels that there are many corporate actors "whose customers would really appreciate this civic gesture. So, it's our job to try to see if we might take all the good work that's been done with DSI and get the same idea applied to the many, many companies who are now mimicking something other than just genetics. A lot of companies are already writing cheques to conservation organisations. They are looking for ways to do this." ●

Additional reporting by Terry Slavin



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INTERVIEW

A farmer ploughs his field in the southern Indian state of Andhra Pradesh.



REUTERS/KRISHNENDU HALDER

Satya Tripathi: ‘We aren’t here to fix the market, we are here to fix the planet’

Oliver Balch interviews the former U.N. Environment chief about his latest venture, the Global Alliance for a Sustainable Planet

When Satya Tripathi addressed a group of senior ethical finance leaders recently, the veteran development economist asked why there is so much talk about “changing finance” and “literally no effort going into financing change”.

Indian-born Tripathi, former [assistant general secretary of UN Environment](#), rejects the “top-down” approach that he says pervades environmental finance.

“A problem created by 8 billion people is not going to be solved by a few governments and a few corporations,” says Tripathi, who spent two decades working in the U.N. “People will have to step up to the plate and change the way they live their lives, and that will happen only when you work with them directly.”

That is precisely what Tripathi is seeking to do with the Green Economy Accelerator for a Just Transition, or GREAT for short. >

INTERVIEW



PLANETIERS



Their idea might be to eventually climb Everest, but these are not people that are at sea level. They are at basecamp

SATYA TRIPATHI

Based at the village level in India, the proposed project encourages smallholder farmers to adopt greenhouse-based permaculture, alongside investments in fruit cultivation and anaerobic digestion.

Due to be formally launched in January at the World Economic Forum’s annual summit in Davos, Switzerland, GREAT is one of a handful of projects developed under the umbrella of the [Global Alliance for a Sustainable Planet](#), a New York-based non-profit coalition dedicated to “catalysing transformative ideas” that Tripathi helped found three years ago.

The project differs from many conventional

nature-based solutions projects in that it centres around organisations that are already active in the field, Tripathi stresses. GREAT’s primary partners include the “greenhouse-in-a-box” startup [Kheyti](#), reforestation charity [SayTrees](#), the rural development specialist [Global Vikas Trust](#), and the carbon offset company (and biodigester provider) [Sow and Reap](#).

None are household names (although Kheyti was [one of the five winners of the high-profile Earthshot Prize back in 2022](#)), but all have proven track records, says Tripathi. The Global Vikas Trust, for instance, has over [25,000 farmer families](#) in its network and has planted 53 million trees to date, while SayTrees has reduced over 1 million tonnes of carbon emissions through a range of small-scale regenerative farming and clean-energy projects.

As he puts it: “Their idea might be to eventually climb Everest, but these are not people that are at sea level. They’re already at base camp, which is 15,000 feet. So, they’re all fully focused on what they want to achieve, but they haven’t scaled.”

GREAT is also proudly low-tech. This partly derives from Tripathi’s scepticism about the “techno evangelists” promoting technologies such as direct air capture, where investors are buying industrially >

Satya Tripathi is a former assistant general secretary of U.N. Environment.

INTERVIEW

sequestered atmospheric carbon at 1,000 euros per tonne in some cases. Not only is the price “nuts”, he says, it (literally) sucks up capital for existing projects that are preventing greenhouse emissions entering the atmosphere in the first place.

“They (the carbon capture industry) say that if you give us the same subsidy that solar got, then by 2050 they can withdraw a tonne of CO2 at \$100 a tonne. Whereas, if you take that same \$100 now and give it to a farmer and say, ‘You know what,



They all have different goals, but as they come together, the whole is bigger than the sum of the parts. Where the Global Alliance fits in is finding these champions, giving them ambition, and then working closely with them

SATYA TRIPATHI

if you avoid chemical fertilisers and pesticides, and if you practice regenerative agriculture, if you sequester carbon that then brings back soil health, soil nutrient, moisture, soil aeration, and so on, then I’ll give you \$100 a tonne.” Now, that can change our food systems, that can change our ecological health,” he reasons.

The project takes a holistic approach: the greenhouses provided by Kheyti use up just a small parcel of land, leaving space for farmers to plant fruit trees on the remainder, which SayTrees is set up to help plant, and which the Global Vikas Trust can support through its agroforestry support. Leveraging the latter’s network of smallholder farmers, meanwhile, gives Sow and Reap a ready entry point to scale uptake of its biodigesters.

“They all have different goals, but as they come together, the whole is bigger than the sum of the parts,” says Tripathi. “Where the Global Alliance (for a Sustainable Planet) fits in is finding these champions, giving them ambition, and then working closely with them.”

Much as corporations and financial institutions may wish to support interconnected, grassroots initiatives like GREAT, such projects are unquestionably labour intensive. Few financiers will have the resources or skillsets necessary to conduct >

Kheyti, a primary partner in Tripathi’s GREAT project, is a former Earthshot Prize winner.



KHEYTI

INTERVIEW

the necessary partner outreach, project framing and market financing.

Tripathi's advice is for investors to train their attention on the organisation pulling such a project together. Is it independent? Can it be trusted? And, above all, is it able to provide hard evidence of solid returns?

WORKING FOR THE CAUSE

That is where an intermediary such as the Global Alliance for a Sustainable Planet can come in, he says. "We play the role of the interpreter. And we keep the likely predators at bay ... We don't work for anybody. Instead, we work for the cause, and we protect all our partners."

Tripathi accepts that it frequently takes the "power of a project coming to life" for investors to feel reassured and jump in. He gives the example of a [reforestation and sustainable rubber project](#) in a buffer zone close to Sumatra's Bukit Tigapuluh National Park, one of the last places in Indonesia where elephants, tigers and orangutans co-exist.

The project was facilitated by the [Tropical Landscape Finance Facility](#) (co-founded by Tripathi when he was at UNEP, together with ADM Capital, BNP Paribas and World Agroforestry centre), which issued a \$95 million sustainability bond.

While tyre manufacturer Michelin initially invested as silent partner, it later put its name to the project, withdrawing a 15-year bond in just five years.

Tripathi also cites an innovative [community-managed regenerative farming project](#) in the Indian state of Andhra Pradesh that he had helped structure through another of his initiatives, the [Sustainable India Finance Facility](#). Back in 2017, in the early stages of the project, he recalls approaching the German development agency KfW for financial support.

"At that stage, we had about 40,000 farmers involved. They (KfW) said, 'Oh, we don't do agriculture. It's tough. We're not interested.'" Fast forward to 2020 and the number of farmers had shot up tenfold.

Then, KfW came back and said, 'Hey, we want to talk. More than that, we want to put up 190 million euros at 0.45% coupon.'

The project, which recently won the acclaimed [Gulbenkian Prize for Humanity](#), now counts almost one million participants, many of them women and all of them pursuing chemical-free farming.

For all his proof points, these are interconnected, multi-party projects being developed and executed in politically and ecologically complex settings. By Tripathi's own admission, it can sometimes feel like "investing in a jigsaw puzzle without knowing what



REUTERS/BEAWIHARTA

The Tropical Landscape Finance Facility facilitated a reforestation and sustainable rubber project close to Sumatra's Bukit Tigapuluh National Park, home to elephants, tigers and orangutans.



SAYTREES

the puzzle looks like once in full colour". Nor are the capital requirements necessarily small. In the case of GREAT, the Cuban-made biodigesters cost \$500 per unit; Tripathi's vision is to roll out one million in total, resulting in an investment ask of \$500 million.

The Global Alliance for a Sustainable Planet is currently working with the responsible investor Federated Hermes to raise the necessary finance, and law firm McDermott Will & Emery, which specialises in blended finance, to package up the deal.

With an offtake agreement in place for the carbon that the project will sequester, the required investment should be easy to secure, Tripathi asserts.

While investors with huge capital assets and strict investment criteria might well balk at the entrepreneurial flavour of such an approach, Tripathi isn't overly bothered. "We're not here to fix the market. We're here to fix the planet," he says. "Once the planet is fixed, the market will fix itself." ●

SayTrees has reduced over 1 million tonnes of carbon emissions through regenerative farming and clean-energy projects.