

Nature-based Solutions Conference 2022 Report

Ensuring that NbS support thriving
human & ecological communities



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Introduction

On July 5-7th 2022 researchers, practitioners and policymakers from across government and industry gathered to discuss the values, governance, metrics and financing of nature-based solutions to address climate change, biodiversity loss and major socioeconomic challenges, locally, regionally and globally.

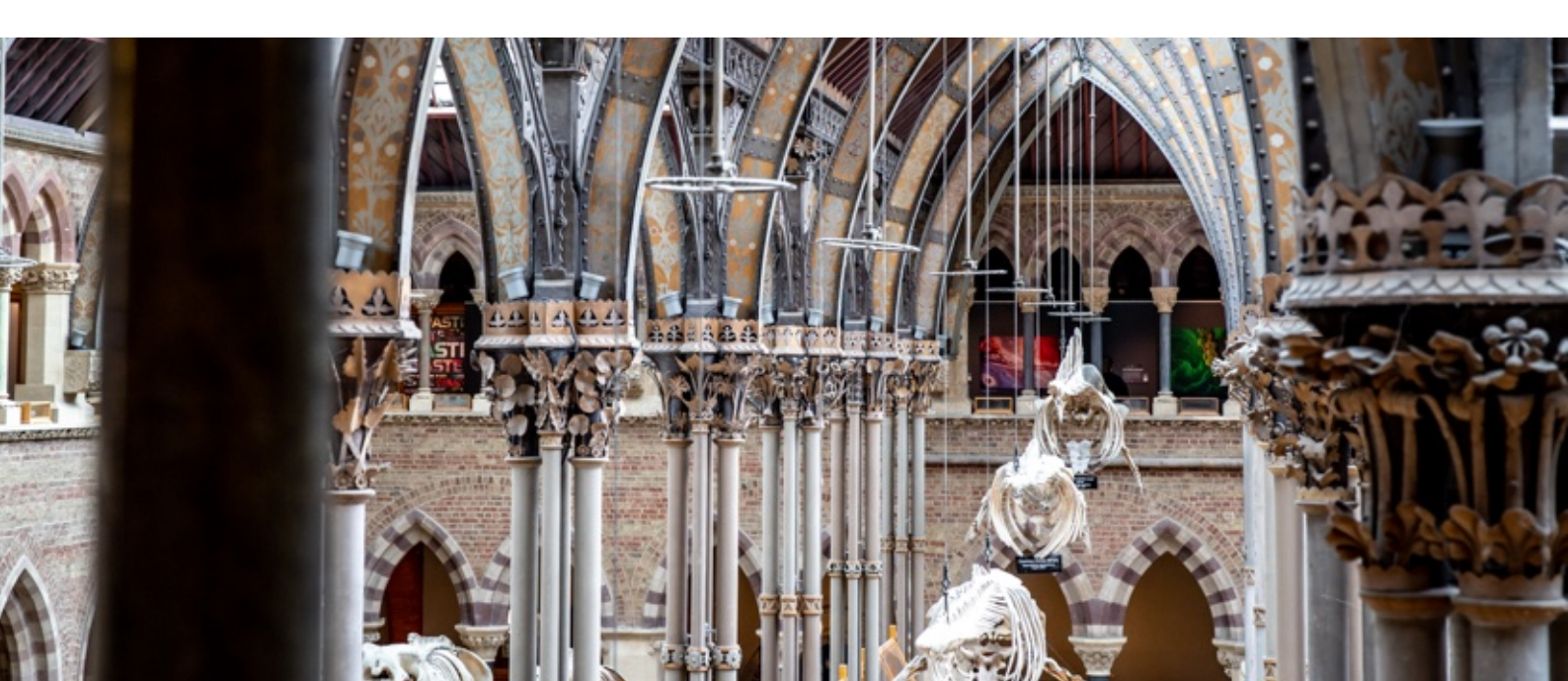
In 13 sessions over three full days, speakers and delegates discussed the value of working with nature to address societal challenges. They considered the multiplicity of stakeholders that are involved and/or affected by nature-based solutions, including their diverse values, interests and rights, and developed a shared understanding as to what constitutes a “legitimate” nature-based solution and how best to overcome barriers to their implementation. Sessions brought together evidence from both science and practice, as well as perspectives from multiple disciplines and sectors on the practical, financial and governance challenges to scaling up nature-based solutions.

The conference was successfully delivered in a hybrid format, with over 300 delegates taking part in person in the Oxford University Museum of Natural History and over 650 joining remotely from all over the world. Its mission was to enhance understanding of the value of nature-based solutions to societal challenges and to help ensure they support thriving human societies and ecosystems without compromising efforts to keep fossil fuels in the ground. Here we present summaries of what was presented and discussed in each session.

For access to all conference posters (presented virtually and in-person), and speaker slides, please visit the [NbS Conference 2022 website](#).

For all session recordings [watch our conference playlist](#).

Photos included in this report were taken by **Juliet Turner** and **Aline Soterroni**.



Day 1

Opening Remarks & Keynotes Day 1

View our [online session page](#) or [watch the session recording](#).

Speakers

Nathalie Seddon | Professor of Biodiversity & Director of the Nature-based Solutions Initiative at University of Oxford (Opening Remarks)

Lord Goldsmith | Minister for Pacific and the Environment at the Foreign, Commonwealth & Development Office and the Department for Environment, Food and Rural Affairs, UK Government (Opening Remarks)

Inger Andersen | Under-Secretary-General of the United Nations and Executive Director of the UN Environment Programme (Opening Remarks)

Pamela McElwee | Professor of Human Ecology at Rutgers University (Keynote)

Summary

Nathalie Seddon opened the conference by posing the critical question of our time: how do we solve the interlinked crises of climate change and biodiversity loss while also increasing the quality of life for all beings on the planet? She highlighted how, against the backdrop of a pandemic, supply chain crises, climate change impacts and war, there is a 'glimmer of hope' in the form of nature-based solutions (NbS). However, despite growing uptake and evidence supporting their effectiveness, there are growing tensions about the term NbS, in particular its association with greenwashing, land grabs, and distraction from systemic change. The goal of the NbS Conference 2022 was to address these concerns and to establish how we can work to ensure that NbS support thriving human societies and ecosystems, without compromising efforts to keep fossil fuels in the ground.

Lord Zac Goldsmith reminded us that we are setting out to tackle the biggest challenge the world is facing and that the demand for real change is huge. He pointed out how "everything we need to do is being done by someone somewhere", so we need to use these islands of the best examples of best practices, and share them and scale them up. Lord Goldsmith stated "I cannot see any future climate conference moving



forward without nature-based solutions", and that the biodiversity COP15 in December needs to be a 'Paris' moment for nature.

Inger Andersen noted that the world is finally beginning to see that the climate and biodiversity crises are fundamentally interlinked, as are planetary health and human health and wellbeing. COP26 was the first time that nature was high on the agenda in a climate COP, with important commitments for governments to protect and restore forests globally, as well as new pledges for support for the role of Indigenous Peoples and Local Communities. She emphasised the importance of increasing finance, particularly private finance, towards NbS, while guarding against greenwashing and ensuring rapid decarbonisation of our economies. "We can't have the public sector investing the taxpayers money into nature, and the private [sector] investing in its destruction." she said "We urgently need to shift harmful subsidies to become nature-positive subsidies." Inger ended with a plea that if we back NbS, then human and nature can once again become allies and thrive for centuries to come.

The Day 1 Keynote speaker, **Pamela McElwee**, asked how we can move from a discussion centering around the potential of Nbs, as this has now become well-established, to more productive conversations around the pragmatic implementation of NbS, including the 'how', the 'where' and the 'who'. She asked, "How do we institutionalise NbS as the default?". The keynote address introduced the themes of trade-offs, values and governance, as well as the hot topics of financing, nexus issues, and transformative change. There are many biophysical and social trade-offs across the biodiversity-climate nexus, and these must be made explicit.

"Just about everything we do for biodiversity is generally good for the climate, but the same cannot be said for the reverse. A lot of things we might do for climate have negative biodiversity outcomes"

- Pamela McElwee

We must deepen our understanding of how costs and benefits are shared between stakeholders, and a plurality of values, local indicators and benefits need to be better incorporated in how we share NbS. There is a need for more research and literature on NbS for nexus issues (the nexus of water, food, energy, health, in relation to biodiversity and climate), where siloed governmental institutions can be a significant barrier to successful integration. Finally, many unanswered questions remain with regards to NbS financing, including how to move past the missed opportunity of using covid recovery packages to include NbS, to now utilising positive tipping points to enact equitable transformative change.

Session 1 | NbS: where are we now, where do we need to be?

View our [online session page](#) or [watch the session recording](#).

Convenors

Nature-based Solutions Initiative (NbSI) and the World Wildlife Fund (WWF)

Speakers

Josefina Brana | Vice President and Deputy Lead, Forests at World Wide Fund for Nature (WWF) – Chair

Elizabeth Maruma Mrema | UN Assistant Secretary General & Executive Secretary, Secretariat of the Convention on Biological Diversity (CBD)

Manuel Pulgar-Vidal | Global Leader of Climate & Energy, World Wide Fund for Nature (WWF)

Stewart Maginnis | IUCN Deputy Director General Programme

Vanessa Perez-Cirera | Chief Economist at the World Resources Institute (WRI)

Andrea Ledward | International Biodiversity and Climate Director at the UK Department for Environment, Food and Rural Affairs (Defra)

Stephanie Roe | Global Climate Lead Scientist at WWF, Lead Author IPCC AR6 WGIII - Co-chair (Q&A moderator)

Summary

Session 1, *NbS: where are we now, where do we need to be?*, set the scene for the conference by reviewing progress made in the field of NbS, where the concept currently sits within policy and practice, where NbS need to be, and how to get them there.

Elizabeth Maruma Mrema opened by emphasising the growing recognition that the climate and biodiversity crises are inextricably linked. She highlighted strong alignment between NbS and Ecosystem-based Approaches (EA; defined as the integrated management of land, water, and living resources that promotes conservation and sustainable use in an equitable way). NbS and EA are complementary and can work in harmony to deliver multiple benefits for climate mitigation, adaptation and biodiversity loss. But she warned that we must have robust biodiversity and social safeguards for NbS, including that IPLCs must be fully involved in the implementation and design of approaches, and that assessments must be made to avoid tradeoffs with biodiversity. Elizabeth also stressed the vital importance that NbS should not distract from decarbonization and that climate change cannot be addressed without drastic and immediate reductions in fossil fuels.

All speakers referenced the new [multilaterally agreed-upon definition of NbS](#), adopted at the Fifth Session of the United Nations Environment Assembly (UNEA-5) in March 2022. This is a significant development that has potential to catalyse the integration of NbS into multilateral policy processes, particularly those of the United Nations Framework Convention on Climate Change (UNFCCC) and Convention on Biological Diversity (CBD), noting that NbS is already

now included in United Nations Environment Assembly (UNEA) and the United Nations Convention to Combat Desertification (UNCCD).

Manuel Pulgar-Vidal emphasised the critical importance that the NbS concept be well-defined and formalised, as this will have a positive knock-on effect for implementation tools and policy. He called for the CBD, as the international authority on nature, to embrace the formal adoption of the term NbS and to be global leaders in recognizing NbS as key for building political traction around nature and climate, while ensuring clarity and facilitating parties' ability to track progress. **Stewart Maginnis** said that the NbS concept is now ready, with strong enough foundations, to be recognized in the multilateral policy agenda and the Rio Conventions, and that the upcoming COP27 and COP15 present critical opportunities to do so. He also encouraged work to strengthen the NbS concept, with consistent messaging, more documentation of early application, the testing of standards (e.g. the IUCN Global Standard for NbS), improved Measurement, Reporting, and Verification, and development of sustainable finance. Economist **Vanessa Perez-Cirera**, meanwhile, pointed to the gap in financing for nature and clarified that although carbon markets can play an important role, they are by no means the most important source of finance, and that we must remove harmful subsidy regimes and use new economic thinking for internalising externalities to enact transformative change.

Lastly, **Andrea Ledward** discussed how international policy can filter down to the national and local policy levels, with examples from the UK. She introduced some of the key tensions around NbS that were discussed in subsequent sessions, such as careful attention to tradeoffs, shared versus separate pots for biodiversity and climate, and concerns around integrity and the commodification of nature not respecting the cultural and spiritual values that nature holds for many IPLCs. Finally, she urged people to maintain political pressure around climate and biodiversity, especially in raising interest and momentum around the CBD COP15.

Key take-homes

- There is complementarity between the concepts of NbS, Ecosystem-based Adaptation (EbA) and Ecosystem Approaches
- NbS is ready for and useful at the multilateral policy level but tensions exist
- Potential trade-offs in NbS outcomes need to be considered - the worst kind of trade-off are offsets in place of emissions reductions



Session 2 | Defining NbS: solutions for whom, by whom, and for what?

View our [online session page](#) or [watch the session recording](#).

Convenors

Rutgers University & IUCN

Speakers

Pam McElwee | Professor of Human Ecology at Rutgers University – Chair

Angela Andrade | Senior Climate Change and Biodiversity Policy Director, Conservation International – Colombia. Chair IUCN Commission on Ecosystem Management

Mathias Bertram | Advisor Global Biodiversity Framework at Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Marina Melanidis | Founder and Development Director of Youth4Nature

Beth Turner | Doctoral Researcher at the University of Quebec in Montreal (UQAM)

Helen Tugendhat | Programme Coordinator, Forest Peoples Programme

Henk Nieboer | Director at EcoShape

Summary

Session 2, *Defining NbS: solutions for whom, by whom, and for what?*, began with **Angela Andrade** and **Mathias Bertram** reviewing the history and development of related concepts which preceded NbS on the international stage and in the CBD, most notably the Ecosystem-based Approach. They discussed the emergence of NbS, a term first coined by the World Bank, initially defined by the IUCN, and more recently formally defined and adopted by the UNEA. Both Ecosystem-based Approaches and NbS recognize the interconnections and feedbacks between the global societal challenges and the importance in approaching them holistically to avoid trade-offs.

“At the core of NbS is the web of life including people and their culture”
- **Angela Andrade.**

The opportunities presented by NbS were highlighted, in particular that they presents a holistic problem solving approach that is building bridges between the SDG Agenda 2030 and the Rio Conventions, and is already widely being integrated in national policy processes (eg. Nationally determined contributions (NDCs) & National Adaptation Plans (NAPs). NbS are also a powerful communication and mainstreaming tool, reaching those outside the biodiversity community, and they offer opportunities for joint financing action.

However, all speakers described key concerns around actions incorrectly badged as NbS, including:

- The misuse of NbS as a carbon offsetting option.
- A lack of stakeholder and rightsholder involvement.
- An over-focus on restoration, afforestation and a 'tyranny of trees'.
- The risk of marginalisation and green gentrification in urban areas.
- Reinforcement of asymmetrical power dynamics.
- A lack of robust monitoring for carbon, biodiversity and social benefits.
- Repeating the mistakes of REDD+ (e.g. human rights violations and forced displacement in the name of climate change and/or conservation);
- Slippage through ineffective solutions.

Marina Melanidis identified two contrasting narratives around NbS. One is around 'leveraging the power of nature', suggesting that NbS are powerful and must play a critical role in addressing challenges. The other is the 'dangerous distraction' narrative, arguing that NbS are diverting attention from systemic change. Existing power dynamics will be reinforced by these narratives unless we meaningfully address this second narrative: clearly prioritising the rights and leadership of IPLCs, and communicating in a way that reflects major shifts in our values.

Beth Turner then presented recent research on the need to recognise that the multiple benefits that flow from nature arise from the interaction between people and nature, and that people and nature exist as part of a socio-ecological system, shaped by complex interactions and feedback loops. She discussed how these interactions in turn have important effects on social-ecological resilience and hence on the sustainability and effectiveness of a nature-based intervention. This understanding of the reciprocal relationships between people and nature has long been an integral part of the worldview of IPLCs across the globe. Building on this, **Helen Tugendhat** emphasised how the transformative change needed to upscale NbS requires that the tenure rights and free prior and informed consent of IPLCs be fully respected.

Key take-homes

- Durable credibility of NbS requires consideration of competing narratives based on power dynamics
- NbS have the potential to deliver transformative change when operationalized effectively, diverse values considered and enabling conditions are created
- Inclusive governance and equitable design, implementation and sharing of costs and benefits are required

Session 3 | NbS in Net-Zero: avoiding greenwashing & supporting sustainable development

View our [online session page](#) or [watch the session recording](#).

Convenors

Oxford Net-Zero and the Environmental Change Institute, University of Oxford

Speakers

Steve Smith | Executive Director, Oxford Net Zero and CO2RE – Chair

Stephanie Roe | Global Climate Lead Scientist at WWF, Lead Author IPCC AR6 WGIII

Aline Soterroni | Research Fellow at the Nature-based Solutions Initiative and Oxford Net Zero

Kaya Axelsson | Net Zero Policy Engagement Fellow at University of Oxford

Pete Smith | Professor of Soils and Global Change, University of Aberdeen

Sean Frisby | Deputy Head – UK International Forests Unit, BEIS

Summary

Session 3, *NbS in Net-Zero: avoiding greenwashing & supporting sustainable development*, outlined the real but limited potential of NbS for contributing to net-zero, and what ways countries and businesses should use policies, offsetting, and MRV. **Stephanie Roe** explained the science behind assessing the potential of NbS to contribute to climate mitigation, concluding that NbS can provide ~5-12 Gt CO₂-eq/yr, which is approximately 10-24% of the total mitigation required by 2050 to keep warming within 1.5°C since preindustrial times. Over 80% of the mitigation potential of NbS arises in lower income nations, where feasibility barriers tend to be greatest. While this potential is significant and needed, NbS cannot mitigate climate change on its own and cannot compensate for delayed emissions reductions. To reduce the uncertainty of the estimates, there is a need for more science and improved models, particularly at the national level.

Aline Soterroni focused on her recent research on Brazil, where around three quarters of emissions come from land use and agriculture, including deforestation. Recent modelling results show that there is no credible pathway for the country to reach net-zero GHG emissions without NbS; in particular protection and restoration. She also found that the protection of ecosystems (including avoided deforestation) has the highest mitigation potential by far in Brazil. However, Aline highlighted how "Brazil's latest nationally determined contribution is not ambitious. It has a net-zero GHG commitment, but it is not a robust plan." In addition to scaling up the ambition in their NDC, Aline discussed how Brazil needs to fully enforce its national forest code policy as well as work directly with the private sector to ensure deforestation-free commodities.

Kaya Axelsson discussed guidelines and principles for assessing the net-zero strategies of governments and companies that include offsetting, as well as how to avoid greenwashing.

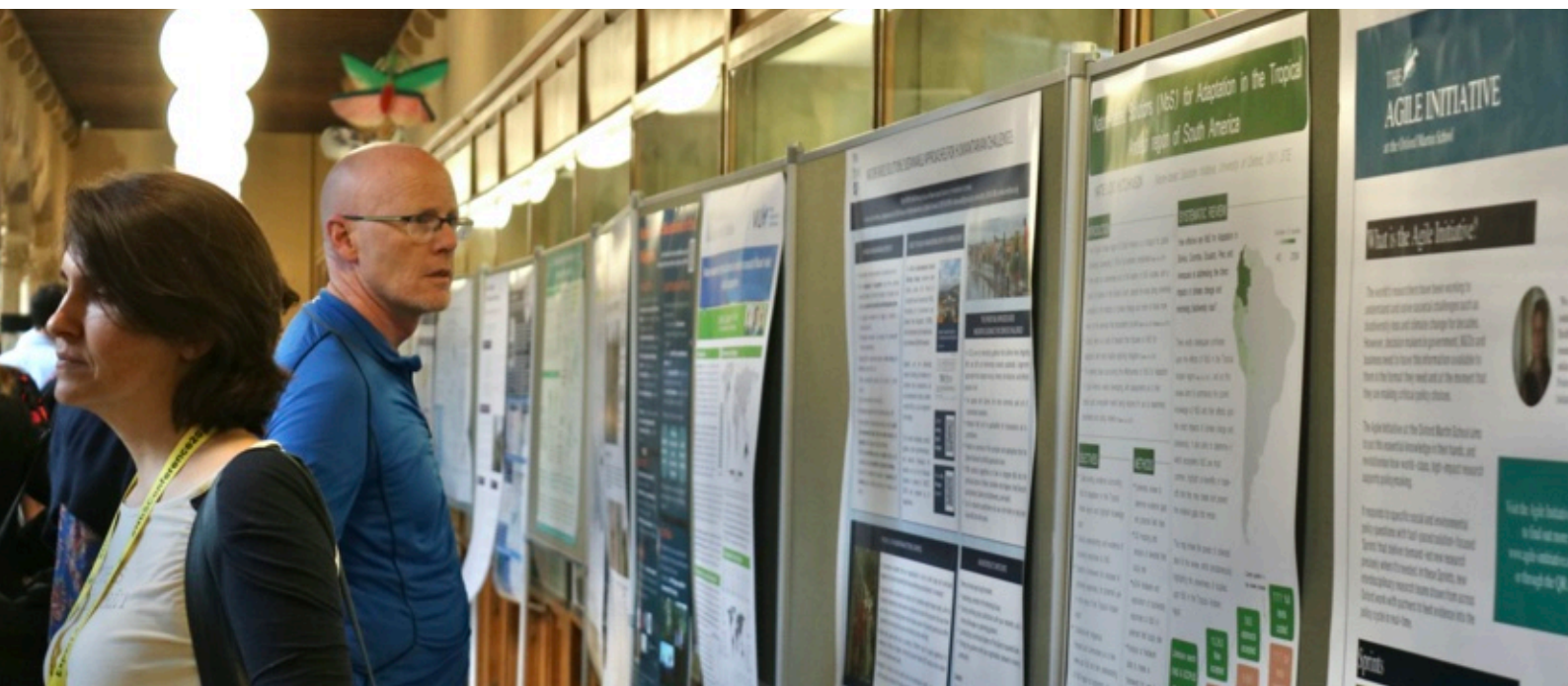
Principles around responsible carbon offsetting include prioritising reducing one's own emissions, including using insetting, while investing in offsets in parallel to account for residual, hard-to-abate emissions only. Kaya emphasised how organisations should increase the proportion of offsets in their portfolio which are carbon removals, shifting from often easier-to-measure reductions (avoided emissions). Offsets should also shift towards long-lived storage which includes NbS, noting that the permanence of carbon stored with NbS depends on strong governance, engaging local communities, long-term finance, ecosystem integrity for ecological resilience, and should also make use of legal mechanisms.

On the subject of MRV, **Pete Smith**, described an integrated framework for MRV, using the example of soil carbon, which combines methods such as long-term and short-term experiments, modelling, remote sensing data, and spatial soil resampling, among others, to improve accuracy. We have made significant progress in addressing the technical challenges around MRV for soil carbon, a notoriously hard thing to measure at scale, which in turn holds many lessons for MRV. Importantly, we need to not only think about MRV for carbon, but also for biodiversity, other markers of ecosystem health, and, crucially, local community benefits.

In the panel discussion, **Sean Frisby** noted the fundamental role of partnerships between governments and local implementers. Discussions centred on the challenges around ensuring a sufficiently high carbon price, including having a carbon price floor set by both governments and coalitions of businesses in the voluntary market.

Key take-homes

- NbS have a real but limited potential to contribute to net-zero by 2050.
- In Brazil, deforestation is the largest source of GHG emissions. Implementing the forest code would enable net-zero by 2050, but the private sector is needed.
- Companies are cautious about setting net-zero targets & relying on offsets; insetting has potential, but remains ill-defined; and long-lived storage requires strong governance, long-term finance & local communities
- Ensuring robust MRV is a key technical challenge for land-use based carbon removals.



Day 2

Keynotes Day 2

View our [online session page](#) or [watch the session recording](#).

Speakers

Marc Palahi | Director of the European Forest Institute, Chair of the Circular Bio-economy Alliance

Belén Paéz | Executive Director of the Pachamama Alliance and General Secretariat for the Amazon Sacred Headwaters Initiative

Gregorio Mirabal | Head of COICA (Coordinator of Indigenous Organisations of the Amazon River Basin)

Summary

In the opening Keynote of Day 2, we learned about cases where Indigenous Peoples have been living in harmony with nature for millenia, and how respect of this ancestral knowledge and wisdom is needed to have a chance of solving the environmental crisis we are in.

Marc Palahi introduced the concept of the circular bioeconomy, which aims to provide sustainable and regenerative wellbeing through the provision of ecosystem services and the sustainable management of biological resources, within the ecological boundaries of the ecosystems that it relies on. "We can shift to valuing life, not consumption, with a circular bioeconomy", he said, the pillars of which are biodiversity, knowledge (including partnerships between scientific and indigenous knowledge), circularity (including reducing, reusing, repairing and recycling), and local and indigenous communities as the social fabric.

We were then joined by **Belén Paéz** from the Ecuadorian Amazon. Belen emphasised that to sustain a healthy bioeconomy we need to listen to the wisdom of Indigenous Peoples. She highlighted the urgent need to help them stop the expansion of oil large-scale mining developments in Amazonia, which are threatening local communities and biodiversity. We were also honoured to hear from **Gregorio Mirabal**, who highlighted the critical role of Indigenous Peoples as the defenders of Amazonian ecosystems, and who often are murdered for the work they do trying to prevent the destruction caused in name of development. He reminded us of the well-known fact, backed up by scientific research, that the areas with the least amount of environmental degradation worldwide have been within indigenous territories and that securing the rights of indigenous peoples is one of the most effective mechanisms for avoiding deforestation. Mirabal called for the [Escazú Agreement](#), an environmental treaty aimed to guarantee the protection of environmental defenders, to be implemented and respected. He also called for a global agreement for the permanent protection of 80% of the Amazon by 2025, and signalled the need for legal security in indigenous people's territories throughout the Amazon, the need for direct financing with permanent technical support, and the recognition of

their right to free, prior and informed consent. In closing, he asked: "Can the Amazon be declared as living world heritage so we can put a stop to the murder and destruction of all living beings in it? Is it possible to save this ecosystem from extinction before it reaches a tipping point and becomes too late?"

Session 4 | Critical role of Indigenous People and local communities in delivering successful NbS

View our [online session page](#) or [watch the session recording](#).

Convenors

International Institute for Environment & Development (IIED) and Forest Peoples Programme

Speakers

Dilys Roe | Principal researcher and team leader (biodiversity), International Institute for Environment and Development – Chair

Helen Tugendhat | Programme Coordinator, Forest Peoples Programme – Co-Chair

Diego Pacheco | Head of the Bolivian delegation to the UNFCCC at COP26

Marisol García | Kichwa youth leader from Peru

Helen Magata | Communications Officer of Tebtebba

Musonda Kapena | Director at Namfumu Conservation Trust in Zambia

Yiching Song | Program Leader at Farmer Seed Network in China

Dismas Partalala Meitaya | Representative of the Ujamaa Community Resource Team in Tanzania

Pam McElwee | Professor of Human Ecology at Rutgers University

Stewart Maginnis | Global Director of the NbS Programme at IUCN

Summary

Session 4, *The critical role of Indigenous People and local communities in delivering successful NbS*, highlighted concerns around the influence of western value systems and worldviews on how NbS are conceptualised and operationalised; particularly the overarching dominance of market-based mechanisms.

Diego Pacheco, representing Bolivia's stance in the UNFCCC negotiations, warned against the commodification of nature inherent to the green economy approach and expressed concerns over a move towards a new environmental colonialism through new binding obligations for developing countries and increasing dependence of developing countries on capitalist financial structures. He critiqued the linking of NbS to markets in the form of offsets, warning that it reinforces anthropocentrism, strengthens the hegemony of market-based approaches,

limits the potential development of different knowledge systems, and dilutes the need to enhance the integrity of ecosystems.

"Capitalist solutions cannot solve the global crisis that capitalism has created"

Diego proposed "Mother Earth-centred actions" using rights-based approaches, common but differentiated responsibility, developing policy instruments not aimed at the commodification of environmental functions and instead strengthening non-market approaches, and recognizing Mother Earth as a living being.

We were then introduced to a case of 'so-called NbS' gone wrong by **Marisol Garcia**, who has been fighting against the REDD+ project in the Cordillera Azul National Park in Ecuador. Marisol described how the protected area excluded Indigenous Peoples, was implemented without their free, prior and informed consent, and with no decision-making power on the management of their ancestral lands. The large revenues generated by the project remain in the hands of the state and one NGO, and the Indigenous Peoples have not had access to the benefits. Instead, their forest is generating wealth for a few privileged people.

Helen Magata echoed the importance of using a human rights-based approach for implementing NbS and looking beyond economic values to cultural and spiritual values, while embodying interdependence, interconnectedness, and reciprocity.

"We need to operationalise indigenous and local perspectives into NBS at every level, focusing and asking what is needed."

Musonda Kapena brought in a much-needed gender lens to the conference, showing how women are the custodians of indigenous knowledge and how their traditions of sustainably harvesting non-timber forest products (such as foods, medicines, and cosmetics), requiring intimate knowledge of the land, have contributed to ecosystem and biodiversity conservation in Zambia, when their voices are heard and valued. "We only have one collective heritage. So we collectively need to come up with solutions for our one collective home".

Yiching Song introduced the case of community seed banks in China as an NbS, which have helped provide resilience to climate change and the covid pandemic, while sustaining agrobiodiversity and supporting food security.

Dismas Partalala Meitaya, from the Masaai in Tanzania, highlighted the vital importance of land tenure for hunter-gatherers, and Indigenous Peoples globally, including governance and legal tools such as village certificates and zoning laws which, by securing their access to natural resources, secure their livelihoods.

While there were further warnings voiced in the session discussion around carbon markets 'poisoning the NbS well' and the potential for maladaptation to occur, the session concluded with the need for translating the well-founded principals on paper into successful

implementation on the ground. This can only happen when communities are allowed to engage in fair dialogue and state their true priorities, when enough time is allowed for trust to be built, when financing is long-term and criteria are flexible, and when proper grievance mechanisms which have legitimacy amongst the stakeholders using them are in place.

Key take-homes

- "We do not inherit the earth, we borrow it from our children" - African proverb highlighted by Musonda Kapena.
- Concerns around solutions designed around western value systems, market-based mechanisms, and private sector control; can clash with IPLC worldviews.
- The economic value of NbS must move beyond a narrow lens to a biocircular economy.
- NbS should be designed and operationalized through rights-based approaches, not at the expense of indigenous lands, rights, and livelihoods.
- Working with nature can help people better cope with crises, climate breakdown, via a focus on locally-led, participatory approaches.
- Knowledge resides across all people, especially indigenous women e.g. forests and ecological interactions nurture NTFPs.
- Technical and financial resources are needed to ensure that rights-based approaches materialise on the ground.
- We must be discerning about NbS – calling out projects when they are not true NbS.



Session 5A | Understanding and ensuring positive outcomes for biodiversity and ecosystem health of NbS for climate change mitigation and adaptation

View our [online session page](#) or watch the session recording.

Convenor:

NbSI and UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC)

Speakers

Valerie Kapos | Head of Nature-based Solutions at UNEP-WCMC – Chair

Robin Chazdon | Professor, Tropical Forest Restoration, University of the Sunshine Coast, Queensland

Ceilia Harvey | Ecosystem-based Adaptation Specialist at UN Environment Programme

Tom Finch | Conservation Scientist at the Royal Society for the Protection of Birds

Lian Pin Koh | Chair Professor of Conservation, National University of Singapore

Isabel Key | Doctoral Researcher at the University of Edinburgh

Samantha Lacey | Business Development Director for NatureMetrics

Summary:

Session 5, *Understanding and ensuring positive outcomes for biodiversity and ecosystem health of NbS for climate change mitigation and adaptation*, highlighted that although there are significant potential synergies (e.g. biodiversity & climate mitigation), there is a need to recognize and manage potential for trade-offs between biodiversity, climate, and social outcomes. Good NbS must, by definition, support biodiversity. However, as not all projects badged as NbS have been shown to achieve this in practice, ways by which we can ensure and assess positive biodiversity outcomes were discussed.

The first speaker, **Robin Chazdon**, began by emphasising how securing multiple benefits from NbS in an equitable manner requires a proactive approach, including a long-term planned deliberate response that is holistic.



Val Kapos introducing Session 5A

“Within a socioecological system the ecosystem controls the flow of services. NbS help to modulate the flow, and with prudent use and management enables the cycle to continue.” - Robin Chazdon

Celia Harvey then spoke about the need to scale up NbS for adaptation (Ecosystem-based Adaptation - EbA) and its potential for helping governments deliver on multiple interlinked policy agendas and thus the importance of integrating planning for EbA into all sectors, including infrastructure and agriculture. She pointed to the need for deploying innovative approaches to finance EbA, and described some opportunities to attract greater public and private investment in EbA, such as green bonds, resilience bonds, and debt for nature swaps.

Tom Finch presented results from scenario modelling work for the UK, mapping the potential of NbS for mitigation potential, biodiversity (bird populations), food production, and land use for renewable energy, and identifying the locations within the UK that opportunities for benefits between these would be the highest, as well as where the trade-offs would be.

“To balance competing objectives, NbS need to be done smartly - such as via strategic land-use frameworks, to maximise benefits and minimise costs.”

- Tom Finch

Lian Pin Koh then presented research on the potential of NbS for mitigation on a global scale, mapping priority regions for green carbon, blue carbon and urban carbon sequestration, as well as where the greatest potentials for financial returns on investments are. He showed how more benefits for food security, water security, and biodiversity could be delivered with a higher carbon price.

Isabel Key then explored the evidence as to whether NbS for adaptation supports ecosystem health; outlining findings from the preprint "Can NbS deliver a win-win for biodiversity and climate-change adaptation?". 88% of NbS interventions evaluated in the study which had positive adaptation outcomes also had positive ecosystem health outcomes, revealing that win-wins were common. However, most interventions only used one or two metrics to assess ecosystem health, and that this and other limitations can result in an incomplete and narrow view of ecosystem health. To improve assessments of ecosystem health, future evaluations should to assess at least three types of metrics (structural, taxonomic and functional), have a good taxonomic coverage, record whether species are non-native and if there is a risk of invasive species, and should work closely with IPLCs to ensure appropriate and relevant metric choices and incorporate traditional ecological knowledge.

Delving further into innovative methods for the MRV of biodiversity and ecosystem health was the final speaker, **Sam Lacey**, who spoke about the transformational opportunity of using eDNA to monitor and quantify biodiversity - by enhancing, calibrating, and creating measures of ecosystem health, habitat quality measures, and biodiversity proxy data. eDNA is a useful tool

applicable in a range of environments to form measurable outcomes through much-needed evidence, ground-truthing of models, which can provide certainty to investors who demand clarity for investments.

Key take-homes

- Achieving multiple benefits from NbS (biodiversity, climate, food & water security, justice) requires holistic planning, proactive measures, and understanding of key trade-offs.
- Scaling-up NbS for adaptation (EbA) requires 1) supporting balanced stakeholder engagement (IPLCs, business and finance sector) 2) diverse funding mechanisms.
- Managing complex trade-offs to promote biodiversity, social, and climate outcomes requires strategic, whole-system thinking and land use framework.
- There is significant potential of NbS for mitigation (and other benefits) in tropics, notably SE Asia, including blue carbon.
- There are advances in monitoring impacts on biodiversity from NbS (eDNA) but ecosystem health is multidimensional and must incorporate IPLC knowledge.



Session 5B | Governing NbS: Fostering inclusive and restorative land use governance

View our [online session page](#) or [watch the session recording](#).

Convenors

Environmental Change Institute Land-Use Group, University of Oxford

Speakers

Mark Hirons | Research Fellow at the Oxford Environmental Change Institute – Chair

Mari Mulyani | Teaching Associate at Oxford's School of Geography and the Environment – Online chair

Constance McDermott | Associate Professor at the Oxford Environmental Change Institute
Rachael Garrett | Assistant Professor of Environmental Policy at ETH Zurich

Chairil Abdini | Secretary General of Indonesian Academy of Sciences

Eric Kumeh Mensah | Research Scientist at Natural Resources Institute Finland

Jasper Montana | Research Fellow in Human Geography from the University of Oxford – Discussant

Summary

Session 5B, *Governing NbS: Fostering inclusive and restorative land use governance*, brought to the forefront the concept of equity, and that equity needs to be considered at all stages of NbS design, implementation, and monitoring & evaluation.

Constance McDermott opened by highlighting the proliferation of high-level pledges and global targets and asked us to think about who or what do they make visible or obscure, and what the implications are for procedural equity (e.g. participation in decision-making), recognitional equity (e.g. recognizing diverse knowledge systems), and distributional equity (e.g. distribution of benefits and costs between actors in a system). External agenda-setting can reinforce inequality and power dynamics through the need for simplification and standardisation, as well as MRV through 'the tyranny of numbers', which can exclude those unable to conform and place burdens on IPLCs.

"We need to urgently stop offloading the costs and burdens of sustainable initiatives onto those not at the table". - Constance McDermott

Rachael Garrett elaborated on the question of what we really mean by equity, the different values placed on land by different groups, and presented case studies of governance failures. In one case, supply chain policies aimed at reducing deforestation ended up pushing out smallholders from the supply chain, as they were not able to verify and prove that their product was deforestation-free, even when it was.

Chairil Abdini described the case of palm oil in Indonesia and spoke about the problems with land tenure conflict between villagers and large plantation owners, and the weak bargaining power of smallholders. Finally, **Eric Kumeh Mensah** told us that there is no one-size-fits-all approach to governance and that we need to think about who is leading and deciding about these approaches. Importantly, designing an equitable decision-making process itself needs to be a participatory process.

During the discussion speakers considered where to enact governance interventions to enable transformative change, where it was noted that supply chain governance needs to also reach small actors outside the supply chain to be successful. Speakers debated the role of using technology for global monitoring, versus placing bigger trust in IPLCs to continue doing what works best in their local context, noting that a focus on quantitative targets can mean that unless one can prove that their livelihood contributes to global challenges, then they are invisible. Moreover, mechanisms for knowledge exchange need to be improved upon, as there is often no procedure for information to go back up the chain from local people to funders.

Key take-homes

- Global targets for biodiversity need to account for equity otherwise they will not succeed – setting targets through more inclusive participation is key
- How are we defining equity? Recognitional, distributional, and procedural equity need to be included.
- Distributional equity requires recognizing the presence of multiple values that underpin stakeholder trade-offs.
- Designing an equitable decision-making process itself needs to be a participatory process.
- Equity needs to be considered at all stages of NbS design, implementation, and monitoring & evaluation.

Session 6A | Understanding and overcoming obstacles – when do NbS not deliver for people, biodiversity, or climate and why?

View our [online session page](#) or [watch the session recording](#).

Convenors

World Business Council for Sustainable Development (WBCSD)

Speakers

James Smith | Director, Natural Climate Solutions, World Business Council for Sustainable Development – Chair

Forrest Fleishman | Associate professor in the Department of Forest Resources at the University of Minnesota

William Anderegg | Associate Professor, School Of Biological Sciences, University of Utah

Giulia Carbone | Director, Natural Climate Solutions Alliance, World Business Council for Sustainable Development

Jean Robert Bwangoy | Project Director for the Mai Ndobe REDD+ project

Anna Lehmann | Global Climate Policy Director, Wildlife Works

Edit Kiss | Chief Investment Officer, Revalue Nature

Summary

Session 6A, *Understanding and overcoming obstacles – when do NbS not deliver for people, biodiversity, or climate and why?*, explored when, why and how interventions badged as NbS fail and how those failures should be addressed and further prevented in the future.

Forrest Fleishman presented a series of reforestation studies in India, which found no difference in land cover following decades of government tree planting schemes, ultimately resulting in failure. This was due to a hostile administrative system, arising from colonial legacies of profit-extraction and badly functioning institutions, while attempts at reform were hampered by complexity and entrenched political power. Instead, successful interventions are those that focus on democratising decision-making, reforming land tenure systems, and raising living standards. NbS must address the root causes of deforestation and environmental degradation, which are often export-oriented agriculture and land tenure insecurity. NbS are often touted as low-hanging fruit that are ready for deployment, low-cost and high-potential for benefits, but they require deeply complex institutional and political changes to create an enabling environment. Interventions which encourage community forestry and agroforestry are more likely to be successful in India and similar contexts, as their entry point can be to improve livelihoods first and foremost.

After exploring political and institutional barriers, **William Anderegg** discussed biophysical barriers to good NbS implementation, in particular the biophysical risks of fire and pests that

can compromise NbS permanence. Currently, forest offset protocols are lacking best-available science to estimate their permanence risk. This means that the actual risk is much higher than what the offset buffer pools are prepared to handle and therefore these and other related policies and protocols must be reassessed. Open-access scientific information, including publicly available climate risk maps, datasets and tools are urgently needed for this science to be widely shared and implemented. Furthermore, modelling the projections of risks to ecosystems under different climate scenarios shows that we must halt the use of fossil fuels as climate change will render NbS less effective.

Next, **Giulia Carbone** made the point that offsets, when used after all other decarbonization efforts following the mitigation hierarchy, need to be of highest quality, which involves paying attention to details of the local context, to relationships between all involved parties, to local policies and to timing. **Jean Robert Bwangoy** described a successful case study of REDD+ in the Democratic Republic of the Congo, where a big challenge has been enhancing the understanding among local people of the concept of carbon credits. **Anna Lehmann** delved into the importance of Indigenous Peoples in protecting ecosystems, stressing how we must create “eye-level partnerships” with them, make offset project contracts fully transparent and open-source, and ensure that free, prior and informed consent is not just done as a box-ticking exercise. Lastly, **Edit Kiss** brought in the perspective of the investor and financial community to help address the challenges and risks mentioned, stating that local communities should not be responsible for shouldering the financial risks of such offset schemes.

The session concluded that NbS are not a silver bullet, that trade-offs are pervasive and challenges, particularly those of institutional change and permanence risk, are significant, but that these can be mitigated through tailoring interventions to local contexts, addressing root drivers, considering land tenure reform, incorporating the latest scientific research, and working closely with IPLCs.

Key take-homes

- It is critical to address root causes of land and biodiversity degradation to provide an enabling context for NbS (no silver bullet, these are deeply complex and political).
- Science plays a critical role to ensure NbS deliver for people, nature, or climate and why, e.g. assessing climate risk.
- Offsets need to be used in-line with the mitigation hierarchy, and of highest quality (robust environmental and social safeguards).
- Generating quality offsets requires paying attention to local context, including relationships between implicated stakeholders and the policy context.

Session 6B | Financing NbS: delivering money when and to where it matters

View our [online session page](#) or [watch the session recording](#).

Convenors

Oxford Sustainable Finance Group, Smith School, University of Oxford

Speakers

Ben Caldecott | Director, Oxford Sustainable Finance Programme, & Associate Professor, Smith School for Enterprise and the Environment – Chair

Lorenzo Bernasconi | Head of Climate and Environmental Solutions at Lombard Odier Investment Manager

Abyd Karmali | Managing Director, ESG & Sustainable Finance at Bank of America

Rhian-Mari Thomas | Chief Executive Officer at Green Finance Institute

Dora Nsuwa Cudjoe | Program Coordinator for the Climate Investment Funds

Summary

Session 6B, *Financing NbS: delivering money when and to where it matters*, discussed how to unlock more private finance to meet the significant biodiversity funding gap of ~\$600-800 billion USD per year, and likely increasing.

Lorenzo Bernasconi opened by outlining innovations to support an economic transformation. He highlighted the need to get to scale through use of a jurisdictional approach - working with national and subnational governments, and including IPLCs. He spoke of the need to work on both the demand and supply side of carbon markets, including putting in place risk mitigation measures and having better market guidance from standard setters. He also mentioned that some principles can discourage investment away from good NbS, when they overemphasise the need for removals over reductions and long-term over short-term storage, pointing to the confusion over whether and when NbS is considered long-term storage or not.



Abyd Karmali reminded us that public finance should be there to de-risk investments and that public capital needs to be more surgically deployed and much better at capturing private capital at scale. He then outlined three recommendations for financing:

- Multilateral development banks should use their balance sheets to mitigate risks faced by the private sector, & should co-invest with the private sector, not compete.
- The potential of Article 6 is significant to support countries to deliver their NDCs. We should learn how to verify if actions should contribute to NDCs and which should not.
- Voluntary carbon market projects should incorporate best-practices and go beyond carbon to include other payments for ecosystem services. Diversity in revenue streams can help support the resilience of NbS projects.

Rhian-Mari Thomas presented some of the critical factors for mobilising finance for nature, pointing to the apparent lack of readily investable projects in the pipeline. She highlighted three case studies: one from the Wyre Rivers Trust Natural Flood Management that included a transaction structure where beneficiaries buy reduced flood management risk; one from Trees for Life, with 6% returns, highlighting the interest from retail investors if they can be harnessed; and one from sustainable forest plantations in South-East Asia that shows the large impact possible from incorporating investors with varying returns.

Dora Nsuwa Cudjoe brought perspectives from programs that aid NbS by bringing in IPLCS to advance climate action, biodiversity conservation and sustainable forest management. It is important to have:

- Access to flexible funds that enable expedited action.
- Priority for IPLCs needs, so that results can be delivered under their own leadership.
- In global finance mechanisms, better tracking and monitoring of risks and opportunities.

Climate Investment Funds & Dedicated Grant Mechanisms can be further scaled-up by ensuring recognition for the role of IPLCS in advancing integrated NbS within broader climate action, protecting rights of land tenure and natural capital and ensuring resources/access to financing.

Key take-homes

- A significant biodiversity funding gap remains ~600-800 billion US/ year and likely increasing.
- Jurisdictional approaches to REDD+ may help generate carbon credits at scale, verifying them, and better ensuring social safeguards.
- Overarching constraints in unlocking private finance remain (e.g. lack of capacity to ensure social safeguards materialise on the ground; as well as lack of investor risk appetite).
- Regulation and policy are critical to shore-up private sector confidence in NbS investments.
- Blended public/private finance can help channel private sector finance given lack of appetite for risk taking by investors.
- Needs include:
 - clarity on what nature+ means -> need pipeline of projects to generate these outcomes + private investor demand.
 - clarity on nature-related dependencies/risks to finance sector from biodiversity loss.
 - recognition of the critical role of IPLCs and their values/rights
 - flexible culturally appropriate forms and flows of finance – ethical flows away from high carbon investments of the past.



Day 3

Keynote Day 3

View our [online session page](#) or [watch the session recording](#).

Speakers

Edward Barbier | University Distinguished Professor, Department of Economics, Colorado State University

Summary

The Day 3 Keynote delivered by **Edward Barbier** presented the case for embedding nature into our economies by tackling two consequential economic failures: the underpricing and underfunding of nature.

"There is something fundamentally wrong with our economic approach to nature"

- Edward Barbier

Not only are the ecosystem services provided by nature not valued in our economic system, argued Edward, but often these are even given a 'negative price', as environmentally damaging activities are subsidised, thus referred to as the underpricing of nature. Globally, \$1.8 trillion USD is spent on damaging subsidies in total, and across OECD (Organisation for Economic Co-operation and Development) countries environmentally harmful subsidies in the agriculture sector alone account for \$112 billion USD annually. If we repurposed this money away from harmful subsidies and put it to fund and finance nature, according to Edward, we could double the amount of money internationally used for nature protection.

While estimates differ, the gap between current funding for nature and the means needed to restore and implement NbS is around \$890 billion USD. Moreover, public sources account for over 85% of nature funding presently, meaning that the private sector is severely lagging behind. Nevertheless, the private sector is becoming more and more aware of the increasing environmental risks posed to them by climate change and the degradation and destruction of ecosystems. The World Economic Forum estimates that \$44 trillion USD (over half global GDP) is moderately or highly dependent on nature and its services. Moreover, returns on investment can be high: for every \$ spent on conservation, almost \$7 more are generated in the economy after just 5 years in low-middle income countries.

To address these economic failures, Edward proposed a three-step strategy:

- To phase out environmentally harmful subsidies
- Tax activities, particularly land uses, that degrade the environment, over-exploit natural resources, and unnecessarily convert ecosystems

- Use these savings and revenues to conserve and restore ecosystems

He went on to discuss different opportunities for the funding and financing of nature, including using innovative financing options such as biodiversity offsets, payments for ecosystem services, voluntary carbon markets, REDD+ programmes, 'debt-for-nature' swaps, green bonds, corporate contributions, corporate initiatives, voluntary certification. Focusing on green bonds, it was suggested that entities could build portfolios of multiple conservation and restoration projects, in order to address the challenge of green bonds generally being structured for large-scale investment, rather than smaller-scale scattered programmes.

Session 7 | The Economics of NbS: moving from evidence to decision making in policy, finance and infrastructure investments

View our [online session page](#) or [watch the session recording](#).

Convenors

World Resources Institute (WRI)

Speakers

Erin Gray | Senior Economist at the World Resources Institute (WRI) Economics Center – Chair

Edward Barbier | Professor in the Department of Economics, Colorado State University

Louise Stafford | Director Source Water Protection South Africa, The Nature Conservancy

Madhu Verma | Chief Economist, World Resources Institute, (WRI) India

Florencia Zapata | Director of the Mountain Institute (Instituto de Montaña), NbS Peru

Yadira Mori Clement | Project Coordinator and Researcher at the Mountain Institute (Instituto de Montaña), NbS Peru

Summary

In Session 7, *The Economics of NbS: moving from evidence to decision making in policy, finance and infrastructure investments*, speakers discussed using economic valuation as a tool in motivating stakeholders and decision makers to action, helping them consider the benefits that nature can provide. Session chair **Erin Gray** introduced the session by calling for the need to shift to a new economic paradigm, and spoke to some key policy shifts required, including moving beyond GDP as the system goal, recognition and analysis of distributional impact, inclusion of a wider set of ecosystem services (eg. cultural), the need to look at qualitative aspects beyond cost-benefit analysis, and understanding that value systems and behaviours are motivated by more than cost and price.

Edward Barbier focused on how we can use economic valuation effectively to address the central issue: that nature is underpriced, undervalued, and underfunded.

“An issue with economically valuing nature is that you can't value everything - it will always be undervalued. However, if you can value enough elements to flip the decision from e.g. deforesting to protecting mangroves, then such valuation can help bring change.” - **Edward Barbier**

He presented three important considerations when valuing NbS. First, valuation must be tailored to the local context and must be based on reliable, scientifically-valid economic methods. Currently, many valuation studies are still relying on 'second-best' valuation methodology, or often transfer costs from other contexts without properly adapting them.

Second, we need to move beyond merely monetization of the loss of ecosystem services, and look at wider economic impacts including the effect on employment, distributional impacts, and multiplier effects in surrounding economies. Third, we must be explicit about who wins and who loses from NbS implementation and nature degradation. For example, in a case study assessing the costs and benefits of developing a shrimp farm in Thailand, which would require removing mangroves, the people who gain are commercial shrimp farm operators and investors outside the local community areas, whereas those who lose are the local communities.

Next we heard about a case study about a water supply crisis in Capetown, South Africa from **Louise Stafford**, where she explained how a water fund model was successfully put in place to address the challenge. Water funds are based on public-private partnerships around the common goal where NbS are used to invest in keeping watersheds healthy. Scenario modelling and economic valuation, both with sound scientific foundations, as well as stakeholder engagement were among the tools used to determine the optimal areas for investment. NbS were found to be more cost-effective than grey/engineered solutions for water augmentation, while providing more co-benefits. Critical factors in the success of the intervention include the blended finance model, including downstream beneficiaries, private finance, philanthropic funding and government funding, as well as the planning for long-term maintenance and a system for monitoring effectiveness and impact.

Madhu Verma showed us how, through multiple case studies across India, agroecological transitions employing NbS can provide multiple benefits and contribute to widespread policy goals in alignment with many other Sustainable Development Goals (SDGs). A range of interventions, such as community-managed natural farming and food forests, have demonstrated tangible benefits for crop yields, carbon sequestration, avoided emissions, water retention, erosion reduction, income diversification, nutrition, and biodiversity. This macro-level analysis of influential interventions revealed the importance of social capital, that community-led co-production is needed to ensure long-term sustainability of an intervention, and that the government has an important role to play in nudging agroecological transitions through policy, infrastructure and funding.

Lastly, **Yadira Mori-Clement** and **Florencia Zapata** presented the findings of a new study on the post-covid economic recovery potential of NbS in Peru. They looked at both short-term economic recovery potential (eg. job creation, income, livelihoods, productivity), as well as long-term development outcomes (eg. social capital, resilience, food and water security, climate change adaptation). The NbS cases they looked at showed high potential for green job creation and livelihood support, as well as mostly positive outcomes for climate adaptation and ecosystem resilience.

Key take-homes

- Economic failures result from under-pricing and underfunding nature. Proposed solutions include:
 - Phasing out environmentally harmful subsidies.
 - Taxing damaging activities.
 - Using revenue and savings to invest in nature.
- There is an enormous funding gap (\$890 Bn) for nature. Measures (e.g. tropical carbon tax) can help bridge this gap, but need careful flows.
- Sending a signal nature has value means that wider markets will follow, encouraging further sources of finance. However, we need to ensure that that finance, when made available, gets to the people and projects that need it most. We do that by asking local communities what are the problems they are facing and asking them what the solutions are and working from there.
- Recognition and implementation of NbS will require a new economic paradigm.
- Broader valuation is needed, tailored to local contexts, but based on robust science and economics.



Session 8A | NbS for sustainable food production, water security and resilience

View our [online session page](#) or [watch the session recording](#).

Convenors

Environmental Change Institute, Smith School & The Nature Conservancy

Speakers

Dustin Garrick | Co-Director of the Smith School Water Programme, University of Oxford – Co-chair

Nandita Basu | Professor and University Research Chair, Environmental Sciences, University of Waterloo

Susan Chomba | Director of Vital Landscapes for Africa, World Resources Institute

Mauricio Castro Schmitz | Regenerative Agriculture Director for The Nature Conservancy in Latin America

Sophie Tremolet | Water Security Director, Europe, The Nature Conservancy

Ina Porras | Economics, Climate and Environment Adviser at the Foreign, Commonwealth and Development Office (FCDO)

Daniel Morchain | Global Climate Adaptation Director at The Nature Conservancy – Co-chair

James Allen | Executive Director at Olab

Summary

Session 8A, *NbS for sustainable food production, water security and resilience*, strengthened the connection between NbS for water and food security, illustrating how NbS seek to enhance water storage, supply and quality to support agricultural production and livelihoods, including practices such as agroforestry and regenerative agriculture that can also enhance biodiversity.

Nandita Basu and **Susan Chomba** began by giving overviews of the considerations around NbS for water and food security, respectively. Basu spoke about 'solutionscapes' and the co-benefits and tradeoffs of using NbS for water security and water quality, for example stressing the importance of spatially-targeted restoration of wetlands for excess nutrient retention, and that impacts are location specific: something that is a co-benefit in one place, may be a tradeoff in another location. Susan emphasised how it is impossible to solve climate change and biodiversity loss without changing our food systems, and that we must understand the impacts of NbS on food production in different cases and contexts. Focusing on landscape restoration and agroforestry in Africa, she gave examples of different ways NbS could interact with food production, on the one hand potentially contributing to soil health and water availability for crops, and on the other hand potentially competing for land and water.

We then heard about two case studies of programmes being implemented involving NbS for food and water security, and how these are taking holistic approaches to ensure successful outcomes. **Mauricio Castro Schmitz** described a programme for scaling up regenerative agriculture across Latin America, which works in an integrated manner at landscape scales, creating multi-stakeholder platforms to increase adoption of NbS different interlinked production systems and foodscapes. He explained that almost 40% of land in Latin America is used for livestock and that most of it is degraded and highly inefficient, pointing to a high potential for using regenerative agriculture practices to increase ecosystem service provisioning, while increasing yields. **Sophie Tremolet** introduced a project using NbS for water security in Norfolk, UK, which uses a water fund model to bring stakeholders together to deliver a sustainable water strategy and address inter-year variability in a water-stressed county. The initiative clarifies the need to develop priority investment plans that are complementary to grey infrastructure investments, to identify multiple sources of revenue, and for disseminating learning from one farmer to another.

Next, we heard examples of ways that Official Development Assistance (ODA) and international climate finance from governments can help to protect, restore and sustainably manage nature. **Ina Porras** presented some exciting new programmes the UK government is funding in developing countries, including reversing environmental degradation in Africa and Asia, facilitating just rural transitions through repurposing harmful subsidies, and scaling NbS in least developed countries with a focus on a diversity of ecosystems beyond planting trees. Importantly, she also told us about how a new 'do no harm' clause is ensuring that all of UK's bilateral international development assistance does not undermine climate and biodiversity goals. **James Allen** highlighted that farmers must be part of the discussion on food system NbS, and hoped for greater representation of farmers at future NbS conferences.

This session benefited from a rich discussion in which panellists agreed on the need to provide financial support and incentives for farmers, as there are upfront costs associated with transitions to regenerative agriculture and that their returns on investment can take a few years to materialise. In Africa, climate adaptation, food security and water security take precedence in terms of local priorities, over climate mitigation and biodiversity, so it is necessary to create incentives for the delivery of co-benefits, while also tackling the drivers of agricultural expansion, which are often consumption patterns in wealthier countries (eg. for cocoa). Health and poverty reduction can often be good entry points for successful conservation interventions (eg. air and water pollution), and so more research is needed on the interactions between poverty, health, climate and biodiversity.

Key take-homes

- NbS can be positive for food production and water security, but need to be aware of trade-offs.
- Spatially and temporally explicit approaches necessary to quantify benefits and risks of NbS.
- Intensive high-input practices must shift to regenerative agriculture.
- Governance structures are needed to enable collaboration and mobilise funding at required scale.
- More research is needed on interactions between poverty, climate and nature.
- There is a role for diplomatic channels – e.g. Foreign Commonwealth Development Office has pledged to spend £3 billion by 2025 on international climate finance towards measures “that protect and restore nature and biodiversity”.



Session 8B | Scaling up NbS in the UK – what is the role of Government in supporting practitioners?

View our [online session page](#) or [watch the session recording](#).

Convenors

NbSI & The National Trust

Speakers

Rosie Hails | Director of Science and Nature at the National Trust – Chair

Alison Smith | Senior Researchers at the Nature-based Solutions Initiative

Alexandre Chausson | Senior Researchers at the Nature-based Solutions Initiative

Ben Hart | Carbon and Biodiversity Accounting Consultant at Highlands Rewilding

Michael Copleston | Head of Land in England for RSPB

Mike Morecroft | Principal Specialist, Climate Change at Natural England

Andrea Graham | Head of Policy Services at the National Farmers' Union (NFU)

Olly Watts | Senior Climate Change Policy Officer at RSPB

Kathryn Brown | Director of Climate Action at The Wildlife Trusts and former Head of the Adaptation Committee at the Climate Change Committee

Yaadwinder Sidhu | Land use, Food and Net Zero Systems, Office of Chief Scientific Adviser, Defra

Summary

Session 8B, *Scaling up NbS in the UK – what is the role of Government in supporting practitioners?*, brought together a diversity of experts from important stakeholder groups in the UK, including from the National Trust, Defra, Natural England, the Wildlife Trusts, the National Farmers Union (NFU), and the RSPB, as well as academics and practitioners, to explore the steps the UK government, landowners and land managers can take to deliver on the UK's net-zero target, nature recovery and climate change adaptation.

Alexandre Chausson and **Alison Smith** highlighted the [guidelines for high-quality NbS](#), and presented results from an analysis of the [enablers & barriers](#) for scaling up high quality NbS in the UK. NbS can help address 33 out of the 34 key climate risks identified. The main barriers and enablers were found to be:

- Lack of information sharing – addressed through demonstration sites, training courses, information hubs
- Lack of funding & financing (including unsuitable economic models and short-termism) – addressed through larger scale demonstrations

- Landscape and seascape governance (including diverse stakeholder priorities and siloed decision-making) – addressed through collaborative governance
- Conflicting policy goals – addressed through standards and strong, well-resourced strategies
- Ecosystem pressures (including risks of reversals & uncertainty) – addressed through stronger regulations and incentives for ecosystem protection

Key policy recommendations included the need to integrate a wider range of NbS types into national adaptation plans (for instance, seagrass and agroforestry were severely lacking); mainstreaming NbS by developing coherent & joined-up policies across all sectors (including changing licensing regulations to enable streamlining); fund not only the NbS itself but also the knowledge exchange, education, research and communications around it; set standards for high-quality and resilient NbS (eg. UK standards on green roofs and SuDS); and strengthen institutional capacity for measuring and monitoring NbS delivery, including defining suitable indicators & metrics beyond carbon.

We next heard about two best-practice case studies of NbS in the UK: [Highlands Rewilding](#) from **Ben Hart** and the [Medmerry](#) managed realignment project from **Michael Copleston**. Highlands Rewilding is an innovative leader in natural capital verification science and aims to meaningfully increase carbon sequestration and biodiversity, increase local employment, become sustainably profitable through community involvement in rewilding and innovative financing. They plan to monetize natural capital through ecotourism and corporate retreats, carbon and biodiversity credits, and government incentive programs. While Highlands Rewilding is still in its first years and has focused on obtaining baseline metrics, Medmerry, where 183 hectares of intertidal saltmarsh and mudflat habitat was restored, has been a famed success story for over 10 years, reducing the annual flood risk from 100% to 0.1%, saving an estimated £78 million.

Next we heard from **Mike Moorecroft** about the role of government agencies in scaling up NbS in the UK, who emphasised the importance of science, policy and implementation to come together more to avoid the risk of maladaptation and environmental damage from some land-based approaches.

“Science and implementation need to come together, with ‘learning by doing’”

- Mike Moorcroft

Michael and the following speaker, **Andrea Graham**, spoke about the new Environmental Land Management scheme (ELMs) and its potential to support NbS post-Brexit, though the lack of clarity and concerns over the validity and compatibility of different schemes, including public schemes and private ones such as voluntary carbon and biodiversity offsets, makes farmers nervous. To address this ‘wild west’ of carbon credit markets and different funding streams, we must develop clear standards, ensure fair rewards and help with upfront transition and capital

costs, make schemes accessible across a wide diversity of farm sizes and tenure types, develop policy coherence and compatibility, and avoid leakage to other parts of the world. Instilling confidence in investors, land managers and farmers that NbS will deliver on its promised returns is crucial, and this requires further evidence from pilot studies and from large-scale projects, as well as community engagement and knowledge sharing. **Olly Watts** and **Kathryn Brown** stressed the importance of NbS for climate adaptation in the UK, including mapping risks and opportunities, and how NbS is an excellent opportunity to bridge siloes and integrate climate and biodiversity together, while achieving multiple benefits. Lastly, **Yaadwinder Sidhu** spoke about taking a holistic approach to understanding the behaviour and decision-making of land managers and landowners, investing time in building relationships with the local communities to ensure multifunctional land-use. Issues around visibility and inclusion of UK local communities are discussed, including crafting management objectives to increase public benefit and engagement, and better deliver benefits locally.

Key take-homes

- Multifunctional land-use is needed, alongside overcoming a blinkered focus on a subset of outputs.
- There are information gaps to overcome, but already a number of strong case-studies.
- NbS are insufficiently integrated in broader plans, and there is a lack of policy coherence.
- There is potential for private finance, with significant interest in carbon/biodiversity offsets, but standards are currently lacking.
- Government funding also remains key, but there is insufficient clarity over many emerging schemes.
- There are issues around visibility and inclusion of UK local communities. Management objectives should be crafted to increase public benefit and engagement, and better deliver benefits locally.



Session 9A | Business, Biodiversity and NbS

View our [online session page](#) or [watch the session recording](#).

Convenors

Nature-based Insetting

Speakers

Cécile Girardin | Director of Nature-based Insetting and Technical Director at the Nature-based Solutions Initiative, University of Oxford – Chair

Alexia Kelly | Director, Net Zero + Nature at Netflix

David Croft | Global Director Sustainability, Environment & Human Rights at Reckitt

William Baldwin-Cantello | Director, Nature-based Solutions at World Wide Fund For Nature -UK

Stephanie Paquin-Jaloux | Director Biodiversity Compliance & Strategy at Firmenich

Keyvan Macedo | Sustainability Director for Natura &Co

Niki Mardas | Executive Director at Global Canopy

Andy Boulding | Research Associate, TNFD, Global Canopy

Summary:

In Session 9A, *Business, Biodiversity and NbS*, the audience heard from businesses and NGOs about the role of the private sector, including on offsetting, insetting, disclosure and transparency. **Cécile Girardin** began by highlighting that of the NbS mitigation potential, 40% is



Cécile Girardin of the NbSI and Nbl setting the stage for Session 9A

from protecting intact ecosystems, another 40% is from better management of working lands, and the remaining 20% from restoration (including tree planting). It is important to avoid deforestation and invest in greening companies' own supply chains (insetting), over buying carbon credits for tree planting projects.

We heard about the different sustainability and net-zero strategies of a variety of companies, the first of which was Netflix, represented by **Alexia Kelly**, who told us about Netflix's

goal of achieving net-zero across scope 1, 2 and 3 emissions by the end of 2022, and are investing in offsets in the voluntary carbon market, including a portfolio of 17 NbS projects that account for 1.5 million tons of mitigation. They see this as an opportunity to contribute to the climate fight in addition to reducing their own emissions, and to help mobilise climate finance directly to frontline communities. Representing Reckitt, **David Croft** spoke about private sector investment as both managing risk and creating opportunity, and how investors are seeking ways to strike a balance between these. He mentioned that often the best entry point to intervene is to address livelihoods when working with farming communities, and subsequently climate and biodiversity. Emphasis was placed on the need for strong metrics to demonstrate impact and engage cross-sector stakeholders, as well as to help understand trade-offs.

Stéphanie Paquin-Jaloux from Firmenich spoke about embedding biodiversity into business, following the three steps of assessing, committing to targets, and transforming. They are tracking over 54 indicators, following science-based targets for nature, and have joined groups such as a Business coalition promoting regenerative agriculture and the union for ethical biotrade for guidance, while trying to ensure as much transparency as possible. **Keyvan Macedo** of Natura &Co told the conference about their three pillars of their sustainability vision: to address the climate crisis and protect nature and biodiversity, to safeguard human rights, and to work towards circularity and regeneration.

All speakers mentioned the Taskforce on Nature-related Financial Disclosures (TNFD), a younger sister to the better-established Task Force on Climate-Related Financial Disclosures (TCFD), and how these two frameworks would go to play a big role in private sector disclosure, transparency and accountability. We were then offered some responses and perspectives from non-profit organisations, including **Niki Mardas** and **Andy Boulding**, who pointed out that voluntary frameworks such as the TNFD were important for fostering leadership and innovation, but that we also need legislation and due diligence to complement it. He spoke about the finance pledged towards stopping deforestation at COP26, but that it was small compared to the wall of money coming from the other direction – over a trillion dollars in harmful agricultural subsidies. It was positive that the Race to Zero has recently added deforestation-related conditions to their criteria, as “there is no reaching net-zero without tackling deforestation”. However, it was found that the great majority of those in the Race to Zero currently are not making progress on deforestation, bringing up issues of greenwashing. **William Baldwin-Cantello** addressed the topic of greenwashing, acknowledging that it is indeed happening, but that there are also a huge number of companies who are doing real work and are genuine. On this note, panellists reminded us that we need to not allow “the perfect to be the enemy of the good”, and that when we see a company that is striving to follow, we should support them, versus a company who is in the shadows. Claims of greenwashing should be based on evidence, while disclosure, transparency, reporting, the right metrics, and open-source information and data is key for building trust and credibility. Moreover, offsets must adhere to the mitigation hierarchy, and businesses should follow the corporate climate mitigation blueprint:

- Account & disclose
- Reduce value chain emissions with ambitious science-based target pathway

- Quantify financial commitment by pricing remaining emissions
- Invest the financial commitment for climate and nature impact
 - Further emission reductions
 - Unlocking other climate solutions - climate innovation
 - Carbon credits

Key take-homes

- High quality carbon markets could direct investments to ensure greatest social & ecol. benefits.
- Multiple stakeholders must be engaged across sectors, to develop partnerships over the whole value chain.
- Greenwashing is a problem but there are companies genuinely seeking sustainable transformation.
- Greater transparency is required, and there is growing consumer demand for businesses to report impacts.
- There is an urgent need to develop robust metrics and scale up good practices.



Session 9B | Mainstreaming NbS for urban sustainability and climate change action

View our [online session page](#) or [watch the session recording](#).

Convenors

University of Durham, Naturvation

Speakers

Harriet Bulkeley | Professor of Geography, University of Durham and Coordinator at NATURVATION – Chair

Elana Bader | Green Infrastructure Project & Funding Officer, NatureScot

Linjun Xie | Assistant Professor in Sustainable Urbanism, University of Nottingham Ningbo China

Rob Carr | Environmental Manager, Partnerships and Funding, UK Environment Agency

Jessica Kavonic | Head of Implementation – Africa at C40 Cities Climate Leadership Group

Harriet Fink | Learning and Volunteering Programme Manager for the Natural History Museum's Urban Nature Project and co-founder of Curiovan: Explorium of Natural Wonderment

Summary

In session 9B, *Mainstreaming NbS for urban sustainability and climate change action*, the importance of cities was made clear: half of the world's population already live in urban environments, and the concentration of population and economic assets in these areas mean that natural disasters are particularly damaging in cities.

We first heard from **Elana Bader** about the government of Scotland's initiatives aimed at delivering nature-based solutions for resilient urban areas, including NatureScot's Green Infrastructure fund, which is focusing on deprived areas to deliver multiple benefits, including for health, well-being and poverty. She emphasised that community co-design and co-management is important for delivering across outcomes and ensuring success, while being supported by long-term monitoring.

Linjun Xie spoke to us about mainstreaming NbS in urban China, where China has a long-established practice of working with nature but engineered solutions have been increasingly favoured. Urban NbS in China is mostly state-led and policy-driven, especially their iconic Sponge City Programme, but social impacts can be overlooked. Elsewhere, many green areas have been established in order to meet targets, but these are often "green but not eco", consisting of grass parks with little to no ecological value. Grassroots initiatives are booming, but only receive government support at later stages, while it is nearly impossible to obtain public information on maintenance funding. Overall, to mainstream NbS in China, there is a need to value diversity in schemes, facilitate community-based actions, generate partnerships, improve data and monitoring.

Overall conference takeaways

- There is widespread and growing enthusiasm for NbS across large and varied range of stakeholders.
- There is a robust and growing evidence base showing ecological, economic, social benefits of NbS.
- The NbS concept is ready for and useful at the multilateral policy level but there are still challenges to overcome.
- Equity is an essential consideration in the design, implementation, and monitoring and evaluation of NbS.
- We must recognise biophysical limits and potential trade-offs involved with NbS, and plan for those.
- We urgently need to move beyond narrow economic valuations to better reflect externalities and broader benefits and values.
- The knowledge and worldviews of Indigenous People and Local Communities are key to fully recognise the value of and achieve fair, sustainable NbS.

"Nature-based solutions need to be understood as ways of working with, and as part of, nature and framed to ensure that multiple values of nature are respected."

- Professor Nathalie Seddon

Next steps

1. Expand participation in NbS – we need much greater diversity in those designing and implementing NbS, especially Indigenous People and Local Communities.
2. Continue to build the evidence base for value of NbS and share best practices.
3. Test and refine robust international frameworks and standards for high integrity NbS.
4. Remain critical – recognise where proposed NbS will not deliver for ecosystems, climate or society.
5. Share our knowledge and vision as widely as possible, and continue to build momentum for biodiversity-based, community-led NbS informed by knowledge from science and practice.

"I hope we can continue to grow this NbS community until we don't need it anymore because we are already doing the right thing: working with nature as part of nature, because nature is our home, it is us, it is our life support system."

- Professor Nathalie Seddon



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