

NATURE-BASED SOLUTIONS AND THE GEF: WORKSHOP SUMMARY

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Date

19 – 20 May 2020 (9 a.m. to 12 p.m. EDT): virtual via WebEx

Objective

The purpose of the workshop was to review the experience gained in implementing nature-based solutions (NbS), and to distill and discuss best practices and lessons learned to guide future investment by the Global Environment Facility (GEF). For the first day, all participants remained in the Plenary. On Day 2, attendees were divided into 3 groups focused on:

- Question 1: How should a balance be struck between the interests of nature and of people in NbS?*
- Question 2: What are the barriers to implementing NbS, and how can successful solutions be scaled up?*
- Question 3: How to make NbS operational – in their design, execution, and management?*

Participants came back for a final plenary to share the findings of the breakout groups. A guidance note for future GEF NbS projects will be developed by the Scientific and Technical Advisory Panel (STAP), and a short paper on NbS will be prepared for the Global Commission on Adaptation by STAP, the Moore Foundation, and the Wildlife Conservation Society.

Presenters and Moderators of Day 1

Rosina Bierbaum, Chair, Scientific and Technical Advisory Panel (STAP)
Aileen Lee, Chief Program Officer, Moore Foundation (Moore)
Maureen Geesey, Program Officer, Moore Foundation
Marion Adeney, Program Officer, Moore Foundation
Cristián Samper, President and CEO, Wildlife Conservation Society (WCS)
Caleb McClennen, Vice President, Wildlife Conservation Society (WCS)

Respondents

Patricia Fuller, Ambassador for Climate Change, and member of the Global Commission on Adaptation
Mark Stafford Smith, Senior Advisor, Scientific and Technical Advisory Panel
Gustavo Fonseca, Director of Programs, Global Environment Facility (GEF)
Bob Watson, former Chair, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)

Workshop Participants

80 people attended this virtual workshop. Participants represented a variety of sectors including international organizations, universities, philanthropies, and non-governmental organizations – list attached.

Tuesday, May 19

Opening Session Summary

This session opened with a welcome and overview of objectives from STAP Chair, Dr. Rosina Bierbaum, who discussed the increasing support for NbS in recent years (e.g. at the Climate Summit in September 2019), as a cost-effective way to support climate mitigation and adaptation, while simultaneously addressing land degradation and biodiversity loss. The Global Commission on Adaptation (GCA) includes an ‘action track’ on NbS (Naoko Ishii, the CEO and Chair of the GEF is a member, and Dr. Bierbaum, a science adviser). STAP had reviewed 50 projects identified by the GEF as having strong NbS components, with the assistance of students from the University of Michigan and the University of Maryland. Dr. Bierbaum noted similar reviews of NbS projects and lessons learned had been completed and would be shared by The Gordon and Betty Moore Foundation and the Wildlife Conservation Society.

In her introductory remarks, Dr. Ishii said that 2020 was to have been a “super year” for nature. The COVID-19 pandemic had highlighted the link between nature and people and the current ‘imbalance’ ad provided an opportunity to reflect on the importance of NbS. The GEF is looking forward to STAP’s advice to learn more about the lessons learned, and best practices in the design and implementation of NbS projects going forward.

Following these opening remarks, four presentations were made by STAP, the Moore Foundation (2), and the Wildlife Conservation Society; these are summarized briefly below. The full presentations are attached as a PDF file.

Presentations:

1. Rosina Bierbaum, STAP Chair

STAP presented an overview of 50 GEF-funded NbS projects (representing approximately \$377 million in GEF funding, plus an additional \$2.7 billion in co-financing) which were selected for analysis. Of these, 32 were focal area projects and the remaining 18 were child projects under the Integrated Approach Pilot programs (IAPs). The projects covered 8 broad NbS types and were analyzed with respect to 4 overarching questions: 1) Does this project (or program) include elements that can be considered to be NbS (as defined by [IUCN](#))¹? 2) Does the project adequately address issues of spatial and temporal scale and risk which could affect long-term durability? 3) Does the project provide detailed information about benefits to people, and to nature? 4) Does the project exhibit design factors which contribute to durable outcomes? Each project was interrogated with a finer-grained set of 30 questions, and all available documents from proposal stage to CEO-endorsed project to mid-term review to final evaluations were analyzed. NVIVO was used to pull out trends across a subset of the projects. STAP-NBS.pdf illustrates characteristics of the projects and major findings. Recent GEF projects included stronger theories of change, climate risk screening, and stakeholder training, all elements STAP had previously found key to successful projects. More attention is now focused on monitoring and evaluation as projects are being implemented, but the learning has been uneven. Discussion of tradeoffs, synergies, leakage, and the ‘how’ to make projects durable over the short- and long-term remain areas for improvement. The importance of adaptive management and refinement of timelines and goals over the life-cycle of the project emerged as key to success in some instances.

2. Caleb McClennen, Wildlife Conservation Society

WCS presented their review of 50 climate-focused NbS projects completed between 2015 – 2019 which showed that the three most common approaches were protection (37%), adaptation (31%), and resource management (24%), with the remainder, focused on restoration. The majority of the projects were focused on forest ecosystems, with nearly a third marine-focused, and a small number focused on montane ecosystems. In addition, WCS is conducting a 10-year review of projects under its Climate Adaptation Fund (CAF) which addresses a range of climate-related impacts, such as coastal erosion, drought, wildfire, and flooding.

Conclusions from WCS’s analysis included: 1) mainstreaming climate NbS in policy is still a work in progress; 2) the portfolio addresses multiple societal challenges beyond climate, specifically food

¹ See Cohen-Shacham, E., Walters, G., Janzen, C. and Maginnis, S. (eds.) (2016). Nature-based Solutions to address global societal challenges. Gland, Switzerland: IUCN. xiii + 97pp

security and economic development; 3) there is a notable lack of climate NbS projects linked to health; 4) Indigenous People and Local Communities (IPLCs) play a critical role; 5) more comprehensive review and post-project interrogation is needed; and 6) many projects were initially focused on conservation. The development of best practices for NbS would help to improve their impact on societal benefits. Also see WCS-NbS.pdf

3. Maureen Geesey, Conservation and Markets Initiative, Moore Foundation

The goal of the Conservation and Markets Initiative (CMI) is to decouple food production from ecosystem degradation. For this analysis, Moore looked at how well CMI interventions, in biodiversity, food security, social/economic development, climate change, disaster risk, water security, and human health, aligned with NbS benefits.

Successful examples included intensification of farmed shrimp, which can generate an economic return for the private sector while also delivering nature benefits. For this to succeed, supply chain incentives and transition financing need to be made available, together with successful demonstrations. Barriers to success included cultural norms and entrenched behaviors. Additional insights can be seen in Moore-CMI-NBS.pdf.

4. Marion Adeney, Andes-Amazon Initiative, Moore Foundation

The goal of the Andes-Amazon Initiative (AAI) is to secure the biodiversity conservation and climate function of the Amazon basin, through the effective management of a core set of protected areas and their surroundings, as well as putting conditions in place for infrastructure development that safeguards the durability of protected areas, and long-term, basin-wide forest cover and free-flowing rivers.

For this analysis, Moore examined the relationship between AAI interventions to deliver the benefits of NbS in biodiversity, food security, climate change, water security, human health, disaster risk, and social and economic development, organized by NbS categories, i.e. restorative, issue-specific (nature-based enterprises), infrastructure, management, and protection. Key findings included: 1) the strongest direct NbS benefits were in biodiversity, social/economic development, water, and climate; 2) community resource management requires enabling conditions and recognition of the trade-offs between the interests of diverse stakeholders; and 3) NbS can provide a framework to help conceptualize 'projects' beyond the local scale for long-lasting integration into development models and economies. For more detail, see Moore-Andes-NBS.pdf

Respondents

Following the presentations, several respondents were invited to offer their observations.

Ambassador Patricia Fuller (Canada) discussed the action track of NbS as part of the Global Commission on Adaptation and explained that while there was a lot of interest in NbS for adaptation in the policymaking community, there was little information about what this would look like in practice. The GCA's strategy is to showcase success to motivate greater interest and spur additional adoption of NbS. She hopes we can highlight some NbS successes and tools that can be used to incorporate NbS. A key question is what would drive adoption of NbS - to create more opportunities for specifically funding NbS, or to seek to mainstream NbS into current systems?

Mark Stafford Smith (STAP) reiterated several issues highlighted in his review of the scientific literature, such as the issue of scale and how to get to transformation at the Global Environmental Benefit level, not just locally. He noted the importance of monitoring and learning, which can be time-consuming and costly, and said we need to understand what can be done collectively versus what requires context-specific interventions. Dr. Stafford Smith also questioned whether the classification of different types of NbS benefits are most appropriate for outputs desired. And finally, he noted the importance of leakage, i.e. how to ensure that the achievement of goals was not undermined by actions in another area/sector.

Gustavo Fonseca (GEF) discussed the importance of achieving outcomes at sufficient scale and durability with GEF projects. In the Amazon, for example, protected areas have been the foundation for a wide array of activities; however, in recent years there had been a huge increase in deforestation, and the investment made were at great risk of being lost. It is not, therefore, just about financing or about ensuring local benefits, a holistic view is needed, and action taken quickly so that the system doesn't reach a tipping point. He suggested that STAP consider how GEF NbS can not only achieve environmental benefits and social benefits (2-axes in the STAP report), but also 'at scale' (adding a third a dimension).

Bob Watson (former chair of IPBES) questioned whether the role of the GEF is in fact to strike a balance between nature and society. Perhaps, instead, the GEF's goal should be to maximize the global environmental benefits, and if there are social benefits as a result, then this would be a bonus. He noted there will always be trade-offs. When things are scaled up across space and time, trade-offs become important to understand. It is important to learn not just from successes but also from failures. Replicability should be as important a goal as durability.

Discussion

James Dalton (IUCN) discussed the [NbS standard](#) developed by IUCN which is meant not to be binary, but rather facilitative so it can be reviewed and revised over time. It will define the 8 NbS criteria and offer indicators. The aim is to show what works and what doesn't. For example, we understand how to incorporate NbS in watershed management but we need to be transparent about trade-offs with other sectors and consider how to deal with them from an equity perspective.

Tom Lovejoy (STAP) stated that this is a transformational moment to embrace the role of the biosphere in sustaining humanity. The urgency of this issue is apparent. Rainforests are not adapting well to changes in temperature; the time to act is now.

Barney Dickson (UNEP) highlighted the strength of NbS in terms of being able to deliver on multiple fronts. It is necessary to understand that everyone comes at this issue with their own priorities; therefore, setting the agenda is critical. And in this case, while biodiversity is important it may not be the most impactful approach to achieve greater adoption of NbS. E.g. \$100tn will be spent on infrastructure in the next decade, and less than 1% is currently aimed at NBS approaches, so even a small shift can make a big difference.

Naoko Ishii (GEF) challenged the assumption that there is actually a trade-off between social and environmental outcomes. She pointed out that more than 80% of GEF projects have been rated successful, and yet we haven't been able to "move the needle". Are we able to bring efforts working on

the 'entire supply chain' as Moore mentioned, 'on the ground'? And the fundamental question is "how to do this at scale"? Perhaps mainstreaming solutions including both policy solutions and public-private partnerships is key.

Aileen Lee (Moore) agreed that the integration of policy is increasingly important for scaling. Policy is often successful in local and sectoral applications, but we need more systematic policy change to scale up and out. Multi-stakeholder dialogues are important – we should be intentional about how these are designed, with appropriate inclusivity for NbS.

Ambassador Fuller (Canada) highlighted that it is most important to get NbS thinking embedded into strategies for adaptation so NbS always appears as a choice, not to think of it in terms of one-offs, such as a concrete vs 'green solution', but NbS becomes a systemic solution. The role of state funds specifically for NbS is very important – is that the right strategy or is it better to mainstream NbS?

Jyoti Mathur-Filipp (CBD) discussed how biodiversity mainstreaming for infrastructure is a key point for the CBD Post-2020 framework and she would be interested in how we can bring the concepts into economic recovery plans following the COVID-19 pandemic.

Bob Watson (former chair of IPBES) said that the most important thing is to think broader than GDP to calculate prosperity. Natural capital should be included as an element of decision making. If governments would value natural capital, this would help a lot with NbS durability and replicability. The GEF has an important role to play in this respect given its relationship with national governments. Bob referred the group to [The Dasgupta Review – Independent Review on the Economics of Biodiversity Interim Report](#).

Claude Gascon (GEF) mentioned that if there is anything positive about the COVID crisis, it is the linkage between environmental and human health is now very clear; the concept of One Health is bringing this together. We need to get away from trade-offs, but rather demonstrate the connection and win-win solutions and synergies. This is applicable on many different scales.

Nancy Grimm (ASU) noted that it is not productive to continue to discuss trade-offs between societal and environmental benefits. She also pointed out that it is important not to forget NbS in urban areas, which is where most people live.

Caleb McClennen (WCS) made some closing remarks by asking whether or not there were metrics on how to determine the extent to which sectors have been changed by NbS (i.e. infrastructure). He also discussed the need to consider leakage (as came out in WCS's work). Finally, as we think about One Health, it is clear that the conservation community must work more closely with public health groups and get into application of NbS as a solution.

Aileen Lee (Moore) concluded by reiterating we must seize the moment we are in. Countries are poised to make decisions with big financial consequences in the wake of COVID-19. We should fight for the narrative that there cannot be resilient futures without nature-based solutions.

Rosina Bierbaum concluded the day by saying thanking this 'community of practice' and indicated that this is the beginning of developing lessons learned and best practices in NbS, not the end. We need to make the whole greater than the sum of the parts of this 'brain trust'. Tomorrow, in breakout groups, the participants will look more at the tools, metrics, evidence base, and outcomes of NbS on nature,

livelihoods, resilience. Must continue to identify leakage (across sectors and regions), and highlight co-benefits. We need to discuss more about how to ‘mainstream’ NbS, and to scale up and out to achieve transformational change. All the conference attendees, and especially the presenters and respondents, were thanked for their generous participation and the meeting was closed.

Wednesday, May 20

Working Group 1 Discussion

Co-Chairs: Aileen Lee (Moore Foundation), Nancy Grimm (Arizona State University)
Rapporteur: Kate Newman (WWF)

Question: How should a balance be struck between the interests of nature and of people in NbS?

Nancy Grimm (ASU) started off by discussing key concepts related to NbS – resilience and ecosystem services. It is difficult to think about nature divorced from how people interact with it. Cities are particularly important because they are where people live and because they are the main producers of greenhouse gases. In fact, there doesn’t need to be a trade-off between social and environmental objectives – a ‘balance’ is possible to achieve. Need to be mindful of ‘green gentrification.’

Doreen Robinson (UNEP) agreed that it is important to avoid framing the question as a false dichotomy (it’s not either/or, can be both). The tools and process matter in this discussion. Solutions look different to different stakeholders. Using robust evidence to measure natural capital and social capital. Use negative externalities subsidies to push for improvements on both “sides” of the tradeoff.

Guy Midgely (Stellenbosch University) said we should consider mitigation and adaptation synergy. Link driving forces from cities and from rural landscapes.

Doreen Robinson (UNEP) [in a written comment], stated that “we don’t need to relearn the lessons of participatory rural development – NbS should be part of that discussion. The challenge in many countries is that NbS is still in a national level discussion (flowing from an international dialogue) or a project level discussion – so figuring out who benefits and who decides needs to be a bit more integrated and democratized.”

Ed Carr (STAP) said we need to address incentives and who gets left behind. Behavioral science research shows that there is a disconnect between the demographics of most research and the ‘on the ground people’ who are affected by the implementation of NbS. STAP is looking at how behavior change is used in light of this.

Kate Newman (WWF) [in reference to post-COVID behavior], questioned what will people want with regards to living near or far from others? There may be some reconsideration of living in rural areas instead of cities. Some behaviors could lessen the impact on the environment, some could increase it. Shifting preferences may offer an opportunity for a new dialogue.

Barney Dickson (UNEP) mentioned that he comes from a background that makes him feel odd to start with trade-offs. For him, it is about fixing problems. One would generally expect that it would not

compromise on the biodiversity point but rather more on the societal goal. What it does suggest is that the trade-offs might happen on the **scale** at which progress happens not whether the progress happens at all.

Glenn-Marie Lange (World Bank) stated that this challenge is at the heart of the high-level narrative. Putting all narratives together becomes challenging (water, biodiversity, etc.). There is a need to repurpose subsidies so that they support the environment with economic development.

Guy Midgley (Stellenbosch University) [in a written comment] said that one way to look at this is to ask if there are major current activities that are ripe for NBS consideration? For example, how can agriculture as a sector be addressed by NBS, what are the big opportunities in NbS and agriculture, and what are the trade-offs (e.g. lower production intensity vs extensification)?

Kate Newman (WWF) stated that other challenges include regulations, procurements, and codes. Engineering standards, etc. make it difficult to pitch NbS.

Glenn-Marie Lange (World Bank) added that using current communities' projects to help convince other countries to do the same is more impactful than any study or expert could be.

Chris Whaley (STAP) stated that there is plenty of mention of synergies; however, not as common for trade-offs. Most trade-offs were implicit.

Gustavo Fonseca (GEF) said that the GEF is looking at entry points from different perspectives. For example, local actions have global results. The emphasis on protected areas has diminished over the years.

Joey Dierdorf (University of Michigan) said that gray infrastructure in cities makes it easy to continue to develop in that manner - is there a balance struck between new infrastructure and redesigning current infrastructure?

Nancy Grimm (ASU) replied that the United States and other wealthy countries have a lot of aging infrastructure that needs to be replaced and this provides an opportunity. The situation in developing world cities is different. They develop very rapidly and are often surrounded by undeveloped slums.

Kate Newman (WWF) said that China's recovery package avoided "building more." Rather, they are looking into compound distributions (spreading out people rather than packing them into tight cities). Flexible designs in infrastructure, non-permanence systems, for example. These are new techniques that go beyond simple replication.

Val Kapos (UNEP-WCMC) said we need to consider what are NbS a solution to? There is a culture shift among engineers themselves and we don't know about the "tolerance" of NbS choices because we are leaving it to ecologists to answer these questions. The engineers should be included along with the ecologists and conservationists in the procurement phase to be able to help solve these problems. They are problem solvers.

Gustavo Fonseca (GEF) noted that the GEF has three separate trust funds and the GEF gets its mandate from global conventions (Climate Change - UNFCCC, Biodiversity - CBD, Combatting Desertification - UNCCD, etc.), and in addition, the GEF works on sustainable forest management. The GEF receives guidance from the Conventions and translates this into programming. The main trust fund of the GEF

finances climate change mitigation, and a large portion of the GCF dealt with adaptation. The GEF also has two other funds (LDCF and SCCF) most of which go to least developed countries. These funds are small and voluntary but there is a clear system for tracking beneficiaries, including disaggregated data and projects that are directly related to adaptation and resilience.

Elizabeth Maruma Mrema (CBD) said that it is important to bring NbS into the political process and build that support as they make national-level decisions. We need to demonstrate the link between NbS and ecosystem-based management (EbA), especially with respect to pandemic recovery plans.

Mike Mascia (Conservation International) stated that secondary and indirect effects (intentional and unintended) should be considered for trade-offs as well. Gray infrastructure is not a very reversible path. This raises the question of durability (e.g. protected areas are permanent... sometimes).

Kate Newman (WWF) said we need to consider what are the incentives for decision-makers before any solution is decided upon? How does the decision-maker come to consider NbS over another solution?

Glenn-Marie Lange (World Bank) mentioned that there is a new rapid assessment tool under development at the World Bank for urban and coastal areas that can be used to quickly show the potential for NbS. It is based on population data and other readily-available information.

Barney Dickson (UNEP) stated that how you look at trade-offs is dependent on the primary objective. The sector also determines what trade-offs are even considered. Given this, what can be done to shift how those trade-offs are considered and made?

Guy Midgley (Stellenbosch University) said that linking NbS to social benefits lowers the barriers to implementation. We should identify the learning of these projects (i.e. what to do and what not to do).

Glenn-Marie Lange (World Bank) agreed and said that monitoring and evaluation (M&E) gets right at what is learned; however, it is very expensive. There are dozens of projects, but each one is independent, so it is hard to pull lessons learned across all the projects.

Summary of Working Group 1's discussion reported to the Plenary begins on p. 16

Working Group 2 Discussion

Co-Chairs: Tom Lovejoy (STAP), Caleb McClennen (WCS)

Rapporteur: Caleb McClennen (WCS)

Question: What are the barriers to implementing NbS, and how can successful solutions be scaled up?

Caleb McClennen (WCS) opened the session by reminding people of what was discussed during the first day and said it would be good if we could pull from experience, case studies, mechanisms in the field and countries (across and within sectors) and potential for overcoming barriers. It would be good to focus on specific solutions and the relevant barriers (sector-based and across sectors). One take-home from yesterday is the degree to which NbS discussion can be ‘flipped’ so non-conservation sectors can embrace these solutions and roll them into infrastructure, etc.

Tom Lovejoy (STAP) added that this is an exercise to re-engage with the biosphere in a constructive way and that the kind of work going on right now in terms of the economics of biodiversity for the UK treasury will be an important piece for building this argument. Conventional economics is poorly applied so one thing we can do going forward is to push for high-quality economic analysis that includes natural capital. Also, bear in mind that we refer to some sectors as “productive” and this implies that we don’t consider other sectors in the same way and this is a mistake.

Juha Uitto (GEF IEO) picked up from what Tom said and discussed the objective of the GEF which is to transfer ‘business as usual’ into ‘environmentally sound business as usual’ (i.e. need to find solutions that make sense from an economic point of view). The IEO has looked at past experiences in the GEF and some key barriers have come up when, for example, there is a conflict with productive sectors (e.g. mining, logging, etc.) and the full accounting of natural resources and who uses them is not taken into account. One of the biggest challenges for the GEF is to convince the private sector to acknowledge this and to take a longer-term perspective.

Mohamed Bakarr (GEF) added that the GEF hasn’t made an effort to characterize the portfolio and so he is pleased to see what STAP and the students have done because it shows a lot of the thinking behind the GEF projects have been built around the principles of delivering NbS. The IAPs launched in GEF-6 were intended to create a space to demonstrate how these solutions can lead to transformation in key sectors (e.g. cities, commodity supply chains, food security). All of them are designed to demonstrate how NbS can be delivered in a manner that both address both social and economic challenges associated with the sector so countries can be attracted to invest in GEF resources in an incremental sense but also integrate them into their development agenda to address trade-offs and synergies and also address the human dimension. With regard to barriers, we need to highlight that there are complexities associated with institutional and policy aspects such as dealing with the government and private sector, so we have to consider how their interests align and this is the challenge because they operate in different spaces.

Astrid Hillers (GEF) said that in the GEF international waters (IW) portfolio, we see a lot of small pilots in large river basins and they are often NbS. In terms of barriers, we see over and over that these pilots work with local consultants so there are systems ‘on the ground’ but are not necessarily well established through country systems and thus, can’t be scaled up. Another barrier is that there is anecdotal

evidence that something works but scientific data are often missing. We need to quantify outcomes in order to convince people of real benefits, trade-offs, etc., although we do have more data than before, particularly with respect to adaptation. Also, there are societal aspects – who is doing what? Are women and marginal groups involved?

Greg Watson (IDB) explained that IADB has published a [handbook on sustainable infrastructure](#) and had a roundtable with engineers and firms. The report that was circulated is the results of that roundtable. What they realized from talking with engineers is that it is not easy to integrate NbS into their existing tools and methods. Therefore, they are developing guidance notes for project developers and also toolkits to link modeling to decision trees to incorporate NbS. There is also a need to disaggregate costs and benefits by actor. Upstream, the policymaker might care about biodiversity or livelihood aspects of NbS, whereas the developer might have different incentives at a different stage. So, conversations need to take place both in the market and on the policy side.

Bronson Griscom (CI) said that one of the issues is how to identify different types of NbS for which there are a different set of barriers and enablers. Some relate to improved management of working landscapes where there are opportunities to directly engage stakeholders with market-based activities while storing carbon, etc. For protection that is critically needed, it is the converse, which will need to be led through governance. And in the restoration area (expanding native cover), it is somewhere in between and there are implications for livelihoods. So how do we unpack different types of NbS to look at sets of barriers and develop a granular suite of types of engagement and toolset for each?

Anand Patwardhan (UMD) built on what was said to point out that when you want a balance between nature and people, are we accurately identifying, measuring, and monetizing the various costs and benefits? There are public and private and local and global costs so it is necessary to differentiate. The GEF should deliver global environmental benefits (GEBs) but how significant are local benefits in that equation? Solutions need to resonate with different stakeholders and align with different interests. Also need to think about standards – there could be a lack of understanding and barriers related to standards. Finally, we need to transition away from thinking about projects towards how we do business.

Elizabeth Tully (WCS) discussed the WCS Adaptation Fund, where they have been breaking through barriers and taking things to scale. The barriers they see are at a state-level scale and have to do with the resources that they are trying to access and their knowledge level to understand how their conservation target is being targeted by climate change. So, we are helping them to transform in a way that the area is still ecologically functional. The timeline between US and non-US projects is different and barriers must be aligned accordingly.

Juliana Castano Isaza (World Bank) [who is involved with Pro Blue Trust Fund] mentioned that the risk perception is a huge barrier at the World Bank. There is uncertainty associated with NbS; when governments are requesting loans, they prefer to go for hard infrastructure, and NbS is put into the ‘pilot’ category. People still perceive that a restored ecosystem provides the same benefits as the existing ecosystem so rather than identifying areas to restore, still need to consider protection. At the World Bank, they tend to look at tangible assets, and NbS are not valued as capital assets, so they are not included in the loan envelope. Because of the many co-benefits, they need to involve many stakeholders, so the process becomes too complicated. It is critical to have a champion in the Ministry of Finance.

Jyoti Mathur-Filipp (CBD) said that the CBD has been committed to mainstreaming biodiversity into productive sectors, and energy, mining, etc. and this is something they want to do in the Post-2020 Framework. NbS is part of it but there is confusion about what is 'nature' and what is 'biodiversity', so it is necessary to come up with definitions, link the terminologies together and get people to understand that NbS is about capital investment in infrastructure. For the CBD, NbS is a concept towards policy processes.

Marion Adeney (Moore Foundation) said she had been intrigued about the difference in costs and benefits for different stakeholders. In the Amazon, there is a large diversity of stakeholders and it is a challenge to transfer benefits to all stakeholders. Even within communities, there are differences and divisions, which can undermine the successful implementation of NbS. There is a question of how to bring together the top-down (policy environment) and bottom-up (communities). We see the negative impacts of informal economies, but there are also positive benefits that aren't counted. We can make the invisible economies of sustainable forests/natural products visible and more quantified within the regional economy (this is a piece of a middle scale).

Jonathan Cook (WRI) said that the stakeholder issue is a fascinating one because it goes back to differences in scales and benefits. There are different benefits that appeal to different stakeholders at different scales and the challenge is to align them. Some local stakeholders are mostly interested in local immediate benefits and not necessarily larger global benefits way forward so really need to differentiate/quantify benefits and align the interests (connect them to local issues and benefits). You can't ask local people to bear the brunt for national and global demands for NbS approaches. It can also help to bring in mitigation benefits, but it is hard to make alignments/benefits stick. Nature can offer a lot to different groups if aligned correctly.

Bronson Griscom (CI) added that it is easy to feel overwhelmed about the level of complexity that needs to be confronted but on the other hand, there are a large number of opportunities to engage private holders and communities. We haven't reached the point yet where the valuation society places on carbon and climate change and other ecosystem services has reached certain thresholds, but we are approaching that threshold. When we bring together the right kinds of community conservation agreements to engage communities with all the complexity and when we have enough incentives, there is reason for optimism.

Gwyndolyn Sofka (University of Michigan) felt that people are invested in local benefits but to scale up need to look at what works in different areas so maybe we should think about the mesoscale. Appropriate NbS can be implemented that are area-specific. In our analysis, we found that a lot of the smaller-scale projects found success, but they might not work at a different level. So maybe we need a middle ground.

Juha Uitto (GEF IEO) stated that evaluation helps people focus their attention. That is, the root causes and drivers, not just the end results. We need to link the importance of natural capital to development. People can see concretely now what comes from environmental degradation. There are varied interests of different groups and we can't assume all stakeholders share the same interests, or that there are only two perspectives. We must be clear on trade-offs.

Summary of Working Group 2's discussion reported to the Plenary begins on p. 17.

Working Group 3 Discussion

Co-Chairs: Mark Stafford Smith (STAP), Charlotte Karibuhoye Said (MAVA Foundation)

Rapporteur: Richard Margoluis (Moore Foundation)

Question: How to make NbS operational – in their design, execution, and management?

Mark Stafford Smith (STAP) gave a brief introduction and began with a review of the first day by discussing the importance of having a sound theory of change (ToC), having appropriate multi-stakeholder dialogue (MSD), considering adaptive mechanisms throughout a project, how to achieve behavioral change, and greater involvement of social scientists. NbS must be resilient and robust to the uncertainties posed by climate change as well as other long-term changes such as population growth in order to ensure durability of outcomes. Monitoring, evaluating, and learning from projects is essential. In the end, however, we must remember that the GEF has a mandate for ‘global’ environmental benefits even as we all seek local and regional benefits, as well.

Charlotte Karibuhoye Said (MAVA) said that yesterday’s presentations resonated with what she sees in her work. For example, the link between biodiversity with societal issues is becoming more and more important. Investing a lot of energy in funding projects with good ToCs helps identify where a project is starting from, what it should achieve, and most importantly, HOW. Indicators and scorecards can be useful for monitoring, but she noted that monitoring is not easy, and scorecards may not continue to be useful after a project’s completion without upfront planning. Infrastructure and the private sector are not yet sufficiently integrated into the NbS approach. Dialogues are important to build capacity, and durability needs to relate to not just the benefits that accrue, but also the processes that lead to those benefits.

Rosina Bierbaum (STAP) said that she wanted to be in the 3rd group because this is the one that is focusing on “how” – which is very important and also the most difficult. She referred to Bob Watson’s comment yesterday that the GEF is focused on ‘global’ environmental benefits and so how do we balance the dual (social and environmental) objectives of NbS? Analyzed GEF adaptation projects tended to have a clear focus on social benefits whereas other GEF projects tended to focus more on the environmental benefits side. STAP has been trying to develop principles (such as TOC, multi-stakeholder dialogue, climate risk screening, etc.) to guide GEF projects so that they are more durable. The evidence suggests that design elements are important, but also that taking more time to design projects can result in it taking longer for a project to be approved by the CEO. Hopes this community of practice can help build up the evidence base on what is working to promote durable environmental and social outcomes, and why, as well as what does NOT work. As well, we need to review not just numbers that result from monitoring and evaluation, but look behind them to explore what has been learned and why.

Sandy Andelman (WCS) said that they have been working on NbS for decades without realizing it. They work from a bottom-up perspective in landscapes in close partnership with communities. But this is no longer enough if we want to achieve GEBs. There is a need to scale up to national, regional, and global scale. This is new for WCS and requires them to revisit the ToC, understand the drivers and obstacles and intervention points on multiple scales, and also consider policy alignment across countries and beyond. WCS works on local and global policies – but there is a need to align strategies better across countries.

Nathalie Seddon (NbS Initiative at Oxford University) stated that it is important to discuss NbS in an integrated way. Scale is very important, and so we have to think about NbS in landscapes and across time (benefits are often not reaped until later). We also need to be clear about the limits to nature's benefits and understand which trade-offs we are prepared to accept. Evidence is important but so is making sure we are to implement and govern and to do that you have to have multi-sectoral, multi-ministerial dialogues.

Marissa Lazaroff (University of Michigan) described the analysis by students to look at GEF projects. With regards to multi-stakeholder dialogue, she noticed that some of the projects with many stakeholders were the least successful. Some of the most successful projects were the ones that included biodiversity mainstreaming.

Chizuru Aoki (GEF) said that with regards to GEBs vs. local, climate adaptation benefits – even those that the GEF is keeping track of, are not GEBs. That is not the case for other focal areas (i.e. biodiversity) though those also often result in socio-economic benefits. Also, when you look at projects and Impact Programs, the GEF has included socio-economic impacts as part of the indicators (e.g. number of direct beneficiaries). The GEF is also tracking the number of policies and plans that are mainstreaming climate resilience. Also, they are tracking and trying to maximize the number of people trained through the adaptation initiative. Finally, how do we support countries and develop partnerships to understand and enable NbS? On the Global Commission for Adaptation (GCA), there is an action track on NbS, and GEF has been working on how to support adaptation and NbS in a more impactful way.

Todd Bridges (US Army Corps of Engineers) said he is mainly concerned with how to integrate NbS into large scale infrastructure projects (COE manages \$300 billion in water infrastructure). “Engineering with Nature” initiative has been underway for 10 years and they have learned many things along the way. First, many challenges related to NbS are at the heart of innovation and change management within organizations and communities. Also, there is a need to provide persuasive evidence, but this has to be focused on the specific audience (i.e. project investors/owners or engineers). The benefit streams need to be real and for that, you need a rigorous technical basis. Finally, the operations and maintenance issue is critical and relates very clearly with project durability.

Avecita Chicchon (Moore Foundation) said she is worried that the concept of NbS is turning into another buzz word. However, if we make this operational, then this won't happen. She is focused on conservation projects in the Amazon and mostly they work on protection, which is included in the IUCN definition of NbS. They are concerned about effective management and they have a set of indicators to monitor and evaluate over the long term. Financial sustainability is a big barrier, so they are focusing on sustainable finance, including with the GEF (through the ARPA project). They are also trying to establish environmental and social safeguards so they are in place when infrastructure is constructed in the Amazon, which it inevitably will be.

David Uzsoki (IISD) said his organization is trying to understand if there is a business case to be made for financing and deploying NbS. Some of the projects are hard to finance and it is unclear what is the performance of NbS with regards to climate change. IISD has developed a methodology that includes financial modeling to understand the business case and wider impacts (i.e. externalities and co-benefits) of NbS. They are even looking at monetizing these benefits to present the case to cities. They are seeing that NbS can deliver services in a very cost-effective manner. They are also looking at other models – such as energy efficiency financing – in terms of revenue streams and energy performance contracts. An NbS resource center is providing advice.

Aloke Barnwal (GEF) explained that it is necessary to think of the key stakeholders when considering the operational aspects of NbS. These are the policymakers and planners. From a policy perspective, NbS have been more focused on the regulatory regime as opposed to creating incentives whereby nature can act as a solution to climate, environment, development. From a planner's perspective, should we really be looking at NbS as a substitute for built infrastructure or as more complimentary? The work from IISD and MAVIA would be very useful to bring private investors into the picture. This is very relevant to GEF's work on integrated approaches since NbS is not necessarily a sectoral option but cross-sectoral. There is a Global Platform on Cities that will be operational very soon. As we look at trade-offs and synergies or local vs. global benefits, we need insights into the political economy on NbS and what really will drive decision making.

Jamison Ervin (UNDP) said that a big focus on convincing governments of the value of NbS. The first issue has to do with creating a narrative, and for UNDP this is about the SDGs and how nature underpins all of the SDGs. Also, with regards to the cost-benefit analysis – how do we convey that this is not investing for the sake of nature but about getting a better return on investment – what do you get out of it? The other aspect has to do with spatial data, which is critical to allow policymakers to visualize NbS. A map brings people to the table and allows for bringing in different layers of data to improve decision making and can also quantify co-benefits. The UNDP Equator Initiative and the Small Grants Program are indeed small; however, they are changing systems. So perhaps they can be used as a model for NbS for how to showcase solutions and scale-up.

Richard Margoluis (Moore Foundation) said that when it comes to measuring progress, we need to be clear on what it is we are trying to achieve, otherwise indicators are not very useful. So we need to be clear about what is the goal. Also, what are the specific interventions we are trying to promote? Finally, what is the probability of success and how do we know if that intervention is leading to this successful goal? In the chain of causality, the conservation of nature has to be reached before we see it manifest on the socio-economic side. This makes it clearer in terms of how to measure success because you have to first be successful on the nature side. NbS creates a whole new range of challenges with respect to MEL which is related to scale. ToC is related to specific projects whereas NbS are meant to operate across scale, which makes MEL automatically more challenging. Finally, on the issue of durability, if we are looking at the long-term solutions, we need to be clear about how we define and gauge durability.

Jason Spensley (GEF) observed that the issue of scaling up is crucial and how do we do that through systems change? We need to advance the language we are using with different sectors (i.e. financial sector for lending/insurance products, or health sector, etc.). It is a broadening of our community and we need to be careful not to over-complicate matters, but we do need to integrate more systematically with sector specialists if the goal is to scale up.

Andrea Bassi (ISSD) (a systems analyst applied mainly to a green economy and green growth in the context of adaptation and mitigation) said that in his experience of developing new methods and tools related to NbS, it is important to note the relevance of impacts on the ground – both positive and negative. This can only be achieved with a stakeholder-led conversation including the users of the NbS to have a more comprehensive view of the benefits. Also, the benefits need to be quantified so we can speak the same language and then align our view by converting biophysical matters into monetary terms. So, we end up working with an extended cost-benefit analysis that internalizes externalities. This is essential for developing a joint understanding and a sense of shared vision. But there are challenges in terms of quantifying multi-disciplinary set of outcomes and outputs, so ISSD uses a mixed-method

approach and the challenge there is that everyone uses a different language even if everyone is talking about the same thing. So how to integrate the knowledge and needs of different communities to highlight tangible benefits that are otherwise seen as intangible?

Russell Galt (IUCN Urban Alliance) said we need to get out of our sectors and talk to different players. In ecology, we talk about connectivity while urban planners talk about active travel networks. In ecology, we talk about structural diversity, and in urban planning, they talk about mixed-use. Finally, in ecology, we talk about prioritizing native species over exotics and the same is true for urban planning, where attention is given to locally-adapted vernacular buildings. So clearly we can align conservation with urban planning. IUCN is developing an urban nature index and while indicators are not a silver bullet, they can shine a light on high achievers, and by making these data publicly available, can help people hold the feet of government to the fire. This index will be launched at the IUCN Congress in January.

Rosina Bierbaum (STAP) noted that STAP was not able to interrogate projects that were called “NbS” because the projects went back before this term was used. But going forward, the GEF has an IAP and IP on Sustainable Cities and so this information will be incorporated into these new and ongoing programs.

Steven Carrion (World Bank) (who coordinates the NbS community of practice at the World Bank) said he hears from a lot of team leaders implementing these types of projects. There are new multi-donor trust funds that put NbS at the center including ProBlue, which focuses on healthy oceans and tries to close the technical and financial gaps. Task team leads have mentioned that the risk-averse nature of countries has been a barrier to more widespread implementation. Technical capacity and cost-benefit analyses and how to include NbS into engineering plans have also been challenging issues. The World Bank is pushing for collaboration and more technical guidelines and it is good to know that many people are working on solving this issue.

Summary of Working Group 3’s discussion reported to the Plenary begins on p. 17.

Closing Session

Participants returned to the larger group for a report back from break out group rapporteurs and closing remarks, including next steps, which include a report back to the GEF Council meeting (June 2 – 3), guidance on future NbS projects for the GEF, and a joint paper by STAP, WCS and the Moore Foundation on NbS for the Global Commission on Adaptation by end of the year.

Group 1 Key points on the balance between nature and people in NbS (Kate Newman, WWF)

1. We can’t get trapped into the false dichotomy of people versus nature. We need to capture the synergies and NbS is a great framework for doing that.
2. The definition is about solving human challenges and how we live drives an examination of whether nature can provide a solution to these challenges. The GEF does not come at things from this perspective so we need to consider the trade-offs.

3. Four buckets will affect trade-offs. First, where you are coming from (cultural orientation, goals/mandate of organization or community). Second, the sector you are trying to find solutions for (e.g. water and flood management). Third, the way the incentives might shift depending on how you are delivering the solution (i.e. procurement, incentives, and tools available, education). Fourth, even NbS can increase vulnerability and risk so we need to understand not only beneficiaries but also have to be cognizant of not increasing vulnerabilities to others.
4. How to value NbS? We need more work on true cost accounting and natural capital and a way of choosing options for delivering a solution. NbS will be weighed against grey options.
5. Who will pay the incremental costs above business-as-usual? To whom does that accrue? Could GEF cover the incremental cost? Or could society provide resources to cover these additional costs?
6. What are the incentives for a decision-maker for choosing NbS and what are the barriers? For example, can we redirect subsidies for more beneficial outcomes? Many of the typical solutions (e.g. grey infrastructure) are costly and if NbS are less costly this could provide an incentive for using them.
7. On the flip side, testing these solutions is not easy or terribly apparent at the moment. But engineers love a challenge, so we need to bring them in – engineers love to solve a problem! But they are usually brought in downstream - maybe we need to bring them upstream (i.e. procurement), and this requires learning.
8. We are a community of conservationists and we need to build bridges to the problem-solvers and across academia. We need a network of NbS research to make it more accessible to decisionmakers. All of the environmental conventions are talking about NbS which is helpful.

Group 2 Key points on the barriers facing NbS (Caleb McClennen, WCS)

1. At the highest level, there is a broad need for macroeconomic rebalancing and to continue to push for natural capital accounting and a greater understanding of the true costs and benefits of projects both for nature and for people. Important to mainstream biodiversity INTO other sectors.
2. Finance barrier – NbS may be ineligible for financing and future collateral. This is also a regulatory barrier. There may have been some advancements in the infrastructure area. Transition financing may be needed – not a loan – but to bridge the costs of transitioning through times when costs are higher.
3. Quantification of benefits – sometimes the barriers are pronounced if there is not a good quantification of all benefits, including environmental, economic, and physical (geological/infrastructural) benefits; the last two are things ecologists are generally less familiar with. Must put benefits in an appropriate language.
4. The private sector is an important partner in overcoming barriers, for example, through pilots, but it can also be a challenge to bring the private sector in for the long term.

5. The need to overcome policy barriers (regulatory – time to permit if not already accepted in regulatory framework) but also to unlock policy to create a framework that will allow for NbS. Not just top-down policy; crowd-sourcing and competition of ideas might help to build a more broad policy framework.
6. Scale is very important – spatial, temporal, and sectoral. The costs and benefits might be different across all three of these scales. Temporally, for example, one beneficiary might achieve benefits at time zero and another in ten years – how should this be dealt with? And of course, there are trade-offs across scales that may be significant.
7. Stakeholders – need to build local capacity instead of importing expertise if you want sustainable outcomes. We also need to bridge the gap between stakeholders at different scales – may be breakthroughs through the ‘meso’ level (less so between national and local?).
8. Innovations within the infrastructure sector were presented (see [IDB study](#)) and how NbS are being brought into this sector.
9. A lot of progress on quantification and finance has been developed in climate and infrastructure space. Less so in other sectors like health, food, nutrition, gender, so these are areas of growth for NbS.

Group 3 Key points on making NbS operational (Richard Margoluis, Moore Foundation)

1. The idea is not necessarily to come to a consensus but rather to capture the diversity of thought. While there is a large diversity of perspectives, there were a lot of consistent remarks.
2. What is it that we want to achieve? Is nature a necessary goal for it to be successful? Do all paths lead to the nature conservation side? What are the sets of interventions that are used and how do they work in combination or alone in terms of trying to achieve successful outcomes? We need to be clear on what we are implementing. NbS is about integrating ecological, social, and socio-economic. Need to reduce the vulnerability of the whole system.
3. Another big theme was the issue of evidence – how do we build on what currently exists but also how can we contribute in an adaptive management way and capture lessons in an evolving body of evidence? There is a need for theories of change and how are they useful for achieving goals and how to conduct monitoring and evaluation. We need to look at both the positive and the negative and across institutions and sectors. Consider policy alignment across countries and beyond.
4. Another important issue is the audience – who is involved, who is the audience, which sectors, how do we make sure the right people are involved? Need to tailor language to a specific audience and we need to think not just about individual stakeholders but also about forming alliances.
5. We need to consider the issue of scale – NbS needs to be done at a scale where it’s meaningful and we also need to consider the cross-scale interaction (sectors, policy, stakeholders). We need to balance the global and local benefits and think about scaling up through system change.

6. In terms of infrastructure, this is clearly a very important piece, and we need to start thinking of it in terms of a change management process. Systems thinking is very relevant in this respect, as is the urban context.
7. We also need to make the business case for NbS. We need to evaluate, integrate, and even embrace risk. Durability was raised on numerous occasions so how do we define and measure it - over time?

Conclusion and Next steps

Rosina Bierbaum (STAP) closed the meeting by reiterating some of the key themes highlighted during the STAP, WCS, and Moore Foundation presentations on the first day and gave a short summary of workshop conclusions.

- the extant community of practice needed to be expanded to include leaders in the fields of health, infrastructure, planners, and the private sector.
- the evidence base (admittedly still accumulating) should be tailored into actionable information for the different user communities – so that NbS is presented in language and terms that are relevant to the field of the practitioners, from engineers to ecologists to business to development agencies.
- the evidence base should be improved with more case studies and better metrics for characterising the successes and failures, co-benefits, synergies, and trade-offs.
- there was much monitoring of ‘numbers’, but evaluation of what works, doesn’t work, and why, were required so that more learning takes place. (There may be different – or even opposite – outcomes across spatial, temporal, and sectoral scales.)
- for NbS to be considered on an equal footing with other options, it was important to improve the quantification of the costs, and the benefits over both the short and the long-term, and, in particular, the benefits needed to be better monetised.
- there is a clear role for Natural Capital Accounting and “inclusive growth” concepts to be integrated into regional, national, and local planning efforts. NbS can be modular, flexible, and resilient to future shocks (such as climate change, extreme events, etc.) and could provide win-win solutions.
- NbS should include options that the policymakers and the community embrace, so stakeholder engagement from the top-down and bottom-up in the design of actions and goals was essential. In many cases, there is a role for meso-scale or boundary organisations to help achieve coherence in options chosen across scales or jurisdictions.
- NbS would benefit from more involvement of social and behavioral science to help design innovations that were wanted and acceptable to stakeholders, and to help with appropriate training and capacity building so that outcomes were more likely to be maintained and durable.
- scaling up the impact of NbS to achieve transformational change was urgent and the development community needed ‘best practices’ and lessons learned to be shared.

Rosina thanked participants and said she would follow up by providing presentations from the first day and a summary of the workshop. Next steps include a STAP report back to the GEF Council meeting (June 2 – 3). Following this, STAP, WCS, and the Moore Foundation will prepare a paper for the Global Commission on Adaptation by the end of the year, and STAP will develop NbS guidance for the GEF on this topic.

On behalf of the GEF, Chizuru Aoki expressed gratitude to STAP, WCS, and Moore for bringing people together on this very timely issue and she and the whole GEF team look forward to the continued analysis and additional guidance to the GEF in the future.

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