Adam Smith International

Nature Based Solutions

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Interested to Talk About Nature Based Solutions?

Adam Smith International has been delivering impactful projects in this area in many countries around the world – you can read some examples of this work in this document. If you would like to discuss any of these or new potential projects in more detail, please get in touch with Alex Harris, Manager in our Economic Development Team, at alex.harris@adamsmithinternational.com

Introduction

In 2021, world leaders finally recognised the critical role that nature plays in adaptation and mitigation.[1] Yet, despite being a key aspect of discussion, the absence of any direct reference to nature-based solutions (NbS) within the COP26 agreement provides evidence that the concept has not been universally prioritised or accepted.[2] Ahead of the UN Biodiversity Conference in Kunming in October 2022, which aims to agree a new set of goals for nature over the next decade, the purpose of this briefing note is to provide information about the key issues, opportunities and challenges surrounding Nature Based Solutions, such as a lack of understanding, governance and transparency.

Nature based solutions is an umbrella term to describe a range of actions that protect or restore ecosystems. The International Union for Conservation of Nature (IUCN) define NbS as "actions to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits."[3] Indeed, NbS can contribute to resolving economic issues, by making areas more attractive to new investors, residents and visitors, while creating new green jobs in a variety of sectors. NbS can involve activities as wide ranging as planting vegetation on slopes to prevent landslides, restoring coastal habitats to address sea level rise and storm surges, applying integrated water resource management to address water shortage, and managing forests sustainably to prevent erosion and regulate water flow.

The prevalence of NbS within the Nationally Determined Contributions (NDCs) of the Paris Agreement emphasises their importance in tackling climate change. Overall, 31% of Paris Agreement signatories have NbS in both their adaptation and mitigation components, 43% have NbS in their adaptation component only, and 11% have NbS in their mitigation component only. Indeed, many NbS can provide mitigation and adaptation benefits simultaneously, for example restoring natural forests in upper catchments can help to protect communities downstream from flooding, at the same time as increasing carbon sequestration and protecting biodiversity. Overall, just 15% of signatories do not include NbS within their NDCs.

The Economics of Biodiversity: The Dasgupta Review was the first comprehensive economic framework for biodiversity, and argued that a fundamental change in how we think about and approach economics is needed in order to reverse biodiversity loss.[4] The review advocates large-scale and widespread investment in NbS, in order to help address biodiversity loss and provide wider economic benefits, including creating jobs.

Example from Liberia: GROW Liberia

Liberia is a biodiversity hotspot thanks to its large areas of intact primary rainforest. The country hosts 43% of the remaining Upper Guinean Forest, which stretches across nine countries from Guinea to Togo. Yet Liberia's forests are under threat: there was a 20% decrease in national tree cover between 2011 and 2020. In this context, ASI are delivering the GROW Liberia programme, where our work includes a focus on actions to protect, and sustainably manage, Liberia's forests. In the cocoa sector, we are collaborating with farmers, cooperatives, investors and government agencies to promote forest-friendly cocoa production through discouraging deforestation, promoting the rehabilitation of existing farms, and championing the use of organic farming methods. Continuing to preserve Liberia's forests will increase the country's appeal to premium chocolate buyers as Liberian cocoa makes its entry into high-value markets, meaning more money for local farmers and businesses In order to achieve this, we have engaged close to 20,000 farmers and other market actors in Good Agricultural Practice training, including advising on effective tree management and the utilisation of organic fertilizers to boost cocoa production. Overall, the GROW programme prioritises the protection of Liberia's rainforests in order to ultimately benefit Liberia's agricultural industry.

Photo: Cocoa farmer in Liberia / Adam Smith International

1 IUCN, "IUCN welcomes recognition of nature's role at COP26 and calls for more ambition", 12 Nov 2021, https://www.iucn.org/news/secretariat/202111/iucn-welcomes-recognition-natures-role-cop26-and-calls-more-ambition
2 Carbon Brief, "COP26: Key outcomes for food, forests, land use and nature in Glasgow", 17 Nov 2021, https://www.carbonbrief.org/cop26-key-outcomes-for-food-forests-land-use-and-nature-in-glasgow
3 IUCN, "Nature-based Solution", https://www.iucn.org/theme/nature-based-solutions
4 HM Treasury, "Final Report – The Economics of Biodiversity: The Dasgupta Review"

Attracting Funding

Despite the potential positive impact of nature-based solutions in tackling climate change, NbS currently receives less than 3% of climate finance. Although there are several challenges which dissuade large scale investments in nature-based solutions, rapid reconceptualization of how nature is valued is crucial to widespread upscaling. Specifically, the opportunity cost of not investing in nature-based solutions or protecting existing nature should be emphasised. Indeed, nature's contribution to the global economy is currently worth more than $125 trillion annually.

From the carbon perspective, in many tropical nations, natural climate solutions can mitigate over 50% of national emissions. Moreover, nature often provides the most economically cost-effective solution to climate change adaptation, with a study across 52 coastal defence projects in the USA estimating that NbS were two to five times more cost-effective compared to engineered structures. To encourage finance, a greater understanding of the secondary benefits provided by NbS is also required. For example, the rehabilitation of degraded semiarid rangelands in Kenya has cushioned agro-pastoral communities against climatic shocks such as drought, while also providing communities with more productive livestock, more diverse sources of income (e.g., wood and grass cuttings, grass seeds, poultry products, fruits, and honey) and an improved standard of living.

> Investment in natural capital can provide prompt and productive returns for investors

Many stakeholders currently have a limited understanding of how investment in natural capital can provide prompt and productive returns:

- Sustainable afforestation can increase revenues from timber sales, and potentially provide additional revenues from the sale of verified carbon units or through payment for ecosystem services (PES).
- Sustainable agriculture and aquaculture can add a premium to prices for environmentally supportive practices and increase yield to drive revenue. Costs can also be saved from reducing the usage of artificial input.
- Nature-based solutions are often central to the growth of the eco-tourism sector, which can accrue revenue from paying tourists.
- Acquiring, and surveying land, can result in profit through carbon sequestration payments, for example the sale of verified carbon units or sale of biodiversity offset payments.

Overall, investors should recognise that nature-based solutions can be integral aspects of profit-making ventures. Moreover, as an enterprise gains revenue, a potential withdrawal through the sale of the enterprise, or shares, to new investors, can also enhance profit.

While awareness raising is a crucial component to attract investment in nature-based solutions, potential investors currently hold legitimate concerns about the limitations of the current pipeline. In particular, there is a lack of risk adjusted projects to attract financing. Substantial tools exist to mitigate the risks of investing in nature-based solutions, and the relevant public bodies and private organizations need to use these options. For example, guarantees and collateral can improve financial access, while off-take agreements can help to improve credit profiles and reduce demand risk. Subordinate capital can also increase access to risk-adverse investors, while insurance can transfer risks to other parties. Results based incentives are crucial in achieving performance criteria yet can also support in the identification of partners willing to pay for impact, strengthening the credit profile and improving the predictability of cash flow.

As well as utilising innovative funding mechanisms, project financiers should also support technical professionals to accelerate research into nature-based solutions, with a particular focus on gathering data to better understand, predict and model the effectiveness of funding NbS. Technical assistance should also incorporate support programmes for capacity building and pipeline development, strengthening the skills and capabilities within financing organisations both public and private.

Example from the DRC: The Garamba Alliance Activity

ASI is currently implementing the five year Garamba Alliance Activity in the Democratic Republic of the Congo, which aims to conserve biodiverse ecosystems and improve the well-being and prosperity of the communities that depend on them. Garamba National Park, a UNESCO World Heritage site in the northeast of the DRC is one of Africa's oldest and most biologically significant national parks. A central component of the project involves strengthening the management of the protected area to address the key drivers and threats to biodiversity. In particular, we are providing training to at least 95% of Garamba National Park staff focused on improving their conservation management skills. Moreover, we recognise that the natural resources of Garamba can provide a solution to the economic challenges faced by people across the region. Therefore, we are focused on developing sustainable agriculture and forestry enterprises that target the most marginalised people in the region - who may have previously engaged in unsustainable and harmful economic practices. Going forward, our team is committed to ensuring that a significant proportion of the National Park's budget is funded through NbS, for example eco-tourism operations. We are also providing free access to the park for school groups for environmental education trips focused on protecting nature.

Photo: Lowland gorillas at Kahuzi Biega National Park. In late 2021, Adam Smith International carried out a study at the park to examine the links between natural resources and conflict, believed to be key drivers of habitat destruction. / Alex Miles, ASI

Examples from Southern and Eastern Africa

Vuna

Vuna was a 3-year, £23 million, UK Government funded Climate Smart Agriculture (CSA) systems development programme operating across southern and eastern Africa. CSA practices are designed to help smallholder farmers increase their food production, while also increasing resilience to climate change by protecting nature and reducing greenhouse gases. Through Vuna, ASI improved the regional and national enabling environment for CSA, addressed policy and regulatory obstacles to CSA uptake, and developed capacity to access finance to support CSA. In Mozambique, Vuna was effective in delivering capacity building programmes that led to increased farmer awareness and adoption of wide-ranging nature based CSA practices, including minimum tillage, mulching, and intercropping. In Malawi's smallholder dairy production system, we focused on improving farmer understanding of fodder production in order to improve animal nutrition, enhancing animal productivity and reducing methane emissions.

Climate Resilient Infrastructure Development Facility (CRIDF): Kazungula Food Security

The CRIDF facility aimed to catalyse the development of projects that increase the ability of communities, policy makers and planners to cope with climate extremes, including through pioneering nature-based solutions. The need to build climate resilience for communities along the Ngwezi River near Kazungula was first identified by Zambia's Ministry of Agriculture and Livestock (MAL). Kazungula is prone to flooding in the wet season, severe water shortages in the dry season, and there are no suitable dam sites. The CRIDF team completed a feasibility study which identified potential opportunities to increase the community's resilience to climate change, and explored possible options to enhance and sustain the natural functioning of the existing wetland system to provide more water in the dry season by enhancing storage in the wetland itself, and better control flooding in the wet season. This included detailed modelling of the wetland functioning to inform the design of optimal infrastructure.

Photo: A smallholder farmer in a field in Malawi / Adam Smith International

Effective Governance

A systemic change in the public management of nature-based solutions must occur to ensure that they are effective in mitigating and adapting to climate change. For example, governments and institutions have a crucial role to play in subsidising nature-based solutions, yet most currently exacerbate the issue by paying people more to exploit nature than to protect it. The Dasgupta Review estimated that around $4 to $6 trillion of global government subsidies damage nature. This exemplifies a central issue hindering the effective governance of nature-based solutions – a lack of co-ordination between decision makers. Constructive nature-based approaches require strong partnerships between local, regional, and national governments and ministries whose priorities, interests or values may not align and could conflict. For example, the positive climate mitigation effect of a government tree-planting scheme will be offset by the same government subsidising carbon intensive farming practices. Therefore, policy coherence is crucial to governing nature-based solutions. Central to this is a reconceptualization that protecting nature, and climate change mitigation and adaptation, is a responsibility across government, rather than certain departments.

Strong partnerships between governments and civil society are also needed. As nature-based solutions often rely on the support of local people, the integration of local voices (including local governments) is a vital aspect of implementation. Managers of NbS projects should consider establishing a locally based organisation, so that local people can influence decision-making. Channelling supporting finance locally is also central to many successful NbS, and co-operating with local research partners to design and implement monitoring strategies can also be extremely helpful.

Although large scale, government backed NbS programmes will be at the centre of worldwide climate change mitigation and adaptation, community level NbS innovations or initiatives are also vital components. Locally focused NbS will be particularly important in areas where the institutional architecture cannot currently support the implementation of large-scale programmes and can also be extremely useful in piloting novel approaches. Furthermore, information relating to the management of ecosystems is asymmetrically distributed, and much is uniquely understood and best managed by local communities. Institutions and governments should focus on pooling knowledge and perspectives across distinct levels and from different organisations. This will enable relevant information to flow, and allow for collaborative planning, participation, and coordination.

Measuring Benefits

Limited large scale global funding and non-holistic governmental support for nature-based solutions is directly related to the lack of consolidated evidence highlighting their effectiveness. To improve the evidence base, NbS programme implementers should ensure their projects include measurable goals. Quantifying the benefits of NbS is crucial to the future identification and development of revenue streams and financing options.

While countries worldwide recognised the key role NbS should play in tackling climate change within the Paris Agreement, only around 17% of NDCs set quantifiable targets. Research has shown that the economic benefits of NbS are not frequently monitored.[5] Comparisons between the effectiveness of nature-based interventions with alternative so-called grey approaches are also rare.

Securing funding and governmental support for nature-based interventions will require improved evidence displaying the economic advantages of NbS in comparison to conventional, engineered interventions. Economic assessments should strive to value natural capital and be included within a broader evaluation which highlights the clear non-material benefits of green interventions.

NbS are often blended into the existing natural environment, an aesthetic advantage that can simultaneously conceal the benefits they provide to local communities. Moreover, the non-material benefits provided by nature-based interventions are often difficult to measure accurately or to evaluate in monetary terms. Therefore, project implementors should establish a measurement framework at the start of the project which includes a "status quo" scenario. This aids in the identification of links between NbS and less obvious benefits, for example improvements in physical health or mental wellbeing. A useful method for measuring NbS has been developed by EKLIPSE, who suggest that the potential benefits of the specific action of the NbS should be clarified prior to implementation.[6] EKLIPSE also argue that indicators and an assessment methodology should also be developed prior to the start of the project.

5 Chausson et al, "Mapping the effectiveness of nature-based solutions for climate change adaptation" (2020). https://onlinelibrary.wiley.com/doi/epdf/10.1111/gcb.153
6 Clever Cities, "Measuring and valuing impact for NBS: Social Finance" (2019). http://growgreenproject.eu/wp-content/uploads/2019/05/Measuring-and-valuing-impact-for-NBS_Clever-Cities.pdf

Conclusion

The growing attention on NbS was recently emphasised by its inclusion as one of the key action tracks of the UK Presidency at COP26. The term was also used in the titles of 15 COP side-events and several coalitions to drive more funding. Although direct reference to NbS was removed from the final COP26 decision text, the Glasgow Climate Pact still acknowledges that "conserving and restoring" nature has a critical role "in delivering benefits for climate adaptation and mitigation." It is vital that the increased recognition of NbS' importance in climate change adaptation and mitigation is reflected in greater funding commitments from government and the private sector. As well as improved financing, a re-conceptualisation of how nature is valued by decision makers will be central to ensuring that the positive effects of NbS are not offset by climate damaging policies elsewhere. Knowledge sharing should also be prioritised, and promoting proven examples of good practice will be especially important in contexts where quantitative impacts of NbS are difficult to measure.

As a certified B Corp, ASI is committed to looking at ourselves in the mirror and to initiating high impact changes in the way we work. While our climate change team successfully deliver complex and innovative programmes that simultaneously grow economies, transform livelihoods and respond to climate change, our research into nature-based solutions has underlined that nature-based solutions need to be central to the design and implementation of future programming across the sectors we work in, including projects within our infrastructure and agriculture portfolios. We are committed to prioritising nature across our projects, and will continue to share important lessons about the ways in which nature can concomitantly provide a solution to the environmental, economic, and social challenges we face.

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