

Inputs for the First Global Stocktake

Submission by the International Union for Conservation of Nature (IUCN)

28 February 2022 (updated 6 March 2023)

The International Union for Conservation of Nature (IUCN) is pleased to provide this updated submission for the third technical dialogue (TD 1.3) of the first global stocktake in response to the [call for inputs](#) dated 18 January 2023. These inputs have been provided taking into account not only Decision 19/CMA.1, the guiding questions prepared by the SB Chairs, and the overall objectives of the global stocktake (GST) referred to in Article 14 of the Paris Agreement, but also other recent developments.

The GST remains crucial for assessing and enhancing the collective ambition of action and support required for achieving the purpose and long-term goals of the Paris Agreement. It offers an important opportunity to take stock of the global progress made to date in each of the three key thematic areas of mitigation, adaptation, and means of implementation and support. It also offers an opportunity to identify the concrete options that are available across different sectors for building further ambition in these three areas, including through enhanced international cooperation.

In this context, IUCN would like to reiterate the critical contribution that Nature-based Solutions (NbS)¹ – based on the protection, restoration, and sustainable management of the world's ecosystems – can make in addressing the interlinked crises of climate change and biodiversity loss. The GST process offers a valuable opportunity to take stock of the collective global progress made on NbS to date, particularly in relation to climate change mitigation, adaptation, and financing, as well as to highlight opportunities for increasing future ambition. The impetus for this is now strengthened even further through the decisions taken by both Parties to the UNFCCC at COP27 and Parties to the CBD at COP15, as noted below.

In November 2021, at UNFCCC COP26, the Conference of the Parties explicitly recognised, in the [Glasgow Climate Pact](#), “the interlinked global crises of climate change and biodiversity loss, and the critical role of protecting, conserving and restoring nature and ecosystems in delivering benefits for climate adaptation and mitigation, while ensuring social and environmental safeguards”. It also reinforced the “importance of ensuring the integrity of all ecosystems, including in forests, the ocean and the cryosphere, and the protection of biodiversity” when taking action to address climate change.

In March 2022, UN member states adopted a resolution at the *United Nations Environment Assembly* on “[Nature-based solutions for supporting sustainable development](#)”, which, among other things, provides a multilaterally agreed definition of NbS building on the previous IUCN definition.

In November 2022, at UNFCCC COP27, the Conference of the Parties, in the [Sharm el-Sheikh Implementation Plan](#) underlined “the urgent need to address, in a comprehensive and

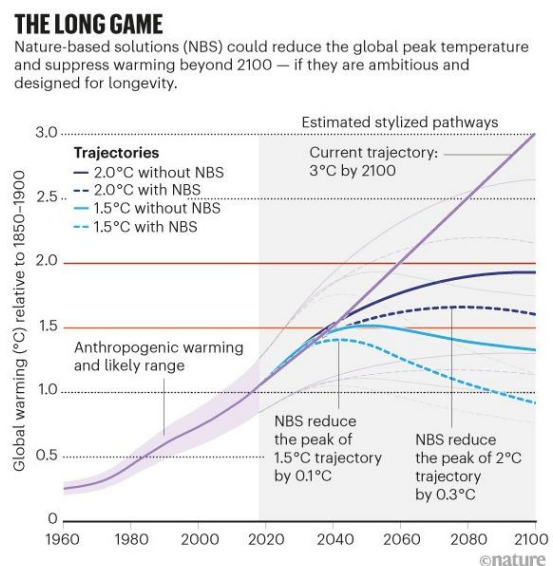
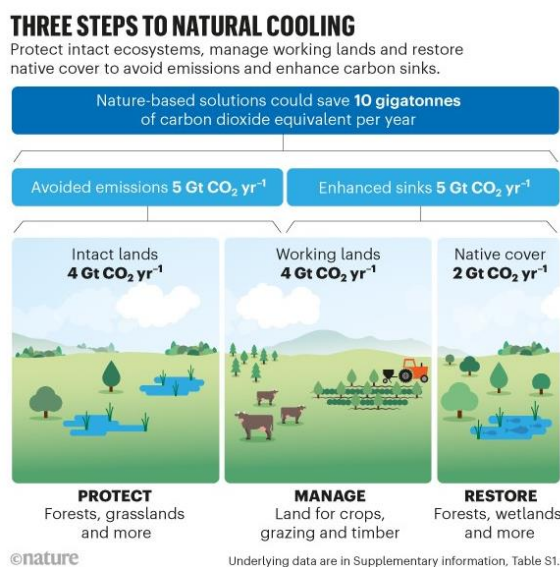
¹ In [Resolution \(UNEP/EA.5/Res.5\)](#) adopted on 2 March 2022, the *United Nations Environment Assembly (UNEA)* decided that nature-based solutions are ‘actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits’ (operative para 1). This definition directly builds on and incorporates the IUCN definition of NbS that was adopted by IUCN’s 1,400+ State and NGO Members through [Resolution 69](#) at the *2016 IUCN World Conservation Congress* in Hawaii, USA.

synergetic manner, the interlinked global crises of climate change and biodiversity loss in the broader context of achieving the Sustainable Development Goals, as well as the vital importance of protecting, conserving, restoring and sustainably using nature and ecosystems for effective and sustainable climate action”. It also explicitly encouraged Parties “to consider, as appropriate, nature-based solutions or ecosystem-based approaches, taking into consideration United Nations Environment Assembly resolution 5/5, for their mitigation and adaptation action while ensuring relevant social and environmental safeguards” (Decision 1/CP.27, para 48; Decision 1/CMA.4, para 81). COP27 also witnessed the launch of the [Enhancing Nature-based Solutions for Climate Transformation \(ENACT\)](#) initiative co-chaired by Egypt and Germany to strengthen collaboration between existing NbS efforts and partnerships. NbS was also recognised in Targets 8 and 11 of the [Kunming-Montreal Global Biodiversity Framework](#) adopted by the Conference of the Parties to the Convention on Biological Diversity in December 2022 (CBD COP15).

This is therefore an opportune moment for the GST process to: (1) take stock on the collective progress made on NbS in relation to climate change mitigation, adaptation, and financing, and (2) to identify what can be done further to strengthen action, ambition, and assurance on it. Presented below is a summary of some of the recent published literature on this topic and key sources of information, arranged by theme, which can offer useful inputs for this stocktaking.

Mitigation through Nature-based Solutions

Recent analysis published in *Nature* shows that NbS, when designed with ambition and for longevity, can have a powerful role in reducing temperatures in the long term ([Girardin et al 2021](#)). It estimates that protecting intact ecosystems, improving the management of working lands, and restoring degraded ecosystems can save around 10 gigatonnes of CO₂e per year (see charts below). This, it notes, is more than the estimated emissions from the entire global transportation sector.



Source: Cécile A. J. Girardin, Stuart Jenkins, Nathalie Seddon, Myles Allen, Simon L. Lewis, Charlotte E. Wheeler, Bronson W. Griscom & Yadvinder Malhi. 2021. 'Nature-based solutions can help cool the planet — if we act now', *Nature*, 12 May.

Other recent peer-reviewed journal articles have similarly estimated that NbS could contribute around 30% of the global mitigation required by 2030/2050 to achieve the 1.5/2°C temperature rise goal agreed to under the Paris Agreement ([Griscom et al 2017](#), [Roe et al 2019](#)).

In November 2021, UNEP and IUCN jointly assessed the current state of knowledge on the size of the contribution that NbS could make towards climate change mitigation. Offering a cautious interpretation of the existing evidence, and taking into account the associated uncertainties and the time needed to deploy safeguards, this assessment estimated that by 2030, NbS implemented across all ecosystems can deliver emission reductions and removals of at least 5 GtCO₂e per year, of a maximum estimate of 11.7 GtCO₂e per year. By 2050, this could rise to at least 10 GtCO₂e per year, of a maximum estimate of 18 GtCO₂e per year ([UNEP and IUCN, 2021](#)). This is a significant proportion of the total mitigation required to achieve the long-term goals of the Paris Agreement. However, it is important to stress that NbS should not be seen as a substitute for rapid and ambitious GHG emission reductions, but rather something that should be done alongside them. Thus, they should not be used to delay the urgent action that is required today across all sectors to phase out fossil fuels and decarbonize the world economy.

Sources of information:

- [United Nations Environment Programme \(UNEP\) and International Union for Conservation of Nature \(IUCN\). 2021. *Nature-based solutions for climate change mitigation*. Nairobi and Gland.](#)
- [Girardin et al. 2021. 'Nature-based solutions can help cool the planet — if we act now', *Nature*, 593: 191-194.](#)
- [Roe et al. 2021. 'Land-based measures to mitigate climate change: Potential and feasibility by country', *Global Change Biology*, 27: 6025-6058.](#)
- [Roe et al. 2019. 'Contribution of the land sector to a 1.5°C world', *Nature Climate Change*, 9: 817-828.](#)
- [Griscom et al. 2017. 'Natural climate solutions', *Proceedings of the National Academy of Sciences*, 114 \(44\): 11645-11650.](#)

Adaptation through Nature-based Solutions

In addition to its mitigation benefits, the adaptation benefits of investing in NbS are also amply clear. Indeed, one of the major strengths of NbS are the multiple societal benefits that they can simultaneously provide in addition to conserving biodiversity. There is now a growing evidence base that demonstrates that NbS can reduce exposure to climate impacts such as flooding, erosion, water scarcity, and reduced agricultural productivity, and help build resilience across both rural and urban landscapes ([Chausson et al., 2020](#)).

While the literature notes that there is no single metric that can capture the aggregate benefits of NbS for climate change adaptation in the same way as is done in the case of mitigation, there have been attempts to quantify the effects of NbS for adaptation using a range of metrics such as the number of people affected, the monetary value of avoided damage to infrastructure/property, or the market value of ecosystem provisioning services ([Seddon et al 2021](#)).

For instance, mangrove ecosystems alone are estimated to provide over US\$ 65 billion in flood protection benefits and safeguard 15 million people against flooding across the world every year ([Menéndez et al 2020](#)). To offer one specific example, it is estimated that coastal wetlands helped to avoid US\$ 625 million in direct flood damages during Hurricane Sandy in 2012 ([Narayan et al 2017](#)). More generally, it has been estimated that the protection of coastal ecosystems can benefit upwards of 500 million people globally, with the benefits valued at over US\$100 billion per year ([Seddon et al 2021](#)). In the case of inland ecosystems,

afforestation/reforestation and improved and sustainable forest management are estimated to provide climate adaptation benefits for over 25 million people (ibid., [Smith et al 2019](#)).

Sources of information:

- [Seddon et al. 2021. 'Getting the message right on nature-based solutions to climate change', *Global Change Biology*, 27: 1518-1546.](#)
- [Chausson et al. 2020. 'Mapping the effectiveness of Nature-based solutions for climate change adaptation', *Global Change Biology*, 26: 6134-6155.](#)
- [Menéndez et al. 2020. 'The Global Flood Protection Benefits of Mangroves', *Scientific Reports*, 10: 4044.](#)
- [Smith et al. 2019. 'Which practices co-deliver food security, climate change mitigation and adaptation, and combat land degradation and desertification?', *Global Change Biology*, 26: 1532-1575.](#)
- [Narayan et al. 2017. 'The Value of Coastal Wetlands for Flood Damage Reduction in the Northeastern USA', *Scientific Reports*, 7: 9463](#)

Nature-based Solutions in Nationally Determined Contributions (NDCs)

In view of the significant benefits of NbS for both climate change mitigation and adaptation, an increasing number of countries have begun to incorporate NbS within their Nationally Determined Contributions (NDCs) in support of the Paris Agreement. However, this has happened to different degrees and with considerable variation. As a joint IUCN and Oxford University study published in 2019 found, although 66% of Paris Agreement signatories had included NbS in one form or the other in their NDCs, these were not substantive or stringent enough ([Seddon et al. 2019](#)). For instance, the study found that:

- While over 70% of NDCs contained references to efforts in the forest sector, only 20% of these included quantifiable targets, and only 8% included targets expressed in tonnes of CO2 equivalent.
- Only around 17% of NDCs with current or planned actions involving NbS for adaptation (i.e. ecosystem-based adaptation) set quantifiable and robust targets for the same.
- Only 19% of NDCs from countries with coastal ecosystems included them in their mitigation components, and only 39% in their adaptation components.

Overall, the study concluded that considerable potential remained for Parties to further strengthen the incorporation of NbS in their future NDCs. It also identified the need for enhanced financing for effectively implementing NbS, and made other specific recommendations for the consideration of policymakers to strengthen the inclusion of NbS in future NDCs. Similarly, a seven-step approach for national governments to integrate or enhance NbS in their NDCs was also developed and published by UNDP ([UNDP, 2019](#)).

A subsequent WWF study, published in November 2021, reported a majority of the 114 updated NDCs clearly referencing NbS in their mitigation and/or adaptation measures, with 85 updated NDCs showing improved integration of NbS compared to previous versions, 10 NDCs showing no significant change, and 19 NDCs witnessing a decline ([WWF 2021](#)). An assessment done by UNEP and IUCN of 100 NDCs in 2021 found forest-based options to be most commonly included, followed by grassland and agriculture, coastal ecosystems and finally wetlands (UNEP and IUCN 2021). More recent analysis undertaken by [Oxford](#)

[University](#) in February 2022 has found that 41% of the 122 new NDCs submitted as of December 2021, representing 50 countries, have explicitly referenced NbS and included strengthened commitments on them.

Sources of information:

- [UNEP and IUCN. 2021. *Nature-based solutions for climate change mitigation*. Nairobi and Gland.](#)
- [WWF. 2021. *NDCs - A Force for Nature? Nature in Enhanced NDCs \(Fourth Edition\)*, November 2021](#)
- [Lecerf et al. 2021. *Coastal and marine ecosystems as Nature-based Solutions in new or updated Nationally Determined Contributions*, Ocean & Climate Platform, Conservation International, IUCN, GIZ, Rare, The Nature Conservancy, Wetlands International and WWF.](#)
- [Seddon et al. 2019. *Nature-based Solutions in Nationally Determined Contributions: Synthesis and recommendations for enhancing climate ambition and action by 2020*. Gland, Switzerland and Oxford, UK: IUCN and University of Oxford.](#)
- [UNDP. 2019. *Pathway for Increasing Nature-based Solutions in NDCs: A Seven-Step Approach for Enhancing Nationally Determined Contributions through Nature-based Solutions*. New York.](#)

Financing for Nature-based Solutions

In particular, the lack of adequate financing is identified as key barrier for implementing NbS at scale across several of the above assessments. At the same time, wide ranges are also noted in the assessments of financing currently available to date for implementing NbS.

For instance, analysis of global climate finance in 2019/2020 done by the Climate Policy Initiative estimated only about US\$ 14 billion of the US\$ 632 billion of total global climate financing (i.e. less than 3%) to be currently directed towards agriculture, forestry and other land uses ([CPI 2021](#)), or what might broadly include NbS.

On the other hand, UNEP's *State of Finance for Nature 2021* report estimates US\$ 133 billion to currently flow into NbS annually, albeit from a much wider variety of sources. However, what is notable is its conclusion that investments in NbS need to at least triple in real terms by 2030 and increase four-fold by 2050 if the world is to meet its climate change, biodiversity and land degradation targets ([UNEP 2021](#)). The current state of climate financing available for NbS is therefore something that could be considered and assessed through the GST. The work done under the UNFCCC's Standing Committee on Finance (SCF) [Annual Forum on NbS Financing](#) in 2021 and 2022 could also contribute to this process.

Sources of information:

- [Climate Policy Initiative. 2021. *Global Landscape of Climate Finance 2021*](#)
- [UNEP. 2021. *State of Finance for Nature 2021*. Nairobi.](#)
- [UNEP. 2022. *State of Finance for Nature in the G20*. Nairobi.](#)

Quality assurance on NbS is also provided through the [IUCN Global Standard for Nature-based Solutions](#).