

# Submission for the Information Collection and Preparation (ICP) Component of the Global Stocktake (GST)

Jointly prepared by Conservation International, Environmental Defense Fund, and The Nature Conservancy

## Introduction

The Global Stocktake’s assessment of collective progress and recommendations to support enhanced national climate commitments (e.g., Nationally Determined Contributions (NDC), National Adaptation Plans (NAP), and Long-term Strategies (LTS)) and international cooperation are a key part of the Paris Agreement’s ambition cycle, and if designed and executed well can be a powerful propeller towards the transformative action needed by 2030. **To produce a robust and effective Global Stocktake, it is essential that it comprehensively considers the critical role of nature in ambitious climate action to achieve the goals of the Paris Agreement.** During COP26, Parties to the Paris Agreement directly recognized the importance of nature, “Emphasizing the importance of protecting, conserving and restoring nature and ecosystems to achieve the Paris Agreement temperature goal, including through forests and other terrestrial and marine ecosystems acting as sinks and reservoirs of greenhouse gases and by protecting biodiversity, while ensuring social and environmental safeguards.”<sup>1</sup>

Nature-based Solutions (NbS)<sup>2</sup> in terrestrial, coastal and marine ecosystems are a critical element of meeting the goals of the Paris Agreement, along with advancing global goals on biodiversity, human health, and sustainable development, and these mitigation and adaptation pathways must be achieved in tandem with rapid, deep decarbonization of our economies. **Given the importance of nature to mitigating and adapting to climate change, as well as to informing risk and mobilizing finance, this relationship must be clearly articulated in the GST.**

This submission answers selected guiding questions for the GST’s Information Collection and Preparation Component, specifically oriented toward addressing the role that NbS has been playing and needs to continue to play to meet both the mitigation and adaptation goals of the Paris Agreement. It outlines key inputs and recommendations to include within the GST, which can facilitate comprehensive reflections about experiences with and needs related to target-setting and implementation of nature-based climate action.

## The importance of NbS in the GST

Nature-based solutions in terrestrial, coastal and marine ecosystems play a critical role in achieving the mitigation and adaptation goals of the Paris Agreement. NbS include protection of natural systems, improved management practices in production areas, and restoration of natural systems, which increase carbon sequestration and storage and/or avoid greenhouse gas (GHG) emissions and bolster climate resilience across forests, wetlands, grasslands, agricultural lands, open oceans, mangroves, saltmarshes, seagrass beds, and other coastal ecosystems. **It is important to emphasize that NbS are not a substitute for decarbonization of the energy sector; rather, they are an essential complement to decarbonization efforts.**<sup>3</sup> Although the UNFCCC does not refer to them as ‘nature-based solutions,’ all mitigation pathways to limit temperature rise require transformative actions to halt and reverse emissions from agriculture, forestry, and management of terrestrial, coastal and marine ecosystems, in addition to rapid decarbonization of our economies.<sup>4</sup> **In fact, estimates suggest that NbS have the potential to deliver up to one third of the cost-effective mitigation needed by 2030 to hold global warming below 2°C, while providing climate adaptation benefits and supporting biodiversity, human health, and other sustainable**

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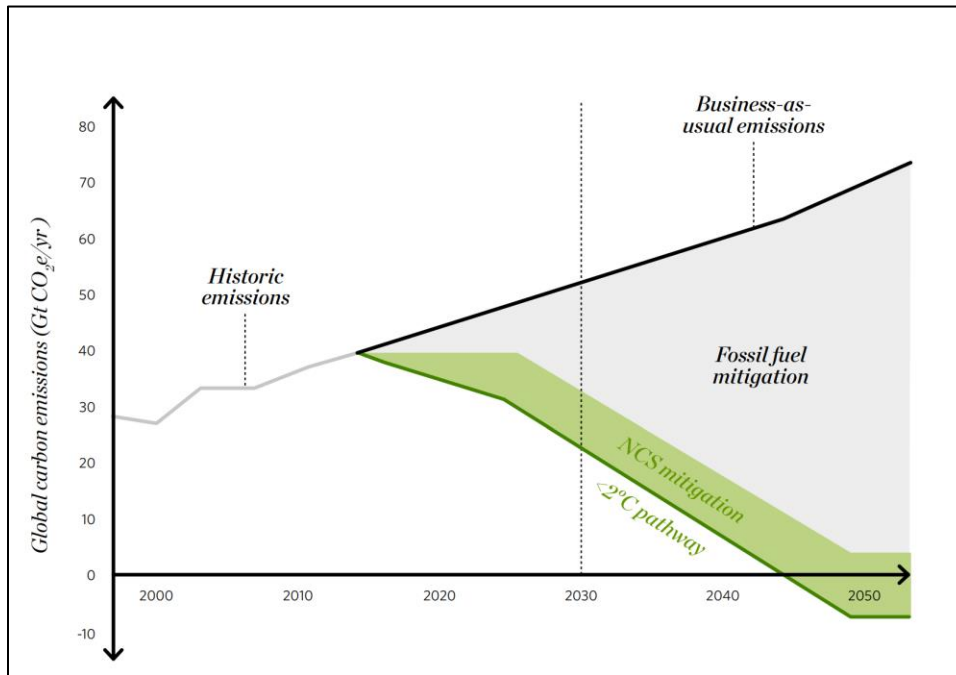
<sup>1</sup> UNFCCC. (2021). Decision 1/CMA.3. Glasgow Climate Pact. [https://unfccc.int/sites/default/files/resource/cma2021\\_L16E.pdf](https://unfccc.int/sites/default/files/resource/cma2021_L16E.pdf).

<sup>2</sup> Nature-based Solutions are defined by the International Union for Conservation of Nature (IUCN) as actions to protect, sustainably manage and restore natural or modified ecosystems, which address societal challenges effectively and adaptively, while simultaneously providing human well-being and biodiversity benefits. (See Cohen-Shacham, E., Walters, G., Janzen, C. and Maginnis, S. (2016). Nature-based Solutions to address global societal challenges. International Union for Conservation of Nature. xiii, 97. <https://portals.iucn.org/library/sites/library/files/documents/2016-036.pdf>.)

<sup>3</sup> Leavitt, S.M. et al. (2021). Natural Climate Solutions Handbook: A Technical Guide for Assessing Nature Based Mitigation Opportunities in Countries. The Nature Conservancy. [https://www.nature.org/content/dam/tnc/nature/en/documents/TNC\\_Natural\\_Climate\\_Solutions\\_Handbook.pdf](https://www.nature.org/content/dam/tnc/nature/en/documents/TNC_Natural_Climate_Solutions_Handbook.pdf).

<sup>4</sup> United Nations Environment Programme and International Union for Conservation of Nature. (2021). Nature-based solutions for climate change mitigation. <https://wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/37318/NBSCCM.pdf>.

**development goals.**<sup>5</sup> Figure 1 shows the critical role of NbS for climate mitigation – also known as Natural Climate Solutions (NCS)<sup>6</sup> – in reaching the 2°C temperature goal of the Paris Agreement. Inclusion of high-integrity NbS is also critical as part of carbon market strategies that can increase overall climate ambition (see response to question #4 for additional context).<sup>7</sup>



**Figure 1:** The role of NCS in reaching the 2°C temperature goal of the Paris Agreement. As shown, NCS are not a substitute for decarbonization of the energy sector; rather, they are an essential complement to fossil fuel mitigation.

Source: Leavitt, S.M. et al. (2021). Natural Climate Solutions Handbook

For the GST to comprehensively assess progress on meeting the goals of the Paris Agreement, each of its three components - including submissions of inputs from both Parties and non-Party stakeholders - must reflect the key role of NbS in climate action. **Moreover, this first GST, in particular, should ensure a deep dive into this topic because NbS will most effectively contribute to overall climate action if they are implemented in the short-term and designed to be ecologically sound and socially equitable to ensure long-term climate benefits over the next century or more.**<sup>8</sup> Delayed action will reduce the relative impact of

NbS in reaching the Paris Agreement goals, especially if business-as-usual emissions increase as projected from other sectors, because: (1) climate change itself will gradually reduce the resiliency of some ecosystems, in many cases reducing their ability to sequester and store carbon,<sup>9</sup> and (2) the mitigation benefits of some NbS can take many years to reach their maximum cooling effect.<sup>10</sup> Therefore, it is essential for the next round of national climate commitments and near-term international support to fully harness and prioritize the potential of NbS for rapid implementation by 2030 – and the GST can help provide an understanding of what needs to happen to achieve this.

<sup>5</sup> Griscom, B.W., Adams, J., Ellis, P.W. et al. (2017). Natural Climate Solutions. *Proceedings of the National Academy of Sciences*, 114(44):11645–11650. <https://www.pnas.org/content/114/44/11645>.

<sup>6</sup> Nature-based solutions is an umbrella term that includes both climate mitigation and adaptation benefits. Throughout this submission, we generally use NbS in this broad manner, but sometimes use more specific terminology to refer more specifically to the mitigation benefits of NbS – denoted by the term Natural Climate Solutions (NCS) – or the adaptation benefits of NbS – denoted by the term Ecosystem-based Adaptation (EbA).

<sup>7</sup> Sha, Y., Duan, M., Edmonds, J. et al. (2021). "The Role of Market Mechanisms in Bridging the Gap," Chapter 7 in Emissions Gap Report 2021. United Nations Environment Programme. <https://www.unep.org/resources/emissions-gap-report-2021>.

<sup>8</sup> Girardin, C., et al. (2021). Nature-based solutions can help cool the planet — if we act now. *Nature*, 593, 191-194. <https://doi.org/10.1038/d41586-021-01241-2>.

<sup>9</sup> For more information on the impacts of climate change on the ability of ecosystems to sequester and store carbon, please see: Gatti, L.V. et al. (2021). Amazonia as a carbon source linked to deforestation and climate change. *Nature*, 595(7867), 388-393. <https://doi.org/10.1038/s41586-021-03629-6>; and Hubau, W., Lewis, S.L., Phillips, O.L. et al. (2020). Asynchronous carbon sink saturation in African and Amazonian tropical forests. *Nature*, 579, 80–87. <https://doi.org/10.1038/s41586-020-2035-0>.

<sup>10</sup> Girardin, C., et al. (2021). Nature-based solutions can help cool the planet — if we act now. *Nature*, 593, 191-194. <https://doi.org/10.1038/d41586-021-01241-2>.

## Responses to selected ICP component Guiding Questions

The questions answered in this submission are derived from the list of Guiding Questions developed by the UNFCCC Subsidiary Body Chairs, as released in September 2021.<sup>11</sup> and have been adjusted – as denoted in **bold** - to facilitate inputs on NbS. (Please see footnotes for references to the original questions).

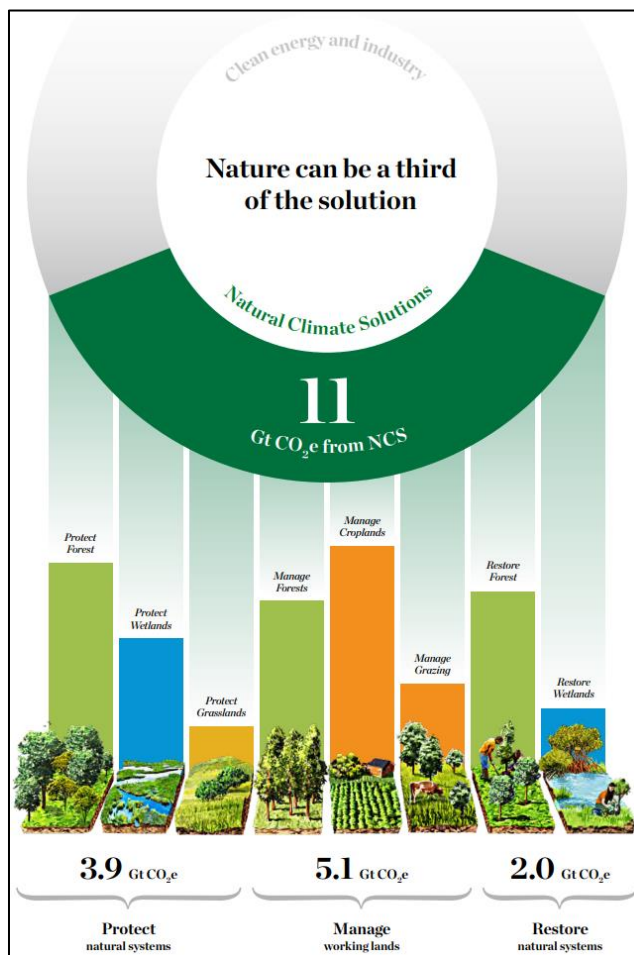
1. What is the **role of NbS in terrestrial, coastal and marine ecosystems** in reaching the global emissions pathways consistent with the goals in Articles 2.1(a) and 4.1 and the global goal on adaptation in Article 7.1? **What is the role of NbS** in increasing the ability of Parties to adapt to the adverse impacts of climate change and foster climate resilience and low GHG emissions development, in a manner that does not threaten food production, consistent with the goal set out in Article 2.1 (b)?<sup>12</sup>

Nature-based solutions in terrestrial, coastal and marine ecosystems play a critical role in achieving the mitigation and adaptation goals of the Paris Agreement. NbS include protection of natural systems, improved management practices in production areas, and restoration of natural systems, which increase carbon sequestration and storage and/or avoid GHG emissions and bolster climate resilience across forests, wetlands, grasslands, agricultural lands, open oceans, mangroves, saltmarshes, seagrass beds, and other coastal ecosystems.

### The role of NbS in climate mitigation:

All mitigation pathways to limit temperature rise in line with the Paris Agreement require transformative actions to halt and reverse emissions from agriculture, forestry, and ecosystem management, in addition to rapid decarbonization of our economies,<sup>13</sup> with NbS potential to reduce emissions and enhance carbon sinks delivering up to one third of the cost-effective mitigation needed by 2030 to hold global warming below 2°C.<sup>14</sup> NbS for climate mitigation fall into three main categories: protection of natural forests, wetlands, grasslands, and agricultural lands, as shown in Figure 2 along with the estimates of each pathway's global mitigation potential.<sup>15</sup>

**Additionally, the IPCC (Intergovernmental Panel on Climate Change) Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global GHG emission pathways' makes it clear that we cannot meet global temperature goals without halting and reversing human impacts on forests and other land**



**Figure 2:** The critical role of NbS in climate change mitigation. The natural systems and wetlands in this figure include mangroves, seagrass beds, and saltmarshes.

Source: Leavitt, S.M. et al. (2021). Natural Climate Solutions Handbook

<sup>11</sup> The guiding questions for the Information Collection and Preparation component were communicated in a [non-paper on "Preparing for the Global Stocktake"](#) issued by the Subsidiary Body Chairs in September 2021.

<sup>12</sup> This question was derived from Guiding Questions 3, 12 and 13 from the [non-paper on "Preparing for the Global Stocktake"](#).

<sup>13</sup> United Nations Environment Programme and International Union for Conservation of Nature. (2021). Nature-based solutions for climate change mitigation. <https://wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/37318/NBSCCM.pdf>.

<sup>14</sup> Griscom, B.W., Adams, J., Ellis, P.W. et al. (2017). Natural Climate Solutions. *Proceedings of the National Academy of Sciences*, 114(44):11645–11650. <https://www.pnas.org/content/114/44/11645>.

<sup>15</sup> Nature-based solutions is an umbrella term that includes both climate mitigation and adaptation benefits. Throughout this submission, we generally use NbS in this broad manner, but sometimes use more specific terminology to refer more specifically to the mitigation benefits of NbS – denoted by the term Natural Climate Solutions (NCS) – or the adaptation benefits of NbS – denoted by the term Ecosystem-based Adaptation (Eba).

systems across the globe to ensure they absorb more CO<sub>2</sub> than they emit within the next decade.<sup>16</sup> If lost, much of the carbon stored in tropical forests, peatlands, mangroves and other wetland ecosystems, is “irrecoverable” through restoration by midcentury.<sup>17</sup> Beyond the direct mitigation benefits, the Amazon rainforest and other ecosystems play other essential roles in climate protection, such that their protection is essential to regulate local climate and water systems, as well as avoid tipping points that could in turn reduce their future carbon storage capacity.<sup>18</sup>

### Box 1.1: The NCS Exponential Roadmap – A Carbon Law for Nature

To further understand the role of Natural Climate Solutions (NCS) in global mitigation efforts, researchers with Conservation International and partners have been developing a “Carbon Law for Nature” to serve as a high-level guide to scaling NCS in line with the Paris Agreements mitigation targets. According to Conservation International’s analyses for the Carbon Law for Nature, keeping 1.5 degrees well within reach requires that:

- Global human agriculture, land use, and ecosystem management **shift from being a net emissions source of 12.5 GtCO<sub>2</sub>eq/yr to net zero by 2030;**
- Global agriculture, land use, and ecosystem management collectively become **a growing emissions sink**, reaching 10GtCO<sub>2</sub>eq/yr of reduced emissions by 2050;
- **Total emissions** mitigation from agriculture, land use, and ecosystem management must reach approximately 400 GtCO<sub>2</sub>eq in the period from 2021-2050.

To inform implementation of the Carbon Law for Nature, Conservation International and partners will also be releasing an Exponential Roadmap for Natural Climate Solutions at the end of March 2022, which can also be considered as an input in the information collection process of the GST once available. It defines:

- The rapid acceleration needed for three categories of NCS actions: natural ecosystem protection, climate-smart working lands management, and ecosystem restoration.
- Several of the most critical action tracks for achieving this acceleration, including conditions such as on-the-ground actors, enablers, and measures that result in NCS mitigation. The action tracks include:
  - **Protect:** IPLC Rights and Resources; Climate Critical Protected Areas; Deforestation-free Supply Chains
  - **Manage:** Climate Smart Forestry, Farming, and Grazing
  - **Restore:** Forest and Wetland Restoration; Healthy Diets for Climate and People
- Where and how fast these NCS actions tracks must be pursued to achieve the benchmark goals outlined under the Carbon Law for Nature. The following modeled pathways illustrate how these action tracks must accelerate rapidly over the next three decades to achieve the Carbon Law for Nature’s goals:

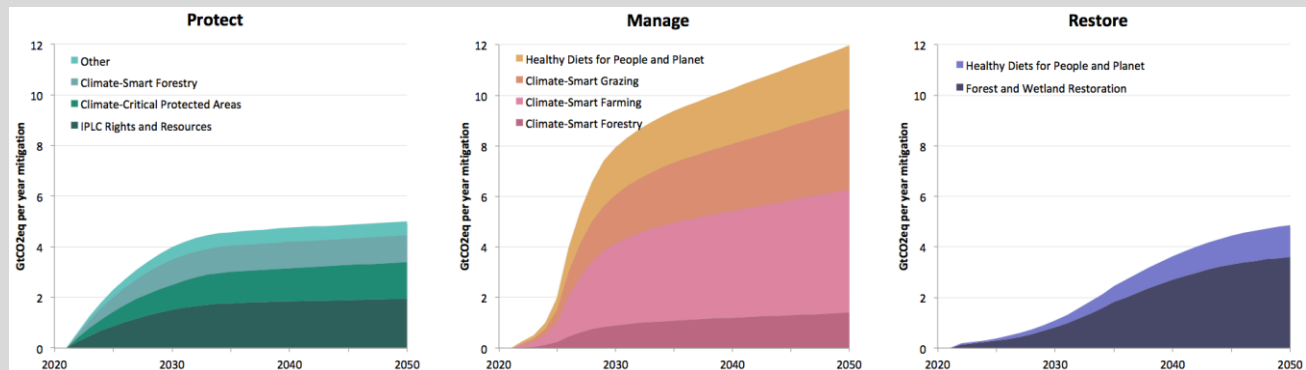


Figure 3: Protect-Manage-Restore action track acceleration curves to reach the Carbon Law for Nature

Coastal and marine ecosystems have been historically overlooked within UNFCCC processes, despite their importance and the recognition of their potential in the Paris Agreement. The ocean plays a critical role in regulating the Earth’s climate, and coastal ecosystems provide protection for coastal communities against the impacts of climate change, including protection from storm surges, flooding, sea-level rise and coastal erosion.

<sup>16</sup> Masson-Delmotte, V., Zhai, P., Pörtner, H.O. et al. (2018). Global warming of 1.5°C. Intergovernmental Panel on Climate Change (IPCC). [https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15\\_Full\\_Report\\_High\\_Res.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf).

<sup>17</sup> Goldstein, A., Turner, W., Spawn, S. et al. (2020). Protecting irrecoverable carbon in Earth’s ecosystems. *Nature*. <https://www.nature.com/articles/s41558-020-0738-8?proof=t>.

<sup>18</sup> Anderegg, W., Trugman, A., Badgely, G. et al. (2020). Climate-driven risks to the climate mitigation potential of forests. *Science*. <https://www.science.org/doi/10.1126/science.aaz7005>.

Additionally, coastal blue carbon ecosystems sequester and store vast amounts of carbon, and mangroves, seagrasses and saltmarshes are recognized for their climate mitigation value by the IPCC.<sup>19,20</sup>

### The role of NbS in climate adaptation:

#### **Box 1.2: The NCS Exponential Roadmap – A Carbon Law for Nature**

The Carbon Law for Nature, the NCS Exponential Roadmap, and the “protect, manage, and restore” acceleration curves modeled above are informed by:

- Top-down analysis of the role of nature (including forestry, agriculture, working lands, and ecosystem management) to achieve the Paris targets, in line with the latest global emissions data and climate models (including SR1.5 and draft AR6 carbon budgets and their estimates of existing fossil and non-carbon emissions).
- Bottom-up analysis of feasible and cost-effective actions, which is based on the most recent published literature (including those by Griscom et al. 2017, Roe et al. 2021, and the draft AR6 WGIII), and includes a new emphasis on people-centered “action tracks” and a quantified assessment of demand-side actions related to food systems.
- Guardrails that prioritize solutions along an intervention hierarchy of protect, manage, and restore, in that order, as well as that define solutions recognizing nature’s critical role in maintaining food security, biodiversity, and other planetary boundaries.

With the Carbon Law for Nature serving as a high-level guide and the NCS Exponential Roadmap illuminating the path for rapidly accelerating mitigation actions that are feasible, cost-effective, and aligned with low-emissions development and food security, UNFCCC bodies and Parties alike will be able to more clearly assess the current global progress and potential for NCS in meeting the Paris Agreement goals.

NbS for adaptation, sometimes called Ecosystem-based Adaptation (EbA), must play a key role in delivering essential yet cost-effective adaptation benefits, both in terms of economic livelihoods and human security. This is especially true in developing tropical countries: in a recent study, Conservation International scientists estimated that 2.7 billion people in tropical countries (or 70% of the population living in those areas) depend on nature to meet their basic needs, such as shelter, fuel for cooking, clean water, and sustaining livelihoods, making them the most sensitive to changes that affect natural ecosystems, such as climate change. Nature-based solutions thus are crucial to human well-being and adaptation globally; they often represent the only solutions available to these communities in coping with climate change impacts.<sup>21</sup>

To understand the scale of the problem, researchers from Conservation International, The Nature Conservancy, and other partners evaluated 14 of nature’s contributions to people, including regulation of water quality, provision of food, flood regulation, recreation and tourism, and carbon storage, for food, water, and climate security metrics using spatial optimization in a recent study to identify the most important ecosystems for providing these benefits.<sup>22</sup> Known as Critical Natural Assets, these areas comprise 30% (for local benefits only) to 44% (for local and global benefits) of total global land area and 24% of national territorial waters. However, most of nature’s contributions to people are left out of international agreements focused on conserving species or mitigating climate change, representing a major omission in global adaptation policy frameworks.<sup>23</sup>

Furthermore, an estimated 3.4 billion people have been directly impacted by climate-related disasters (i.e., became homeless, died or needed emergency assistance) in the last 20 years, due to events such as riverine and flash floods, droughts, tropical cyclones, landslides and wildfires.<sup>24</sup> **Those impacts that can be effectively**

<sup>19</sup> Intergovernmental Panel on Climate Change. (2013). 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands. <https://www.ipcc.ch/publication/2013-supplement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories-wetlands/>.

<sup>20</sup> Schindler Murray, L., Romero, V., and Herr, D. (2021). Unpacking the UNFCCC Global Stocktake for Ocean-Climate Action. International Union for Conservation of Nature, Rare, Climate Focus, Conservation International, World Wildlife Fund, and the Ocean & Climate Platform. [https://www.iucn.org/sites/dev/files/content/documents/2021/the\\_ocean\\_and\\_the\\_unfccc\\_gst.pdf](https://www.iucn.org/sites/dev/files/content/documents/2021/the_ocean_and_the_unfccc_gst.pdf).

<sup>21</sup> Fedele, G., Donatti, C.I., Bornacelly, I., and Hole, D. (2021). Nature-dependent people: Mapping human direct use of nature for basic needs across the tropics. *Global Environmental Change*. <https://www.sciencedirect.com/science/article/pii/S0959378021001473>.

<sup>22</sup> Chaplin-Kramer, R. et al. (2021). Mapping the planet’s critical natural assets for people. *BioRxiv*. [Pre-print]. <https://www.biorxiv.org/content/10.1101/2020.11.08.361014v2>.

<sup>23</sup> Ibid.

<sup>24</sup> Centre for Research on the Epidemiology of Disasters. (n.d.). Emergency Events Database (EM-DAT). <https://www.emdat.be/>.



reduced by the use of NbS, such as the restoration and natural generation of tropical, temperate and Mediterranean forests and wetlands to address flash floods; the protection of tropical and montane forests, the restoration and protection of grasslands, and the use of agroforestry to address droughts; the protection, restoration and sustainable use of mangroves to address coastal erosion, coastal sea level rise, salt water intrusion, and storm surges associated with cyclones; the restoration, protection and management of montane forests and the restoration of riparian vegetation to address landslides; and the prescribed burning and restoration of Mediterranean forest, sustainable harvesting and thinning of montane forest, and the fire management of grasslands to address wildfires.<sup>25</sup> As such, policy and investment strategies that protect Critical Natural Assets are essential for sustaining human well-being and securing Earth's life support systems for all humanity, and prioritizing them would mark a critical step forward in narrowing the current mitigation and adaptation gaps.

2. How can Parties enhance ambition and action **through NbS in terrestrial, coastal and marine ecosystems** to reach the goals set out in Articles 2.1(a), 4.1, and 7.1 - in light of best available science, equity, gender perspectives, and traditional knowledge, knowledge of indigenous peoples, and local knowledge systems - and in the context of sustainable development and poverty eradication? What recommendations can be developed to increase ambition **of NbS mitigation and adaptation targets and implementation**?<sup>26</sup>

#### **Recommendations for increasing ambition of NbS for mitigation**

Parties should specifically consider opportunities to increase their climate ambition through NbS by updating or adding detailed targets, policies and/or measures, or improving the information used in their NDC. Parties may integrate existing efforts related to NbS from other national commitments. These commitments on conservation, biodiversity, sustainable development, restoration, and more may be used to strengthen the information provided in the NDC.<sup>27</sup>

The Center for Climate and Energy Solutions (C2ES) is working closely with the Environmental Defense Fund (EDF) on a project, "The Global Stocktake: An Opportunity for Ambition,"<sup>28</sup> to help shape the GST process by ensuring a strong focus on opportunities to scale up climate ambition, including identifying opportunities to enhance mitigation through nature. As detailed in the "Mitigation Landscape Analysis: Themes and Trends Working Paper,"<sup>29</sup> Parties can harness and amplify the mitigation potential of nature through:

- **Technology:** Advances in technology can provide Parties with tools to: support transparent, timely and consistent reports on the status of protected areas; build capacity and access to technology to stem illegal extractive operations; facilitate the implementation of open-access tools for monitoring land use change to carry out rapid, reliable and transparent assessments; disseminate good practices to inform and guide implementation; apply new technologies to the challenge of measuring sources and sinks of emissions from the land sector in a spatially explicit manner; and establish the accuracy of monitoring tools through transparent scientific frameworks.
- **Positive incentives for large-scale protection:** Parties can implement and support policies and large-scale incentive programs (see more information on opportunities related to finance for NbS under question #4) that create positive economic value for healthy, living ecosystems and support and enhance the livelihoods of ecosystem dependent communities, including Indigenous peoples and local communities.

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<sup>25</sup> Chausson, A. et al. (2020). Mapping the effectiveness of nature-based solutions for climate change adaptation. *Global Change Biology*. <https://onlinelibrary.wiley.com/doi/full/10.1111/gcb.15310>.

<sup>26</sup> This question was derived from Guiding Questions 4, 6 and 9 from the [non-paper on "Preparing for the Global Stocktake"](#).

<sup>27</sup> Beasley, E., Schindler Murray, L., and Funk, J. et al. (2019). Guide to including nature in Nationally Determined Contributions. <https://www.conservation.org/docs/default-source/publication-pdfs/guide-to-including-nature-in-ndcs.pdf>.

<sup>28</sup> Center for Climate and Energy Solutions. (2021). Global Stocktake: An Opportunity for Ambition. <https://www.c2es.org/content/global-stocktake-an-opportunity-for-ambition/>.

<sup>29</sup> Huang, J. (2021). The Global Stocktake: An Opportunity for Ambition - Mitigation Landscape Analysis: Themes and Trends. [Working Paper]. Center for Climate and Energy Solutions. [https://www.c2es.org/wp-content/uploads/2021/12/GST-Mitigation-Landscape-Analysis\\_FINAL.pdf](https://www.c2es.org/wp-content/uploads/2021/12/GST-Mitigation-Landscape-Analysis_FINAL.pdf).

- **Increasing the risk associated with ecosystem destruction and degradation:** Parties can prioritize protected areas and Indigenous territories— growing evidence indicates that Indigenous territories are some of the most robust buffers against large-scale carbon emissions from deforestation and forest conversion, degradation/disturbance, and deforestation.<sup>30</sup> They can also: prohibit the conversion of public lands; place a moratorium on forest and other ecosystem conversion; secure tenure and protection of Indigenous territories; construct climate-smart roads and encourage sustainable land-use practices.

**Box 2.1: The NCS Exponential Roadmap – Guiding action on protecting, managing, and restoring nature**

The forthcoming NCS Exponential Roadmap will explicitly define the needed level of ambition through NbS to reach the Paris goals. Focusing on people as the unit of analysis, it aims to develop a framework for connecting NCS *supply* on the ground to NCS *demand*, thus enabling actors through individual action tracks. Figure 4 below presents an analysis of the respective potentials of “protect, manage, and restore” actions regionally, which will be disaggregated to the country level in the final analysis. Each country should enhance their ambition to a level that achieves their specific mix of mitigation opportunities as outlined in the NCS Exponential Roadmap. Specific interventions outlined in the NCS Exponential Roadmap include the following:

**Protect** natural ecosystems, through:

1. Rapidly accelerating Indigenous peoples and local communities’ (IPLC) rights and resources to expand legal recognition and safeguards, covering more than 2 billion hectares by 2030. This would be financed by an estimated \$8 billion USD and achieve 1.5 GtCO<sub>2</sub> per year of emissions mitigation from 4-5 Mha of avoided natural ecosystem loss.
2. Creating a new network of Climate Critical Protected Areas alongside IPLC lands in order to achieve another 1 GtCO<sub>2</sub> per year of mitigation from 3-4 Mha of avoided natural ecosystem loss.
3. Increasing incentives for climate smart forestry to protect working natural forests from conversion, achieving another 1 GtCO<sub>2</sub> per year of mitigation from 3-4 Mha of avoided conversion.
4. Implementing deforestation-free supply chains to reduce demand-side pressure for conversion of natural ecosystems.

**Manage** working lands, achieving 6 GtCO<sub>2</sub> mitigation by 2030 and net zero emissions from global farming & grazing lands, through:

1. Increasing rotation periods and implementing reduced impact logging to achieve 0.9 GtCO<sub>2</sub> of emissions mitigation per year through climate-smart forestry.
2. Rapidly increasing biochar and soil carbon management and fertilizer and rice methane management, as well as rapidly scaling agroforestry to achieve 3.25 GtCO<sub>2</sub> of emissions mitigation by 2030 through climate-smart farming.
3. Implementing improved grazing practices and soil carbon management, as well as supporting the rapid scaling of silvopastoral systems as a part of climate-smart grazing.

**Restore** ecosystems, through:

1. Implementing forest and wetland restoration activities at scale.
2. Promoting healthy diets for both the climate and people, in turn freeing up lands currently under production and increasing the area available for restoration. In addition to its restoration potential, avoiding food waste and shifting diets can contribute up to 1.9 GtCO<sub>2</sub>/year in agriculture-related emissions mitigation by 2030; diet shifts can also support deforestation-free supply chains.

Parties can also apply the following to enhance climate ambition from NbS:

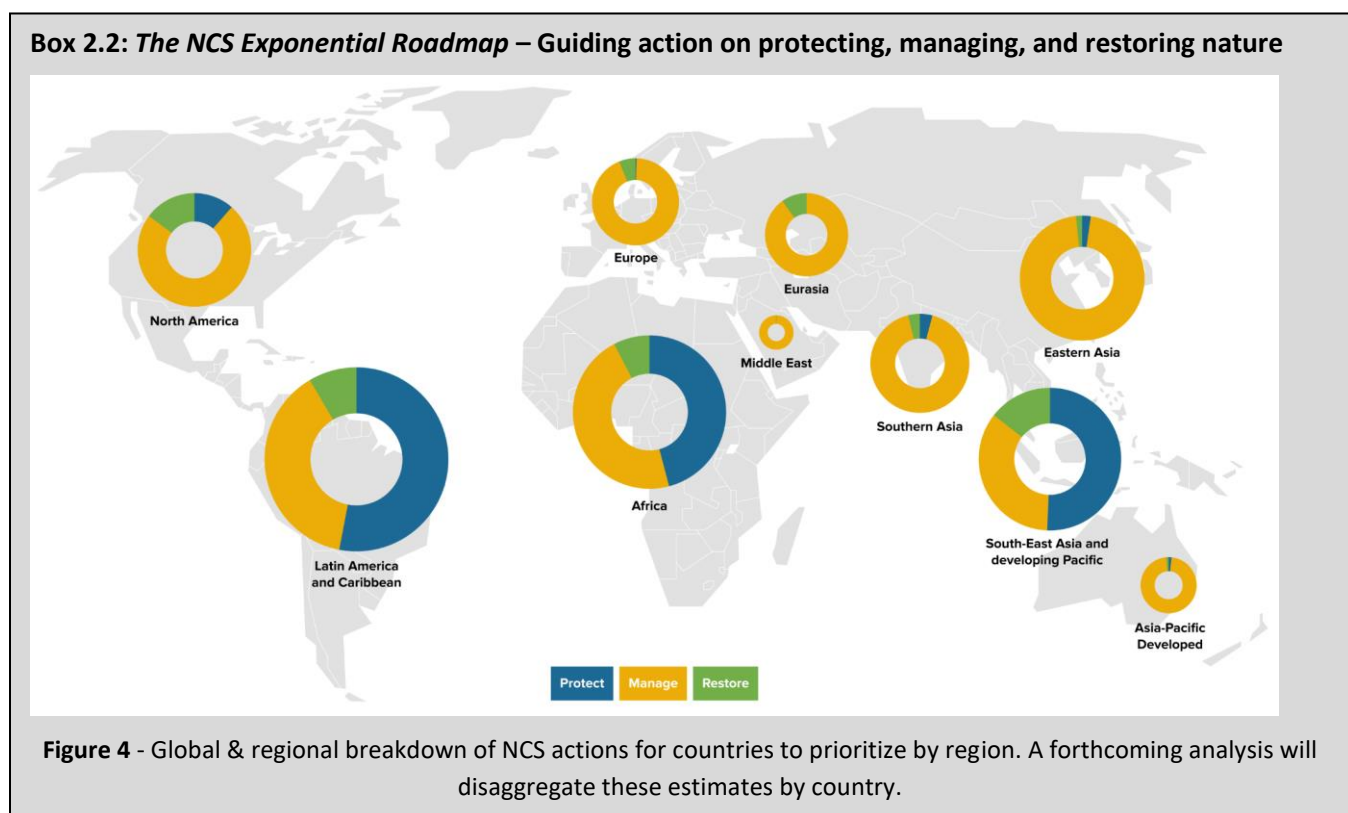
- **Forests:** Increase positive incentives associated with forest protection; reduce funding associated with deforestation; reduce supply of land available for deforestation; reduce demand for alternative use of (once forested) land.
- **Agriculture:** Reduce emissions from enteric fermentation; manage manure to avoid or capture methane emissions; avoid land conversion to protect natural landscapes, including grasslands and forests; optimize

<sup>30</sup> Walker, W. et al (2020). The Role of Forest Conversion, Degradation, and Disturbance in the Carbon Dynamics of Amazon Indigenous Territories and Protected Areas. *Proceedings of the National Academy of Sciences of the United States of America*, 117, no.6: 3015–25. <https://doi.org/10.1073/pnas.1913321117>.

nutrient management; improve rice cultivation; restore degraded pastures; implement regenerative agriculture; explore appropriate use of biochar; tailor advice and technical assistance to increase farmers' adoption of conservation practices.

- **Blue Carbon:** Parties can work to include blue carbon ecosystems in their NDCs,<sup>31</sup> national GHG inventories, and national climate policies; act to address the drivers of blue carbon ecosystem loss; and expand conservation and science-based restoration of blue carbon ecosystems. The role of coastal and marine ecosystems in mitigation was explicitly included in the Katowice Climate Package,<sup>32</sup> which encourages countries to utilize the 2013 Guidelines for National GHG Inventories: Wetlands.<sup>33</sup> This encouragement carries the expectation that countries, depending on their capabilities, will eventually account for GHG emissions and removals from their coastal wetlands, in particular mangroves, tidal marshes and seagrass beds.

Additionally, Parties can work to address scientific uncertainties surrounding the pathways and quantities of carbon sequestered and stored in other ocean ecosystems, such as macroalgae and benthic ocean sediment ecosystems, which are known to sequester and store carbon, but uncertainties remain surrounding the magnitude of this carbon value. Finally, Parties can map and quantify the suite of co-benefits attainable from ocean-based natural solutions that provide both carbon and other ecosystem benefits.



<sup>31</sup> The Blue Carbon Initiative. (2020). Guidelines on Enhanced Action: A guide on how countries may include blue carbon in their Nationally Determined Contributions. <https://www.thebluecarboninitiative.org/policy-guidance>.

<sup>32</sup> UNFCCC. (2018). Decision 18/CMA.1. Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement. <https://unfccc.int/documents/193408>.

<sup>33</sup> Intergovernmental Panel on Climate Change. (2013). 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands. <https://www.ipcc.ch/publication/2013-supplement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories-wetlands/>.



## Recommendations for increasing ambition of Nbs for adaptation

Nature-based solutions can play a key role in increasing countries' ambition in climate adaptation. **Specifically, in addition to their potential mitigation benefits, restoring or conserving ecosystems often provide multiple cost-effective adaptation benefits, such as providing freshwater resources, protecting against storm surges and extreme weather, safeguarding biodiversity, and maintaining food sources and livelihoods for local communities.**<sup>34</sup> The cost-effectiveness and range of these benefits make nature-based solutions an important complement to man-made infrastructural and adaptation approaches, especially where communities are highly dependent on nature.

To increase ambition in climate adaptation, Parties should develop a plan to improve the resilience of key populations or groups to climate change through NbS,<sup>35</sup> based on need and local circumstances, and/or indicate the percentage of areas that they want to put under climate resilient management (e.g., based on vulnerability assessments or with climate adaptation management plans). These commitments could be increased in each successive NDC or NAP with the goal to reach 100% of the population or areas most vulnerable to climate change in each country, similar to specifications for the mitigation temperature goal.

Secondly, Parties should jointly design their mitigation and adaptation actions, and give priorities to actions that can be implemented to concurrently tackle climate mitigation, promote climate adaptation for people and nature, mitigate biodiversity loss, and advance human development. Transformative adaptation approaches, or those that fundamentally address the state and interactions between people and nature, can be especially important in promoting longer-term stability (for more details, see Fedele et. al, 2021). This is especially true when adaptation strategies are reaching the limits of effectiveness, when climate impacts are expected to be especially severe, or when loss has already occurred.

Further recommendations, as organized by stakeholder, are below:

- *Governments* are recommended to improve the inclusion of nature-based transformative adaptation approaches within their NAPs and NDCs, among other communications to the UNFCCC, as well as establish national tracking systems to monitor the needs for and outcomes of these adaptation approaches.
- *Bilateral and multilateral agencies and funds* supporting adaptation in the land sector and coastal/marine areas should explicitly include criteria on whether projects are restructuring, path shifting, multiscale, system-wide, innovative, and persistent for assessing transformational adaptation. (For more information, see Fedele et. al, 2021).<sup>36</sup>
- In addition to considering transformative adaptation in their ongoing adaptation initiatives and prioritizing the most at-risk ecosystems and populations, *NGOs* should consider broader types of collaboration, such as those with humanitarian groups, development agencies, different levels of government, and the private sector, to drive adaptation at scale and improve ownership and sustainability. NGOs should also incorporate capacity building, experience sharing, and monitoring and evaluation activities into adaptation programs given adaptation work's iterative nature.
- *Private companies* can invest in social and environmental projects that also yield financial returns, such as those in cattle, coffee, or eco-tourism. Private capital can also complement public funds to incentivize innovation, develop market opportunities, and support riskier projects and earlier investments.
- *Researchers* should help develop interdisciplinary monitoring and evaluation methods and transformative adaptation approaches, incorporating social, ecological, cultural, institutional, and geophysical elements.

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<sup>34</sup> Fedele, G., Donatti, C.I., Corwin, E., Pangilinan, M.J., Roberts, K., Lewins, M., Andrade, A., Olvera, D., Frazee, S., Grover, M., Lalaina Rakotobe, Z., Rambeloson, A. (2019). Nature-based Transformative Adaptation: A Practical Handbook. Conservation International. <http://doi.org/10.5281/zenodo.3386441>.

<sup>35</sup> Fedele, G., Donatti, C.I., Bornacelly, I., Hole, D. (2021). Nature-dependent people: Mapping human direct use of nature for basic needs across the tropics. *Global Environmental Change*. <https://www.sciencedirect.com/science/article/pii/S0959378021001473/>.

<sup>36</sup> Fedele, G., Donatti, C.I., Corwin, E., Pangilinan, M.J., Roberts, K., Lewins, M., Andrade, A., Olvera, D., Frazee, S., Grover, M., Lalaina Rakotobe, Z., Rambeloson, A. (2019). Nature-based Transformative Adaptation: A Practical Handbook. Conservation International. <http://doi.org/10.5281/zenodo.3386441>.

Researchers can also develop assessments of where social, ecological, and institutional need for transformational projects is greatest, as well as what types of projects are needed specifically.

### Recommendations for improving the implementation of NbS

To implement NbS, countries must meet the needs of Indigenous peoples, local communities, producers, and protect natural ecosystems by applying an integrated landscape or seascape approach to design multi-dimensional policies that balance multiple outcomes for sustainable production, climate benefits, and conservation. The **landscape** is interpreted as a geographical space that results from the interaction between social, ecological, economic and governability processes.<sup>37</sup> Similarly, a **seascape** is an area of the ocean managed for multiple-uses, including protection, by governments, private organizations and other key stakeholders working together to manage and conserve the diversity and abundance of marine life and promote human well-being.<sup>38</sup>

**Through application of an integrated approach to managing landscapes and seascapes, countries can design multi-dimensional policy interventions to balance competing needs and create win-win solutions for natural ecosystems and producers, using a non-confrontative approach to achieving conservation, climate, and production outcomes.** This approach to large-scale management can be tailored to any local context following four principles:

1. **Ensure inclusive, equitable and participatory decision-making processes at all levels:** Solutions should be designed with inclusive participation of local communities, Indigenous Peoples, civil society, the private sector, and all relevant levels of government, including the consideration of local and traditional knowledge.
2. **Conserve and restore natural ecosystems:** Solutions should conserve natural capital, enhance the provision of ecosystem services from nature, ensure these benefits flow to the poor, and be analyzed on a long-term approach.
3. **Create systems that are productive, economically viable, sustainable, low-emissions and resilient to climate change:** Solutions should ensure that producers can implement local best practices to increase the yield, biodiversity, and ecological stability of their land or marine area, thereby providing resilience to climate change. These practices can be consistent with a variety of approaches, such as nature-based solutions, agroecology, and/or climate-smart fisheries and agriculture, but will need to be flexible and tailored to the specific context and climatic stresses.
4. **Make quantifiable improvements to the livelihoods and well-being of all social groups:** Solutions should satisfy the basic needs of local residents over the long-term, e.g., food and nutrition security, and enable sustainable livelihood generation. Once basic needs are met and people's vulnerability is reduced, emphasis can be placed on building their capacity to implement measures that enhance long-term resiliency.<sup>39</sup>

Application of an integrated landscape/seascape approach should establish rules and incentives to encourage sustainable resource management, especially secure tenure, to ensure that rights-holders have the certainty needed to make long-term investments in their land and clarity about positive and/or negative consequences for certain resource management decisions. Finally, integrated scape-level solutions should invest in regional and local institutions, infrastructure, and public services to enable market access, information services, and the legal and financial services needed to effectively participate in markets and implement sustainable resource management.<sup>40</sup>

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<sup>37</sup> King, D. et al. (2018). Landscape Assessment Framework – Concept and Guidelines. Conservation International. [https://www.conservation.org/docs/default-source/publication-pdfs/ci\\_laf-landscape-assessment-framework-concepts-and-guidelines.pdf?Status=Master&sfvrsn=656924a2\\_2](https://www.conservation.org/docs/default-source/publication-pdfs/ci_laf-landscape-assessment-framework-concepts-and-guidelines.pdf?Status=Master&sfvrsn=656924a2_2).

<sup>38</sup> Conservation International. (n.d.). Seascapes Program: Large-Scale Marine Management. <https://www.conservation.org/projects/seascapes-program>.

<sup>39</sup> Harvey, C.A. et al. (2018). The use of Ecosystem-based Adaptation practices by smallholder farmers in Central America. *Agriculture, Ecosystems & Environment*. <https://doi.org/10.1016/j.agee.2017.04.018>.

<sup>40</sup> Kasprzyk, K. et al. (2021). Policy Solutions to Protect Forests and Support Small Farmers. Conservation International. [www.conservation.org/policy-solutions-forests-small-farmers](http://www.conservation.org/policy-solutions-forests-small-farmers).

Application of these landscape/seascape approach principles is especially important to close the implementation gap between existing policies and achieving results for people, nature, and the climate. The cooperation, collaboration, and compromise required to implement solutions via the landscape/seascape approach can break down existing barriers to facilitate increased transparency, trust, and equalization of power between all actors involved. Most importantly, this approach will avoid the pitfall of designing one-dimensional interventions that may generate unintended consequences or limited success, so that large-scale areas of land and seas are conserved and managed for multiple goals, including climate and carbon benefits, food provision, biodiversity conservation, habitats, and income generating activities, among others. Similarly, this approach is key for effective climate action, as greenhouse gas mitigation and climate change adaptation actions must be developed in tandem in order to harness their multiple synergies and avoid negative tradeoffs.

**Successful models of public-private collaboration to create effective solutions via large-scale integrated management approaches have already been demonstrated and offer a promising way forward to ensure holistic and complementary interventions.**<sup>41,42</sup> Lessons-learned show us that there are several enabling policy conditions needed to set the stage for success both before and during large-scale initiatives.

1. Producers, resource managers, and local stakeholders must be listened to and supported, and solutions should incorporate their local knowledge and traditional practices that protect nature and boost productivity.
2. Governance frameworks need to break down silos to enable public institutions involved in resource management decisions to engage in open and transparent processes to balance competing goals and shift the focus of solutions to favor long-term public benefits and sustainability.
3. New skills must be built among policymakers, resource managers, and producers alike via coordinated training and extension programs that foster two-way learning and promote peer exchange networks.
4. Incentives must be developed at the landscape or seascape level to encourage producers to adopt sustainable practices while disincentivizing expansion into natural ecosystems as a strategy to obtain short-term benefits.

Since policies that affect resource management and influence the decisions of producers are developed at a variety of policy levels, each level can more effectively play its role in creating the right enabling environment and promoting the landscape/seascape approach. At the **international level**, the global community can ramp up efforts to support countries to develop and implement climate actions in agriculture and aquaculture, as well as to take greater co-responsibility to ensure that efforts and resources to reduce deforestation and destruction of natural ecosystems effectively reach local communities, while enacting policy reforms to increase transparency and reduce perverse incentives that continue to drive land-use change and degradation of marine areas.<sup>43</sup> Dedicated **international dialogue** is also needed in key forums to share best practices for addressing the issue of agriculture and land-use change, such as a continuation of the *Koronivia Joint Work on Agriculture* (KJWA), and efforts are needed to make these forums more inclusive for producers and other local stakeholders.<sup>44</sup> At the **national and subnational level**, governments can improve the implementation and enforcement of existing policies, reduce inconsistencies, and make decision-making processes more inclusive and transparent. New and improved solutions can be effective where governments, civil society, and local communities are able to carry out a needs assessment and understand the economic opportunities for various resource-use options, in tandem with measures to secure tenure arrangements, invest in productivity, diversify livelihoods, bolster local institutions, and ensure market access.

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<sup>41</sup> NYDF Assessment Partners. (2020). Balancing forests and development: Addressing infrastructure and extractive industries, promoting sustainable livelihoods. Climate Focus (coordinator and editor). <https://forestdeclaration.org/>.

<sup>42</sup> Conservation International. (n.d.). Seascapes Program: Large-Scale Marine Management. <https://www.conservation.org/projects/seascapes-program>.

<sup>43</sup> Duchelle, A.E. et al. (2019). Forest-Based Climate Mitigation: Lessons from REDD+ Implementation. World Resources Institute. [https://files.wri.org/s3fs-public/forest-based-climate-mitigation\\_0.pdf](https://files.wri.org/s3fs-public/forest-based-climate-mitigation_0.pdf).

<sup>44</sup> More information on the Koronivia Joint Work on Agriculture can be found via <https://fao.org/koronivia/about/en/> and <https://unfccc.int/topics/land-use/workstreams/agriculture/>.

By encouraging uptake of the integrated landscape/seascape approach, a transformation can take place to create sustainable production systems that are resilient to climate change, include diversified and multi-purpose food sources, and underpin ecosystem health and economically sustainable livelihoods.

3. What information is needed for countries to strengthen domestic emissions reductions and removals through NbS in line with Paris Agreement goals? **What steps can be taken to increase the generation of and access to this information?**<sup>45</sup>

Countries need robust national data on greenhouse gas sources and sinks from agriculture, land-use, and natural ecosystems to include comprehensive, high-quality, and quantitative NDC targets for NbS. However, many governments in countries with significant NbS mitigation potential still have incomplete, outdated, and/or inaccessible national GHG data, especially for the land sector and coastal ecosystems. In assessing national emissions, governments rely on data from various institutions including ministries, public and private sector and civil society organizations, but often this data is either not available, not of the correct quality, incomplete or does not flow systematically because some institutional policies and practices make data sharing difficult. Information from national monitoring, reporting, and verification (MRV) systems is also needed to track NDC target implementation and raise ambition in successive NDCs, but these systems face similar barriers to national GHG inventories. Countries also need more information on and methodologies to calculate mitigation co-benefits of adaptation actions for ecosystem-based adaptation actions in the land sector and coastal ecosystems.

Implementation of the enhanced transparency framework under the Paris Agreement will help countries build on the MRV system under the Convention, which for developed countries is the GHG inventories and the International Assessment and Review and for developing countries is the International Consultation and Analysis. In addition to scientific research and findings by the IPCC, information reported in Biennial Transparency Reports (BTRs) will be considered at a collective level as an important input into the GST, leading to stronger climate action that will continue as the climate regimes moves towards the goal of zero net emissions by 2050 and climate neutrality thereafter.<sup>46</sup> In general, the land use sector is treated equivalently to all other sectors in terms of information to include in the NDC, inventory reporting, and tracking of progress. However, there are additional requirements for unique aspects of the land sector, including natural disturbance, harvested wood products and age-class structure. Emission accounting approaches must follow IPCC guidelines or explain the approach taken. For example, the use of 2006 IPCC Guidelines are required in the National Inventory Report (NIR), instead of the 1996 Guidelines. The 2013 IPCC Wetlands Supplement can also be used and is encouraged under the NIR. This has significant implications for inventory requirements as even the lowest tier approaches have significant changes, e.g., in use and values of default emissions factors.<sup>47</sup>

**To support countries in addressing information barriers, significantly scaled-up funding and country-level assistance is needed through programs designed to work at the national level to both generate needed data in the short-term and establish the frameworks and capacity needed to regularly generate information over the long-term.** This targeted support, such as through the NDC Partnership<sup>48</sup> and the Capacity Building Initiative for Transparency (CBIT)<sup>49</sup>, is essential to increase the generation of and access to the high-quality national data needed for countries to raise NDC ambition and achievement through NbS, as well as complete BTRs. See additional information about the role of CBIT in addressing barriers for developing countries under question #6.

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<sup>45</sup> This question was derived from Guiding Question 6 from the [non-paper on "Preparing for the Global Stocktake"](#)

<sup>46</sup> UNFCCC. (n.d.). Reporting and Review under the Paris Agreement. <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-paris-agreement>.

<sup>47</sup> The Nature Conservancy. (2018). Practical Implications of the Katowice Climate Package for Developing Country Parties and Land Sector Reporting. [https://www.nature.org/content/dam/tnc/nature/en/documents/TNC\\_Transparency\\_LandUseReport.pdf](https://www.nature.org/content/dam/tnc/nature/en/documents/TNC_Transparency_LandUseReport.pdf).

<sup>48</sup> NDC Partnership. (n.d.). <https://ndcpartnership.org/>.

<sup>49</sup> Global Environment Facility. (n.d.). Capacity-building Initiative for Transparency (CBIT). <https://www.thegef.org/what-we-do/topics/capacity-building-initiative-transparency-cbit>.

### Box 3.1: Integrating Natural Capital Accounting approaches into NDCs

Additional efforts by both countries and the international community to scale up the use of Natural Capital Accounting (NCA) approaches can significantly increase the generation of and access to critical information needed to strengthen emissions reductions and removals through NbS, as well as harness their multiple adaptation and non-climate benefits. Natural Capital Accounting refers to the measurement of stocks of natural resources (both renewable and non-renewable) and the flows of benefits they provide. NCA efforts in the public sector are the domain of the United Nations' System of Environmental-Economic Accounts (SEEA), an internationally accepted framework for incorporating nature into national accounting systems. Released in March 2021, the SEEA Ecosystem Accounting (EA) framework is the international statistical standard to organize data about ecosystems and their assets, track changes in their condition, and measure their contribution to the economy in terms of the flow of ecosystem services to different beneficiaries. These are measured in both biophysical and monetary terms and in a spatially explicit manner. The information and statistics generated through NCA can support development planning, monitoring and reporting, ultimately leading to improved policy and decision-making for better natural resource management.

Voluntarily integrating natural capital accounting approaches into NDC processes can enhance both target setting and implementation planning. NCA can help address the information gaps to assess the possible GHG emissions reduction contributions of different sectors more accurately with spatially explicit information. NCA can provide valuable data and baselines for target setting and monitoring, especially around NDC ambition – in other words, what is possible to achieve and where. NCA can also contribute towards quantifying the associated co-benefits of emissions reduction and climate adaptation activities in the NDC, especially as related to livelihood improvement and the provision of a range of ecosystem services through conservation activities. If data is disaggregated by population characteristics, such as gender and age, these NCA outputs can further contribute to understanding the relationship of vulnerable groups to key ecosystem services and co-benefits, and then enabling the NDC to include related efforts to strengthen the resilience of these groups to expected climate impacts.

There are four specific areas where these synergies between NCA and the NDC processes are strongest:

1. In biophysical quantification of co-benefits of different adaptation and mitigation options, which will identify priority locations where those benefits are greatest, and thus where actions can have the greatest return on investment;
2. In assessing the economic value of co-benefits generated by climate action activities and possibly assessing the cost-effectiveness of alternative options, which will help in identifying trade-offs related to different strategies; and
3. In the generation of spatially explicit information and maps on vulnerability and adaptation, which will assist the determination of priority geographies where conservation and restoration can provide the most benefits to vulnerable communities.
4. The consistent methodology offered by NCA that follows the UN System of Environmental Economic Accounting – Ecosystem Accounting (SEEA EA) statistical standards adopted by the 52nd United Nations Statistical Commission in March 2021. Using those standardized methods for NDC reporting and target setting purposes, where applicable, would not only ensure consistency in data collection, analysis and reporting, but also provide the government with scientific data to determine what is possible and thus how much ambition is achievable. Such trustworthy and standardized methods are especially useful if the analysis and reporting needs to be repeated on a regular time interval, as is the NDC. Utilization of NCA methodologies for the NDC can also help fulfill the Paris Agreement's Katowice Guidance on NDCs, which calls for "consistency in scope and coverage, definitions, data sources, metrics, assumptions and methodological approaches."

Despite these challenges, specific tools exist for any country to recognize the climate values of NbS within their NDC, no matter the capacity level. Civil society-led efforts are already providing actionable information for countries to understand national NbS potential and strengthen NDC targets through NbS. National-level and finer-scale explicitly spatial data that maps NCS opportunities are both critically important to strengthening domestic NCS mitigation. For example, efforts like the NCS-World Atlas by The Nature Conservancy (TNC) and Nature for Climate (N4C)<sup>50</sup> have taken a significant step forward by making biophysical NCS opportunities by country easily accessible to policy makers. Conservation International's NCS Exponential Roadmap will help policy makers convert these data into action by focusing on specific action tracks – who must do what, by when, and where – at both national and subnational spatial scales (see details under question #2). Other programs include Global Forest

<sup>50</sup> More information can be found via <https://nature4climate.org/n4c-mapper/>.





(e.g., through market and non-market approaches) and redirect finance flows (i.e., shift finance flows from “gray” to “green”).

### **Scaling finance flows**

Public and private sector actors are increasingly expressing interest in, and seeking out how to, scale finance for NbS with the number of commitments and initiatives aimed at scaling investment in, or removing perverse incentives for, NbS rising

**Carbon markets**, both compliance and voluntary, that include nature can provide a promising source of finance to support and scale NbS. Analyses have shown that carbon markets can not only achieve emissions reductions at lower cost than with standard regulations, but that the cost savings from international trading of emissions could translate into direct gains for the atmosphere – and could produce nearly double the climate ambition at the same overall cost as countries’ complying with their Paris Agreement targets without international markets.<sup>59</sup> **In particular, because avoided deforestation is a large source of relatively low-cost emissions reductions, including a market for jurisdictional-scale REDD+ (reducing emissions from deforestation and forest degradation, forest carbon stock conservation, the sustainable management of forests, and the enhancement of forest carbon stocks) credits generated by avoiding deforestation in tropical forest jurisdictions reduces total costs significantly, raising ambition accordingly.**<sup>60</sup>

Market interest has grown for various NbS. Growing markets for sustainable fuels, such as through the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), can provide a source of finance for natural climate solutions. With respect to blue carbon, enthusiasm for the development of blue carbon markets and the inclusion of blue carbon in international and national accounting systems has grown in recent years. Examples include the 2013 IPCC Wetlands Supplement and the recent (2019) IPCC refinement to the 2006 national GHG inventory guidelines, and the fact that many countries included coastal wetland targets in their updated NDCs. Carbon credits for mangrove projects have been piloted and tidal marsh and seagrass projects are starting to be developed through the voluntary carbon market.

However, ensuring quality criteria for carbon markets, including for NbS, is imperative. Several initiatives, including the Voluntary Carbon Markets Integrity Initiative<sup>61</sup>, Integrity Council for the Voluntary Carbon Market<sup>62</sup>, and others, are aiming to provide this guidance for the voluntary market to scale investment. In the tropical forest space, there is also growing consensus around the potential value of private purchases of high-integrity credits to protect tropical forests and the need to distinguish in terms of quality, both social and environmental, what is currently and prospectively on the market<sup>63</sup>. For sustainable fuels, CORSIA’s sustainability criteria approved in November aim to provide strong quality standards.<sup>64</sup> Additionally, Verra, Gold Standard, and the Clean Development Mechanism have all developed protocols applicable to blue carbon ecosystems that address leakage, permanence, reversals, additionality, uncertainty, and aggregation.

**Non-market approaches, including bespoke agreements between countries, grants, up-front investments and other forms of results-based payments can also provide another finance channel for NbS.** Various **public-private partnerships, pledges, and commitments** have also come to the fore, especially in the lead-up to and during COP26, which was referred to as the first “Nature COP.” To facilitate non-market cooperation for NbS mitigation and adaptation, CI, EDF, and TNC have developed recommendations to support countries as they submit inputs on Matters relating to Article 6.8 of the Paris Agreement. The submission recommends that the Article 6.8 framework: prioritizes nature-based climate action for both market and non-market cooperation; establishes

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<sup>59</sup> Environmental Defense Fund. (2018). Catalyzing carbon markets globally to realize the promise of Paris: the power of markets to increase ambition [Submission to the Talanoa Dialogue Platform].

[https://unfccc.int/sites/default/files/resource/236\\_Talanoa%20submission%20carbon%20markets%20potential%20EDF%20April%202023.pdf](https://unfccc.int/sites/default/files/resource/236_Talanoa%20submission%20carbon%20markets%20potential%20EDF%20April%202023.pdf).

<sup>60</sup> Ibid.

<sup>61</sup> Voluntary Carbon Markets Integrity Initiative. (n.d.). <https://vcmintegrity.org/>

<sup>62</sup> Integrity Council for the Voluntary Carbon Market (ICVCM). (n.d.). <https://icvcm.org/>

<sup>63</sup> Meridian Institute. (2021). Draft Consensus Statement on High Quality Tropical Forest Carbon Credits. <https://merid.org/draft-forest-credit-statement/>.

<sup>64</sup> Piris-Cabezas, P. (2021). ICAO Council Approves Comprehensive Set of Sustainability Criteria for Sustainable Aviation Fuel. Environmental Defense Fund. <https://www.edf.org/media/icao-council-approves-comprehensive-set-sustainability-criteria-sustainable-aviation-fuel>.

clear, long-term financing options from donors for non-market approaches; and streamlines metrics around policies and measures that mitigate climate change under Article 6.2 and 6.8.<sup>65</sup>

The pieces are in place to significantly scale financing for NbS to leverage and scale their mitigation potential. Below, we have identified a few of the most promising developments related to scaling investment, and removing perverse incentives, for NbS.

#### *Multistakeholder Initiatives:*

- **Green Climate Fund (GCF)**<sup>66</sup>: The GCF is the world's largest climate fund, mandated to support developing countries raise and realize their NDCs ambitions towards low-emissions, climate-resilient pathways. The GCF recognizes that both mitigation and adaptation need to be scaled up, and so it is mandated to invest 50% of its resources in mitigation, and 50% in adaptation. Projects include: ecosystems and ecosystem services, forests and land use, and health, food, and water security. In terms of REDD+ specifically, in 2017 GCF started to pilot REDD+ results-based payments<sup>67</sup>, consistent with the Warsaw Framework for REDD+ and other REDD+ decisions under the UNFCCC. The GCF has committed all of its funding for REDD+, but it is currently exploring a renewal. Regarding the private sector, the GCF has set up the Private Sector Facility (PSF)<sup>68</sup>, a dedicated division designed to fund and mobilize private sector actors, including institutional investors, project sponsors and financial institutions. PSF promotes private sector investment through concessional instruments, including low-interest and long-tenor project loans, lines of credit to banks and other financial institutions, equity investments and risk mitigators, such as guarantees, first-loss protection, and grant-based capacity-building programs.
- **Lowering Emissions by Accelerating Forest finance (LEAF) Coalition**<sup>69</sup>: The LEAF Coalition was launched by a group of governments and leading companies aiming to mobilize at least \$1 billion in finance to support tropical and subtropical forest jurisdictions in making substantial reductions in their emissions from deforestation, kicking off the largest-ever public-private efforts to protect tropical forests. Interested tropical forest jurisdictions can submit proposals for emissions reductions from deforestation verified against the independent and rigorous Architecture for REDD+ (ART/TREES) standard<sup>70</sup>. In 2021, more than 30 jurisdictions submitted proposals. And during COP26, LEAF announced that it has mobilized its initial goal of \$1 billion USD for countries and states committed to increasing ambition to protect tropical and sub-tropical forests and reduce deforestation. For companies, LEAF provides an opportunity to accelerate their climate commitments through high-integrity tropical forest protection. For tropical and sub-tropical forest jurisdictions, LEAF provides an opportunity to scale and catalyze their efforts to end forest loss.
- **Forest Carbon Partnership Facility (FCPF)**<sup>71</sup>: The FCPF is a global partnership of governments, businesses, civil society, and Indigenous Peoples focused on REDD+ in developing countries. In collaboration with 17 donors that have made contributions and commitments totaling \$1.3 billion, the FCPF works with 47 developing countries across Africa, Asia, and Latin America and the Caribbean to support REDD+ efforts through its Readiness and Carbon Funds<sup>72</sup>. To date, the FCPF has signed a total of 15 Emissions Reductions Payment Agreements for a total value of signed payment agreements totaling \$721 million. In 2021, Mozambique became the first FCPF jurisdiction to receive a payment for verified emissions reductions, receiving \$6.4 million for 1.3 million tons of verified CO2 emissions reductions<sup>73</sup>.

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<sup>65</sup> Conservation International, Environmental Defense Fund, and The Nature Conservancy. (2022). Joint Inputs on the Work Programme on the Framework for Non-Market Approaches under Article 6.8. <https://www4.unfccc.int/sites/submissionsstaging/Pages/Home.aspx>.

<sup>66</sup> Green Climate Fund. (n.d.). About GCF. <https://www.greenclimate.fund/about>.

<sup>67</sup> Green Climate Fund. (n.d.). REDD+. <https://www.greenclimate.fund/redd>.

<sup>68</sup> Green Climate Fund. (n.d.). Private Sector Financing. <https://www.greenclimate.fund/sectors/private>.

<sup>69</sup> LEAF Coalition. (n.d.). <https://leafcoalition.org/>

<sup>70</sup> Architecture for REDD+ Transitions. (n.d.). <https://www.artredd.org/>.

<sup>71</sup> Forest Carbon Partnership Facility. (n.d.). <https://www.forestcarbonpartnership.org/>.

<sup>72</sup> Forest Carbon Partnership Facility. (2022). Forest Carbon Partnership Facility 2021 Annual Report.

[https://www.forestcarbonpartnership.org/system/files/documents/fcpf\\_2021\\_annual\\_report\\_websngl\\_fnl\\_1\\_13\\_2022.pdf](https://www.forestcarbonpartnership.org/system/files/documents/fcpf_2021_annual_report_websngl_fnl_1_13_2022.pdf).

<sup>73</sup> Ibid.

## Commitments and Pledges

During COP26 in Glasgow, various commitments and pledges<sup>74</sup> (see a few examples below) were announced to catalyze funding and support for nature. While these pledges could be transformational, the extent of their impact depends on how quickly and effectively they are implemented.

- **Glasgow Leaders' Declaration on Forest and Land Use**<sup>75</sup>: A total of 141 governments covering 90% of the world's forests agreed to halt and reverse forest loss by 2030.
- **U.S.-China Joint Glasgow Declaration on Enhancing Climate Action in the 2020s**<sup>76</sup>: The US and China committed to "eliminating global illegal deforestation through effectively enforcing their respective laws on banning illegal imports."
- **Global Forest Finance Pledge**<sup>77</sup>: 12 developed countries pledged to provide \$12 billion (£8.75 billion) of public climate finance from 2021 to 2025.
- **Congo Basin Finance**<sup>78</sup>: 12 country and philanthropic contributors pledged at least \$1.5 billion to protect the forests of the Congo Basin.
- **IPLC Finance**<sup>79</sup>: 14 country and philanthropic donors pledged at least \$1.7 billion from 2021 to 2025 to advance Indigenous Peoples' and local communities' forest tenure rights and support their role as guardians of forests and nature.
- **Forest Investor Club**<sup>80</sup>: A network of leading public and private financial institutions and other investors launched this initiative to unlock and scale up investments that support sustainable, climate-aligned outcomes in the land sector.
- **Agriculture Innovation Mission for Climate**<sup>81</sup>: The US and UAE launched an initiative focused on increasing investment and enabling greater public-private and cross-sectoral partnerships, intended to both raise global climate ambition, and underpin transformative climate action in the agriculture sector in all countries.
- **Belize Marine Conservation Trust Fund**<sup>82</sup>: Belize launched a \$100 million marine conservation trust fund and committed to placing all remaining lands in Belize Barrier Reef system under protection.
- **United States Plan to Conserve Forests**<sup>83</sup>: The United States released its Plan to Conserve Forests: Global Carbon Sinks and pledged \$9 billion by 2030 to help the effort.
- **Blue Carbon Buyers Alliance**<sup>84</sup>: Netflix announced the Blue Carbon Buyers Alliance alongside Disney, Salesforce, and Google to "send a clear market signal" that companies are ready to invest in coastal ecosystems protection and restoration.

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<sup>74</sup> UNFCCC and Government of the United Kingdom. (2021). COP26 Outcomes - The Glasgow Climate Pact. <https://ukcop26.org/wp-content/uploads/2021/11/COP26-Presidency-Outcomes-The-Climate-Pact.pdf>.

<sup>75</sup> UNFCCC and Government of the United Kingdom. (2021). Glasgow Leaders' Declaration on Forests and Land Use. <https://ukcop26.org/glasgow-leaders-declaration-on-forests-and-land-use/>.

<sup>76</sup> United States Department of State. (2021). U.S.-China Joint Glasgow Declaration on Enhancing Climate Action in the 2020s. <https://www.state.gov/u-s-china-joint-glasgow-declaration-on-enhancing-climate-action-in-the-2020s/>.

<sup>77</sup> UNFCCC and Government of the United Kingdom. (2021). The Global Forest Finance Pledge. <https://ukcop26.org/the-global-forest-finance-pledge/>.

<sup>78</sup> UNFCCC and Government of the United Kingdom. (2021). COP26 Congo Basin Joint Donor Statement. <https://ukcop26.org/cop26-congo-basin-joint-donor-statement/>.

<sup>79</sup> UNFCCC and Government of the United Kingdom. (2021). COP26 IPLC Forest Tenure Joint Donor Statement. <https://ukcop26.org/cop26-iplc-forest-tenure-joint-donor-statement/>.

<sup>80</sup> United States Department of State. (2021). Forest Investor Club Establishment at COP26. <https://www.state.gov/forest-investor-club-establishment-at-cop26/>.

<sup>81</sup> United States Department of State. (2021). Launching Agriculture Innovation Mission for Climate. <https://www.state.gov/launching-agriculture-innovation-mission-for-climate-2/>.

<sup>82</sup> Government of Belize. (2021). United Nations Climate Change Conference - Glasgow, Scotland, United Kingdom: Address by the Honorable John Briceno. [https://unfccc.int/sites/default/files/resource/BELIZE\\_cop26cmp16cma3\\_HLS\\_EN.pdf](https://unfccc.int/sites/default/files/resource/BELIZE_cop26cmp16cma3_HLS_EN.pdf).

<sup>83</sup> United States White House. (2021). Plan to Conserve Global Forests: Critical Carbon Sinks. <https://www.whitehouse.gov/wp-content/uploads/2021/11/Plan-to-Conserve-Global-Forests-final.pdf>.

<sup>84</sup> Business Alliance to Scale Climate Solutions. (2021). Blue Carbon Buyers Alliance Concept Note. [https://scalingclimatesolutions.org/wp-content/uploads/2021/11/Blue-Carbon-Buyers-Alliance-Concept-Note\\_Oct-2021.pdf](https://scalingclimatesolutions.org/wp-content/uploads/2021/11/Blue-Carbon-Buyers-Alliance-Concept-Note_Oct-2021.pdf).

- **Blue Carbon Accelerator Fund**<sup>85</sup>: Australia and the International Union for Conservation of Nature (IUCN) announced the creation of the Blue Carbon Accelerator Fund to support international blue carbon restoration and conservation projects.
- **Global Blue Carbon Coalition**<sup>86</sup>: In the months following COP 26, France, Costa Rica, Colombia and partner organizations announced a global coalition on blue carbon at the One Ocean Summit in Brest, France to scale uptake of and finance for blue carbon solutions.

### **Shifting finance flows**

Not only is it essential to scale flows of finance for nature, but it is also imperative to redirect finance flows away from business-as-usual practices that are leading to the destruction of nature (e.g., “gray finance”), and toward more sustainable practices that support and enhance NbS (e.g., “green finance”). **Both the public and private sector have a role to play in enacting this transformational shift. Governments can better align their public budgets and policies with objectives to halt the destruction of nature.** Estimates suggest that domestic “gray” financing for agriculture and forestry in deforestation countries is estimated to total USD 135 billion; while domestic financing for REDD+ activities totals only USD 10.1 billion<sup>87</sup>. With respect to the private sector, both financial institutions and agriculture commodities companies need to take action, most financial institutions do not consider the impact of their investments on forests— more than 86 percent of the 150 financial institutions providing the largest amount of finance to commodity companies (as assessed by Forest 500) have no deforestation policy in place for the companies they finance<sup>88</sup>. Here are several initiatives aiming to facilitate this shift in finance flows:

- **Forest, Agriculture, and Commodity Trade (FACT) Roadmap**<sup>89</sup>: 28 countries launched a roadmap to protect forests through a global shift to sustainable development and trade of agricultural commodities.
- **Commitment on Eliminating Agricultural Commodity-Driven Deforestation**<sup>90</sup>: 30 financial institutions with over \$8.7 trillion of global assets committed to eliminate investment in activities linked to agricultural commodity driven deforestation. The initiative, which is an engagement and active ownership strategy (not a divestment-oriented effort), encompasses top agricultural commodities: palm oil, soy, cattle products, pulp and paper. The initiative represents a critical step for the finance sector, in particular for risk disclosure, transparency, and accountability. The Finance & Deforestation Advisory Group was convened to take on advocacy for enhanced finance sector action on deforestation as a key area of transformative action under the Race to Zero as part of the Marrakech Partnership of the UNFCCC. They will engage signatories throughout 2022 to support them in working towards meeting their commitments. The Advisory Group will also encourage additional financial institutions to sign up to the commitment, with a goal by COP27 of securing commitments from the top 22 most influential FIs according to Forest 500.
- **Multilateral Development Bank Joint Nature Statement**<sup>91</sup>: 9 MDBs agreed to mainstream nature into their policies, analysis, assessments, advice, investments, and operations
- **Agricultural Commodity Companies Corporate Statement of Purpose**<sup>92</sup>: 12 of the largest companies managing over half of global trade in key forest-risk commodities agreed to lay out a shared roadmap for enhanced supply chain action consistent with a 1.5-degree Celsius pathway by COP 27.

<sup>85</sup> International Union for Conservation of Nature. (2021). New Blue Carbon Accelerator Fund to support blue carbon entrepreneurs and leverage private sector finance. <https://www.iucn.org/news/marine-and-polar/202111/new-blue-carbon-accelerator-fund-support-blue-carbon-entrepreneurs-and-leverage-private-sector-finance>.

<sup>86</sup> Conservation International. (2022). Conservation International Statement on the Creation of the Global Blue Carbon Coalition. <https://www.conservation.org/press-releases/2022/02/11/conservation-international-statement-on-the-creation-of-a-global-blue-carbon-coalition>.

<sup>87</sup> New York Declaration on Forests. (n.d.). Goal 8. <https://forestdeclaration.org/goals/goal-8/>.

<sup>88</sup> Ibid.

<sup>89</sup> FACT Dialogue. (2021). FACT Roadmap. <https://www.factdialogue.org/fact-roadmap>.

<sup>90</sup> UNFCCC. (n.d.). Tackling Deforestation and Scaling NBS. <https://racetozero.unfccc.int/system/nature-and-tackling-deforestation/>.

<sup>91</sup> UNFCCC and Government of the United Kingdom. (2021). MDB Joint Nature Statement. <https://ukcop26.org/mdb-joint-statement/>.

<sup>92</sup> UNFCCC and Government of the United Kingdom. (2021). Agricultural Commodity Companies Corporate Statement of Purpose. <https://ukcop26.org/agricultural-commodity-companies-corporate-statement-of-purpose/>.



- **Responsible Commodities Facility**<sup>93</sup>: Initiative that will partner with actors in the soy supply chain to provide funding for the production and trade of deforestation- and conversion-free soy from the *Cerrado* region of Brazil.
- **G7 finance alignment commitment**<sup>94</sup>: During the 2021 Summit, the G7 indicated that they “support moving towards mandatory climate-related financial disclosures that provide consistent and decision-useful information for market participants and that are based on the Task Force on Climate-related Financial Disclosures (TCFD).” Additionally, the G7 “acknowledge [their] contribution to the decline of biodiversity and pledge to play [their] part in its restoration and conservation” and “acknowledge [their] responsibility to support the world in reversing the trajectory of the loss of biodiversity and the natural environments that support it, alongside ensuring that the impact on nature is fully taken into account in [their] policy decision making.”

### Finance of NbS for Adaptation

While adaptation activities receive only 10% of global climate finance, of which nature-based adaptation comprises only a fifth of the total, there are multiple key steps being taken to scale up investment in nature-based adaptation initiatives.<sup>95</sup> **For governments, public-private partnerships on adaptation activities and resilience bonds are actions that can increase both resources and capacity on adaptation.** An example is a nature-based adaptation project in Mexico supported by Volkswagen in coordination with the *Comisión Nacional de Áreas Naturales Protegidas* and the Secretary of the Environment for Mexico. The partnership helped dig pits and plant trees to increase groundwater recharge by 1.3 million cubic meters annually, helping the region adjust to a dryer climate pattern while also ensuring the company’s continued successful operation there in the longer term.<sup>96</sup> Furthermore, governments can align premium prices of carbon credits based on adaptation co-benefits (e.g. CCB standards) and specifically re-invest revenues from carbon credits to strengthen community adaptation practices, as well as integrate adaptation into pay-for-performance schemes.

**In the financial sector, an increasing number of insurance companies have incorporated the adaptation and mitigation values of natural ecosystems into insurance risk models and other financial models.** For example, the social enterprise RISCO has helped generate sustainable revenue from insurance-related sources, as well as the sale of blue carbon credits, which can be used for the conservation and restoration of mangroves to build climate resilience. Private financiers can also help fund activities that generate returns, such as climate-smart agriculture, eco-tourism, and improved water and forest management.

**Bilateral and multilateral funds and development agencies can also play a role in expanding finance for nature-based adaptation projects.** For example, with support from the Global Environment Facility, Conservation International’s Adaptation Accelerator Program in Africa is helping develop small to medium-sized enterprises (SMEs) in the region and create green jobs that provide adaptation services. Specifically, it aims to help SMEs in Madagascar and Liberia gain greater access to international finance and investment, as well as capacity building, to meet the countries’ local adaptation needs.

Additionally, the final text of the “Glasgow Climate Pact” settled on a call for developed nations to “at least double their collective provision of climate finance for adaptation” from 2019 levels by 2025.<sup>97</sup> This represents the first time that an adaptation specific financing goal has ever been agreed globally.

<sup>93</sup> SIM Finance. (n.d.). <https://sim.finance/>.

<sup>94</sup> Group of Seven (G7). (2021). Carbis Bay G7 Summit Communique - Our Shared Agenda for Global Action to Build Back Better. <https://www.g7uk.org/wp-content/uploads/2021/06/Carbis-Bay-G7-Summit-Communique-PDF-430KB-25-pages-5.pdf>

<sup>95</sup> Fedele, G., Donatti, C.I., Corwin, E., Pangilinan, M.J., Roberts, K., Lewins, M., Andrade, A., Olvera, D., Frazee, S., Grover, M., Lalaina Rakotobe, Z., Rambelison, A. (2019). Nature-based Transformative Adaptation: a practical handbook, Conservation International. <http://doi.org/10.5281/zenodo.3386441>.

<sup>96</sup> Van Ham, C. and Klimmek, H. (2017). “Partnerships for Nature-Based Solutions in Urban Areas – Showcasing Successful Examples,” *Nature-Based Solutions to Climate Change Adaptation in Urban Areas*. [https://link.springer.com/chapter/10.1007/978-3-319-56091-5\\_16](https://link.springer.com/chapter/10.1007/978-3-319-56091-5_16).

<sup>97</sup> UNFCCC and Government of the United Kingdom. (2021). COP26 Outcomes - The Glasgow Climate Pact. <https://ukcop26.org/wp-content/uploads/2021/11/COP26-Presidency-Outcomes-The-Climate-Pact.pdf>.

5. What climate actions **related to NbS, including terrestrial and marine ecosystems**, have been undertaken by non-Party stakeholders, including Indigenous peoples and local communities, and what has been their impact? (para 37(i)) Which ones have worked and what obstacles or barriers have been encountered? (para 36(g))? What efforts have been made **and should be made** towards enhancing the engagement of Indigenous peoples and local communities in climate action **through NbS**?<sup>98</sup>

There has been significant action from non-party stakeholders, including civil society, business, cities, states, regions, etc. to accelerate the development and implementation of NbS in NDCs, NAPs, LTSs, and financial commitments at the national and international level.<sup>99</sup> **In preparation for COP26 the High-Level Champions for Climate Action and the Marrakech Partnership for Global Climate Action have developed “Climate Action Pathways,”<sup>100</sup> including for land use and ocean and coastal zones, describe sectoral visions for achieving a 1.5° C resilient world in 2050**, with overarching transformational milestones, and key impacts that need to be achieved to realize them. Civil society specifically plays an important role in raising awareness, supporting capacity building for policy makers to undertake NbS ambition, and collaborating with local stakeholders and communities.

**There have been many efforts to increase the engagement of Indigenous peoples and local communities in climate action, especially through NbS; yet additional efforts are needed, as these actors are critical to protecting NbS globally.** Indigenous communities are often referred to as the “guardians of the forest” because of their effectiveness in keeping forests intact. Research has shown that Indigenous territories and protected areas have an outsized effect on forest and carbon protection, as they cover 52 percent of the Amazon and store 58 percent of the carbon.<sup>101</sup> Ensuring that Indigenous organizations and other on-the-ground stakeholders actively participate in — and have ownership of — NbS program design and implementation is not only essential for successful ecosystem protection, but central to the legitimacy of these programs and their ability to garner widespread market and stakeholder support. That is why it is essential that Indigenous peoples and local communities participate in decision-making from the outset, have the capacity and resources to manage and defend their territories, and are able to access finance and benefits equitably. It is also imperative that their rights and tenure are recognized, respected and protected. Additional research on the role of Indigenous peoples in protecting and sustainably managing nature, especially for non-forest ecosystems, as well as effective methods to support them, can complement existing frameworks and initiatives, such as the Cancun Safeguards, ART/TREES standard, and the Interfaith Rainforest Initiative.<sup>102</sup>, the Dedicated Grant Mechanism.<sup>103</sup>, the Local Communities and Indigenous Peoples’ Platform.<sup>104</sup>, and the Inclusive Conservation Initiative.<sup>105</sup>

Below, we list examples of the efforts made towards increasing NbS ambition and implementation and enhancing the engagement of Indigenous Peoples and local communities in climate action through NbS:

#### ***Blue Carbon Project in Cispatá, Colombia – “Vida Manglar”***

On the mangrove-rich Caribbean coast of Colombia, Conservation International is helping to lead the first mangrove conservation project to be issued carbon credits under the widely adopted Verified Carbon Standard using methodologies specifically designed for these ecosystems. The project, *Vida Manglar*, means “mangrove life” in Spanish, and is a joint collaboration between the private sector, civil society and local organizations and government authorities. The project has been verified using the Verified Carbon Standard (VCS) and the Climate, Community, Biodiversity (CCB) certification, and is achieving Gold Level Exceptional Community benefits

<sup>98</sup> This question was derived from Guiding Questions 29, 33 and 34 from the [non-paper on “Preparing for the Global Stocktake”](#).

<sup>99</sup> UNFCCC. (2021). The Non-Party Stakeholder Commitment to Deliver this Decade.

[https://www4.unfccc.int/sites/SubmissionsStaging/Documents/202111111206---NPS Statement of Support for Improved%20Marrakech Partnership Plan Final 11-11-21.pdf](https://www4.unfccc.int/sites/SubmissionsStaging/Documents/202111111206---NPS%20Statement%20of%20Support%20for%20Improved%20Marrakech%20Partnership%20Plan%20Final%2011-11-21.pdf).

<sup>100</sup> UNFCCC. (n.d.) Climate Action Pathways. [https://unfccc.int/climate-action/marrakech-partnership/reporting-and-tracking/climate\\_action\\_pathways](https://unfccc.int/climate-action/marrakech-partnership/reporting-and-tracking/climate_action_pathways).

<sup>101</sup> Walker, W. et al (2020). The Role of Forest Conversion, Degradation, and Disturbance in the Carbon Dynamics of Amazon Indigenous Territories and Protected Areas. *Proceedings of the National Academy of Sciences of the United States of America*, 117, no.6: 3015–25. <https://doi.org/10.1073/pnas.1913321117>.

<sup>102</sup> Meridian Institute. (2019). Interfaith Rainforest Initiative. <https://merid.org/case-study/interfaith-rainforest-initiative/>.

<sup>103</sup> The Dedicated Grant Mechanism for Indigenous Peoples and Local Communities. (n.d.). <https://www.dgmglobal.org/>.

<sup>104</sup> Local Communities and Indigenous Peoples Platform. <https://unfccc.int/LCIPP>.

<sup>105</sup> Inclusive Conservation Initiative. (n.d.). <https://www.inclusiveconservationinitiative.org>.

and Exceptional Biodiversity benefits. It brings important new sources of livelihoods to the communities, including ecotourism, bee products and house crops, and manatees, needle crocodiles, and otters are all species found in the project area.

*Vida Manglar* is receiving credits for reducing deforestation in approximately 7,561 hectares of mangrove forests, and the first verification (2015 to 2018) will account for a net GHG Emission reduction of 69,027 tCO<sub>2</sub>e. The VCUs (credits) issued are 59,363 tCO<sub>2</sub>e considering a 14% buffer. The planned project length for *Vida Manglar* is 30 years (2015 to 2045), and the project is expected to reduce a total of 939,296 tCO<sub>2</sub>e.

Despite the importance of mangrove ecosystems, these areas are under threat due to agricultural expansion, unsustainable tourism infrastructure, and logging activities. Early and ongoing involvement of stakeholder groups, including local government and local community leaders, has been a key driver of *Vida Manglar's* ongoing success.

### ***Chyulu Hills REDD+ Programme***

The Chyulu Hills REDD+ Programme is a landscape-level conservation initiative that protects ecological resources and provides economic and social co-benefits for local communities in the Chyulu Hills ecosystem in south-eastern Kenya. Comprising a part of a broader multi-pronged initiative to conserve this precious ecosystem, the CHRP was launched in partnership with four Indigenous groups, two government agencies, and four NGOs, including Conservation International, and its 2.03 million CO<sub>2</sub>e of emissions reductions have been verified under the VCS and CCB standards. In turn, the carbon credit proceeds will support a variety of social, environmental, and economic causes, such as capacity building for forest rangers mostly from the indigenous communities, land restoration initiatives, and supporting local schools. Furthermore, in addition to the project's climate impact, it also directly helps support a critical watershed that sustains Mombasa, Kenya's second largest city, and protects a critical biodiversity corridor for endangered species in the area.

### ***Herding for Health in South African rangelands***

With climate impacts leading to increasingly frequent and severe droughts, higher temperatures, reduced rainfall, and higher numbers of invasive species, the Herding for Health program in South Africa's drylands has helped local herders sustain their livelihoods while maintaining the region's ecological integrity. Covering about 250,000 hectares and directly benefiting 1,600 rangeland farmers, the project has helped improve nutrient concentration, remove alien species, and introduce climate resilient breeds. In doing so, local herders' costs of management have not only decreased; the project has also created jobs for unemployed people to work as eco-rangers and created market incentives to encourage further sustainable livestock production. Simultaneously, the project's improved conservation outcomes for local grasslands helped protect biodiversity while potentially increasing the ability of grasslands to sequester carbon in the area. The success of this approach and results in South Africa will be scaled up via a new GCF project in Botswana, working with local stakeholders to develop of tools and enhancing existing government programs to increase the climate change resilience of thousands of people living in livestock farming communities, restoring land health on large areas of degraded land, and supporting Botswana's NDC through significant amounts of global carbon emissions reduction and sequestration.<sup>106</sup>

### ***REDD+ Early Movers Program in Brazil***

The German Development Bank's REDD (REM) Program in Brazil's Mato Grosso and Acre states provides an excellent example of how equitable, participatory, and effective jurisdictional emission reductions have worked. In Acre, project resources were allocated according to the priorities defined by 20 Indigenous leaders from most of the 36 Indigenous territories of the state. Acre also developed an innovative system known as the "Incentive System for Environmental Services" (SISA), which clearly defines the beneficiaries of incentive payments (such as the REM) as the providers of the environmental service of reducing deforestation – including Indigenous and traditional communities in the first instance – rather than owners of carbon rights stemming from asset ownership of land or forest carbon stocks. The Mato Grosso REM program included a highly participatory Indigenous

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<sup>106</sup> Green Climate Fund and Conservation International. (2017). Ecosystem and Livelihoods Resiliency: climate change risk reduction through ecosystem based adaptation in Botswana's communal grazing lands. <https://www.greenclimate.fund/sites/default/files/document/17830-ecosystem-and-livelihoods-resiliency-climate-change-risk-reduction-through-ecosystem-based.pdf>.

Territories subprogram, developed via the recently organized Mato Grosso Federation of Indigenous Peoples and Organizations (FEPOIMT), in consultation with 42 of the 43 Indigenous peoples of the state. The subprogram primarily focused on strengthening FEPOIMT and the states Indigenous organizations, territorial management planning and support for Indigenous women and youth political mobilization, as well as an emergency COVID response project. According to an independent civil society evaluation of the Mato Grosso REM program, donor mediation allowed unprecedented dialogue between state government and Indigenous organizations and contributed greatly to the consolidation of FEPOIMT as a political actor.<sup>107</sup>

6. What are the barriers and challenges, including finance, technology development and transfer and capacity-building gaps, faced by developing countries (para 36(f)) **to implement NbS**? To what extent has progress been made on enhancing the capacity of developing country Parties to implement **NbS as part of the Paris Agreement (Article 11.3)**?<sup>108</sup>

Developing countries face several key barriers to implement NbS and balance nature and sustainable development. Successful interventions that both reduce poverty and reduce deforestation and destruction of other natural ecosystems are challenging to scale, and public-private coordination to align complementary interventions is still in nascent stages. A widespread lack of transparency continues to impair accountability of governments, companies, international donors, and other financial actors, and the power disparity between governments and companies, on the one hand, and Indigenous peoples, local communities, and other small-scale actors, on the other, restricts inclusive development pathways and can lead to the criminalization and murder of environmental defenders.<sup>109</sup>

Despite robust global estimates about NbS and many successful projects, many countries still lack widespread evidence and capacity for nature-based action at the local level. **While practical experiences and pilot projects have shown that nature can help people reduce the impacts of climate change and adapt, especially in coastal areas, these NbS are often overlooked in the management of land and water and are implemented through small-scale incremental approaches due to short-term planning, poor understanding of future climate change impacts, lack of robust monitoring and understanding of the evidence on their effectiveness, and limited technical/adaptive capacities to identify, design and implement them.** Although project scale activities can result in important outcomes for climate, biodiversity, and local communities, to achieve climate action at the scale and pace needed for a Paris Agreement aligned pathway, it is important for countries to consider how to implement NbS efforts at scale (e.g., jurisdictional and greater). Doing so can enable countries to more holistically address the drivers of emissions at scale, mitigate some of the risks associated with project-level implementation, ensure social and environmental integrity, and enact broad policy reforms. (See more on large-scale approaches under question #2.)

Governments often grapple with implementing existing policies on agriculture, land-use, marine areas, and natural resource management due to a lack of political will, capacity, and stability. While many countries have high-level climate and sustainable development commitments and often well-designed policies on paper, there tends to be a fundamental disconnect with implementation and enforcement. In recent years, many governments have also been relaxing regulations and enforcement of laws that protect forests, which has sped up as governments respond to the COVID-19 pandemic. **The potential of NbS, especially for adaptation, is often not integrated in plans and policies across sectors and within climate-focused policies from the local to international levels, which misses opportunities for economic efficiency and policy coherence.** This is due in part to challenges in coordinating inter-sectoral policies or incentives, lack of technical knowledge on how or why to integrate these solutions in existing plans or policies, lack of participation, and weak institutional structures that hinder

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<sup>107</sup> Environmental Defense Fund. (2021). Jurisdictional Forest Protection and Indigenous People: evidence from Acre and Mato Grosso REDD Early Movers Programs. <https://www.edf.org/sites/default/files/documents/Reducing-Emissions-Deforestation-Carbon-Credit-Indigenous-peoples-incentives-forest-protection-v2.pdf>.

<sup>108</sup> This question was derived from Guiding Questions 15 and 18 from the [non-paper on "Preparing for the Global Stocktake"](#).

<sup>109</sup> NYDF Assessment Partners. (2020). Balancing forests and development: Addressing infrastructure and extractive industries, promoting sustainable livelihoods. Climate Focus (coordinator and editor). <https://forestdeclaration.org/>.

implementation. An imbalance in power among government agencies allows vested interests to shape enforcement regimes and marginalizes the interests and knowledge of those most impacted by climate change.

Even where there has been successful policy implementation, most efforts have been one-dimensional, producing unintended outcomes for producers or natural ecosystems, as well as leaving underlying factors like insecure land tenure unaddressed. Producers are often subject to conflicting approaches from various levels of government and private markets, many of which provide perverse incentives that drive the conversion of natural ecosystems. For example, many South American governments have directly and indirectly promoted policies that encourage human settlement in forests and encourage forest clearance, such as by requiring that land demonstrate “productive use capacity” such as agriculture before land tenure can be established.<sup>110</sup> Furthermore, legal frameworks for the conversion of natural areas to production areas are often complex, and informal local practices may have a strong influence in the absence of external support to interpret the law correctly.<sup>111</sup> In this context, both local people and natural ecosystems are likely to lose out in favor of larger economic interests.

**Countries lack key climate change information and M&E systems to implement NbS, especially for adaptation, and most existing systems are not unified and lack articulation and interoperability.** In some scenarios, adaptation M&E schemes have been the result of different policy tools and independent and non-aligned budget line-items.<sup>112</sup> This could be related more to a failure to prioritize the issue of adaptation at the political level, resulting in reduced budget allocation and inter-agency coordination, rather than an issue of human capital or specialized knowledge. See Box 4 below for more information.

Developing countries face an inadequate incorporation of NbS into public and private sector investment policies and portfolios. Only a small amount of funding goes to programs that aim to both alleviate poverty and reduce drivers of natural ecosystem degradation/destruction compared to investments in the sectors driving ecosystem loss (see more under question #4). Currently, NbS for adaptation only receive 1% of public climate finance, and only 3.3 % of companies (out of 1,630 companies investigated) use these strategies.<sup>113</sup> Compelling evidence of successful NbS are not reaching or motivating high-level decision makers to incorporate these solutions into key national investment policies or financial models, and challenges remain to make adaptation appealing to private sector finance. This is complicated by a consensus among developing countries that adaptation measurements efforts should not place too high a financial burden on them, which is why technical and financial cooperation from developed countries and multilateral organizations is essential.<sup>114</sup>

**Finally, a critical lesson is that we cannot rely on economic models, market forces, or the private sector alone to solve the problem of unprecedented global nature and biodiversity loss.** There are several market failures on our economic models and institutions to correctly value nature. To start, many of the benefits of biodiversity are public goods that are non-excludable in nature, which means that markets will likely undervalue them. In addition, the benefits from biodiversity conservation and costs from biodiversity loss impact third parties in the form of external benefits and costs, which are another standard market failure where actors who conserve biodiversity are not adequately rewarded financially, and perpetrators of biodiversity damage are not financially penalized. Finally, market failures in biodiversity are compounded by the lack of well-defined property rights of environmental goods and services, and as a result no one has any financial interest in, or can derive direct financial benefit from, conserving them or ensuring that they are allocated to their highest-value use.<sup>115</sup>

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<sup>110</sup> UN Development Programme. (2017). Sustainable Productive Landscapes in the Peruvian Amazon. Global Environment Facility. <https://www.thegef.org/project/sustainable-productive-landscapes-peruvian-amazon>.

<sup>111</sup> FAO. (2020). Agriculture and climate change – Law and governance in support of climate smart agriculture and international climate change goals. <https://doi.org/10.4060/cb1593en>.

<sup>112</sup> Cruz, L., and Ospina, A. (2019). Alineación para avanzar en el desarrollo resiliente al clima - Caso de estudio de países: Colombia. <https://napglobalnetwork.org/wp-content/uploads/2019/11/napgn-es-2019-alignment-casestudy-colombia.pdf>.

<sup>113</sup> Goldstein, A., Turner, W., Gladstone, J., Hole, D. (2019). The private sector’s climate change risk and adaptation blind spots. *Nature Climate Change*. <https://www.nature.com/articles/s41558-018-0340-5>.

<sup>114</sup> UNFCCC Adaptation Committee. (2021). Approaches to reviewing the overall progress made in achieving the global goal on adaptation (technical paper). AC/2021/TP/GGA. [https://unfccc.int/sites/default/files/resource/ac2021\\_tp\\_gga.pdf](https://unfccc.int/sites/default/files/resource/ac2021_tp_gga.pdf).

<sup>115</sup> Deutz, A. et al. (2020). Financing Nature: Closing the global biodiversity financing gap. *Nature*. <https://www.nature.org/en-us/what-we-do/our-insights/reports/financing-nature-biodiversity-report/>.



#### **Box 4: Barriers and challenges identified via CBIT projects**

As a key support partner for the Capacity-Building Initiative for Transparency (CBIT), Conservation International has identified several key barriers that developing countries face to implement the Paris Agreement, which are especially relevant for NbS:

- Weak institutional infrastructure for coordinating between national processes and sectoral activities and monitoring systems, including a lack of formal GHG data-sharing arrangements and a lack of robust institutional structures to guide and manage the implementation of NDCs.
- Many sectoral policies and laws governing the environment sector are not aligned. These include policies and laws in agriculture, land, water, forests, trade, and industry.
- Inadequate institutional and technical capacity to establish and manage transparency systems that can measure, track and report mitigation and adaptation activities. Issues of GHG data inadequacy, availability, and accessibility due to frequent changes in government sectoral department management
- Inadequate technical capacity to prepare national climate reports and execute methodologies to collect, measure, report and verify GHG emissions, undertake quality control/quality assurance, or to develop and implement a robust MRV system. Capacity is particularly weak at the sector level, and especially for the LULUCF sector, including an overreliance on non-specific emission factors for the country or the use of “default” values that do not reflect national circumstances,
- Insufficient and outdated equipment and tools leading to unreliable and poor-quality GHG data, resulting in uncertainty regarding the accuracy, consistency, and reliability of the reported GHG inventories.
- Lack of key GHG data for decision-making and limited awareness about the Paris Agreement, climate change, and NDCs is a major obstacle to the successful multi-sectoral NDC implementation.
- Lack of funds to allocate towards the development of and capacity building on MRV systems, leading to inadequate or poor-quality data in many sectors of the economy, including those that are climate sensitive.

Even after CBIT projects are completed, challenges remain, such as high turnover of trained government staff; lack of funding or institutional frameworks to operationalize MRV systems; unreported/unavailable GHG emissions activity data; lack of involvement/commitment from the private sector as data providers; and low engagement of women. Developing countries will need iterative support to address extensive capacity issues and ensure that the skills gained through CBIT training are grounded and remain practical.

#### ***Progress on increasing capacity and lessons learned:***

Through CBIT projects, developing countries are receiving essential support to implement NbS as part of their commitments under the Paris Agreement, as well as their reporting responsibilities. Common results and ongoing efforts from CBIT projects include: <sup>116, 117, 118, 119</sup>

- Establishment of sectoral protocols and institutionalization of formal arrangements for GHG data collection, sharing, analysis, and reporting, including development of reference resources and technical guides, increased intersectoral interaction and communication:
- Development of methodological guidelines for monitoring sectoral adaptation actions
- Completion of national GHG inventory updates, with strengthened technical and institutional capacity of both public and private sector actors at various levels, to collect, process, and feed data into the GHG inventory system, e.g., training on domestic MRV and the IPCC reporting requirements, forecasting and data management.

<sup>116</sup> Global Environment Facility and Conservation International. (2021). Strengthening National Institutions in Kenya to Meet the Transparency Requirements of the Paris Agreement and Supporting the Coordination of National, Regional and Global Transparency-Related Activities in Kenya (CBIT Kenya). [https://www.conservation.org/docs/default-source/gef-documents/cbit-kenya-knowledge-management-report\\_results-and-lessons-learned\\_final.pdf?sfvrsn=b93434a1\\_2](https://www.conservation.org/docs/default-source/gef-documents/cbit-kenya-knowledge-management-report_results-and-lessons-learned_final.pdf?sfvrsn=b93434a1_2).

<sup>117</sup> Global Environment Facility and Conservation International. (2021). Strengthening the Capacity of Institutions in Uganda to Comply with the Transparency Requirements of the Paris Agreement. [https://www.conservation.org/docs/default-source/gef-documents/cbit-uganda/20210820\\_cbit-uganda-knowledge-management\\_final.pdf?sfvrsn=fe3f9642\\_0](https://www.conservation.org/docs/default-source/gef-documents/cbit-uganda/20210820_cbit-uganda-knowledge-management_final.pdf?sfvrsn=fe3f9642_0).

<sup>118</sup> Global Environment Facility and Conservation International. (2021). CBIT Questionnaire for Liberia - Year 2021. [https://www.conservation.org/docs/default-source/gef-documents/cbit-liberia/cbit-liberia\\_questionnaire\\_2021-progress-report-dec-2021.pdf?sfvrsn=c507901e\\_0](https://www.conservation.org/docs/default-source/gef-documents/cbit-liberia/cbit-liberia_questionnaire_2021-progress-report-dec-2021.pdf?sfvrsn=c507901e_0).

<sup>119</sup> Global Environment Facility and Conservation International. (2021). CBIT Questionnaire for Madagascar - Year 2021. [https://www.conservation.org/docs/default-source/gef-documents/cbit-madagascar/cbit-madagascar\\_gefsec-questionnaire\\_2021-progress-reportdec2021.pdf?sfvrsn=f39239e1\\_0](https://www.conservation.org/docs/default-source/gef-documents/cbit-madagascar/cbit-madagascar_gefsec-questionnaire_2021-progress-reportdec2021.pdf?sfvrsn=f39239e1_0).

- Development of national MRV systems, including web-based platforms/portals to visualize GHG emissions and act as climate information hubs, with both national and sectoral actors trained on the operationalization of the MRV systems.
- Formalization of multisectoral and public-private working groups for the IPCC GHG sectors contributing data for national GHG inventories, including training on IPCC software and basic modeling.
- Building of tools for capacity building, such as Training of Trainers workshops, online training, data clinics, and learning-by-doing where the trainees from the sectors were taught through real-life application and specialized training
- Procurement of MRV equipment for national and sectoral teams and standardization of data collection tools
- Support to develop climate-proof legislative frameworks, national climate change mitigation and adaptation strategies, and NDC updates, including strengthening the institutional structure to guide and manage NDC implementation
- Development of Awareness, Communication, and/or Engagement Plans to address existing information and knowledge gaps for increased engagement, participation, coordination, and transparency.

In addition to progress on delivery of tangible results and capacity-built in developing countries, CBIT projects have generated a wealth of lessons learned which are essential to integrate into ongoing and future efforts to support implementation of NbS and the Paris Agreement. Key lessons learned include:

- Inclusion of all relevant government staff - both technical and high-level - and institutionalizing data sharing protocols among them is key to ensuring long-lasting impact of project interventions
- Approaches must be tailored to each country's context and should be built on and understanding of existing, often informal, institutional and organizational structures and how they work to identify ways of influencing processes of change within them
- Strengthening institutional arrangements through Memoranda of Understanding and cooperation frameworks takes time and conviction and should be made as participatory as possible.
- Theoretical training is not sufficient, and capacity building should include both soft and hard skills; Learning-by-doing with diverse approaches to gaining hands-on experience is informative, builds ownership, and can foster sustainability.
- Iterative training on new skills is essential and routine engagement in inventory compilation will improve the quality of the data collected and reporting
- Engaging in-house sectoral teams to compile the GHG data and update the inventory is more efficient and will yield more accuracy than relying on consultants, as they can build relationships with data providers and can access more data and information compared to the consultants.
- Capacity building is a process therefore at every stage of capacity building gaps or needs must be identified and possible solutions explored. Therefore, there is a need to establish a framework to assess progress in capacity building with clear targets and very specific indicators to guide capacity building support and reveal the impact of the capacity built.
- Developing and implementing a gender mainstreaming strategy is crucial in ensuring the participation of men and women
- Clear communication about the status, trends, and impacts of climate change, the overall policy framework governing climate response, and national priorities for climate action and reporting are essential to developing a robust climate response based on informed public opinion and coordinated participation.

## Conclusion

Completing a robust and effective GST is crucial to provide a basis for countries to enhance ambition in the next iteration of their national climate commitments in 2025, as well as improve international cooperation and support, to ensure the world can meet the goals of the Paris Agreement. UNFCCC analysis already shows that transformative climate action in our terrestrial, coastal, and marine environments, in addition to rapid decarbonization of our economies, is necessary to stay on track for the Paris Agreement goals. **Nature-based Solutions in terrestrial, coastal and marine ecosystems are a critical element of this journey, which also advance global goals on biodiversity, human health, and sustainable development. Comprehensive and successful GST outcomes should include quantified goals for nature and include all ecosystems across the globe.** Therefore, it is crucial for the GST to include these inputs and experiences from non-Party stakeholder to increase the ambition of nature-based national commitments and effective implementation of NbS.

## **RESOURCE ANNEX**

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**For full information on Conservation International’s CBIT support**, please see the list of projects linked for each country: [Gambia](#), [Kenya](#), [Liberia](#), [Madagascar](#), [Rwanda](#), and [Uganda](#).

**Ocean data in the GST:** The Ocean-Climate Platform, in collaboration with additional organizations, prepared a resource to guide the technical assessors to the GST through the various sources of input and simplify where

information on coastal and marine ecosystems, and other relevant ocean topics, can be found, as a forward-looking assessment. The document can be accessed here: [Identifying and accounting for ocean specific topics in the Global Stocktake \(February 2022\)](#).

## **FORTHCOMING RESOURCES**

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