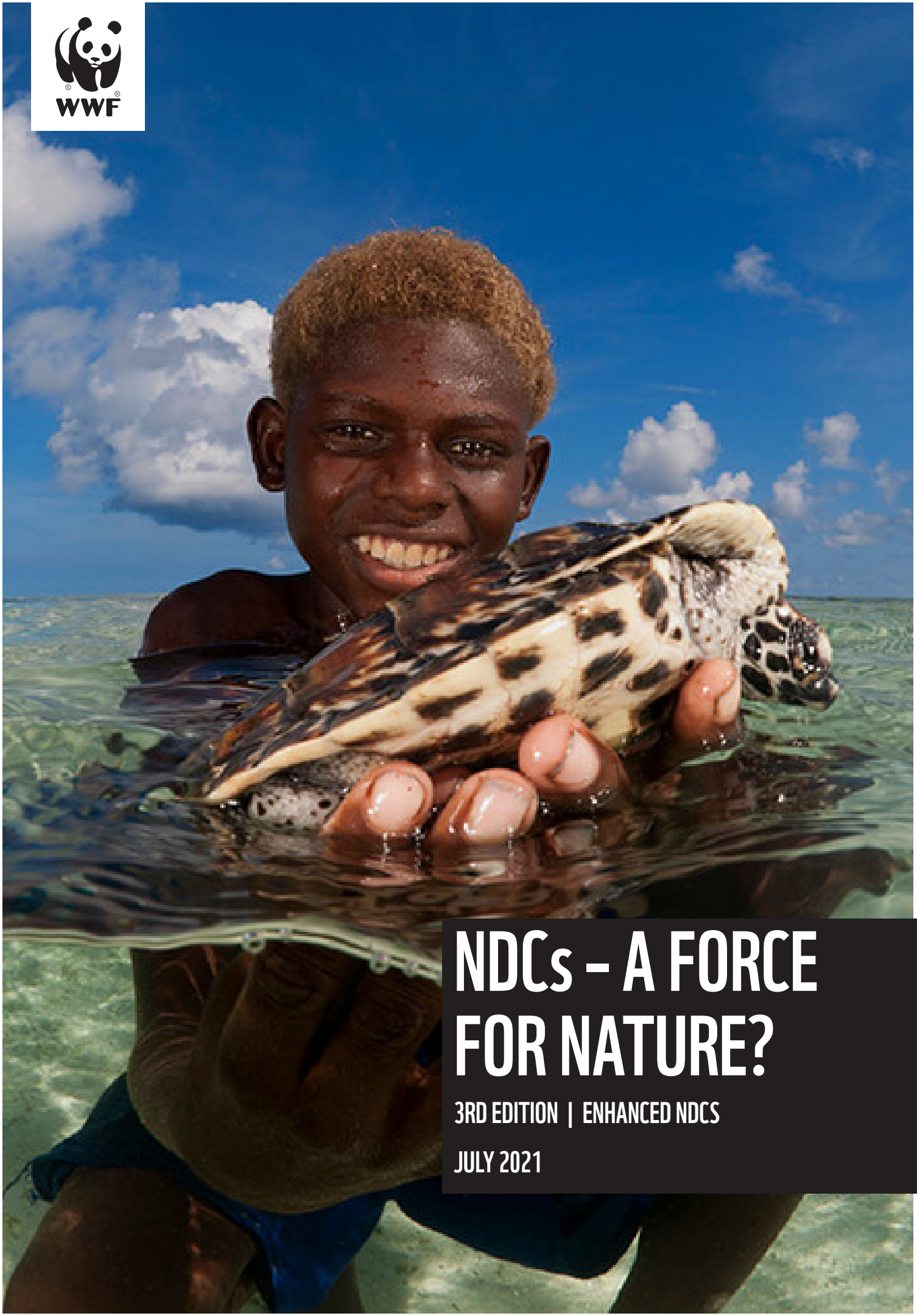
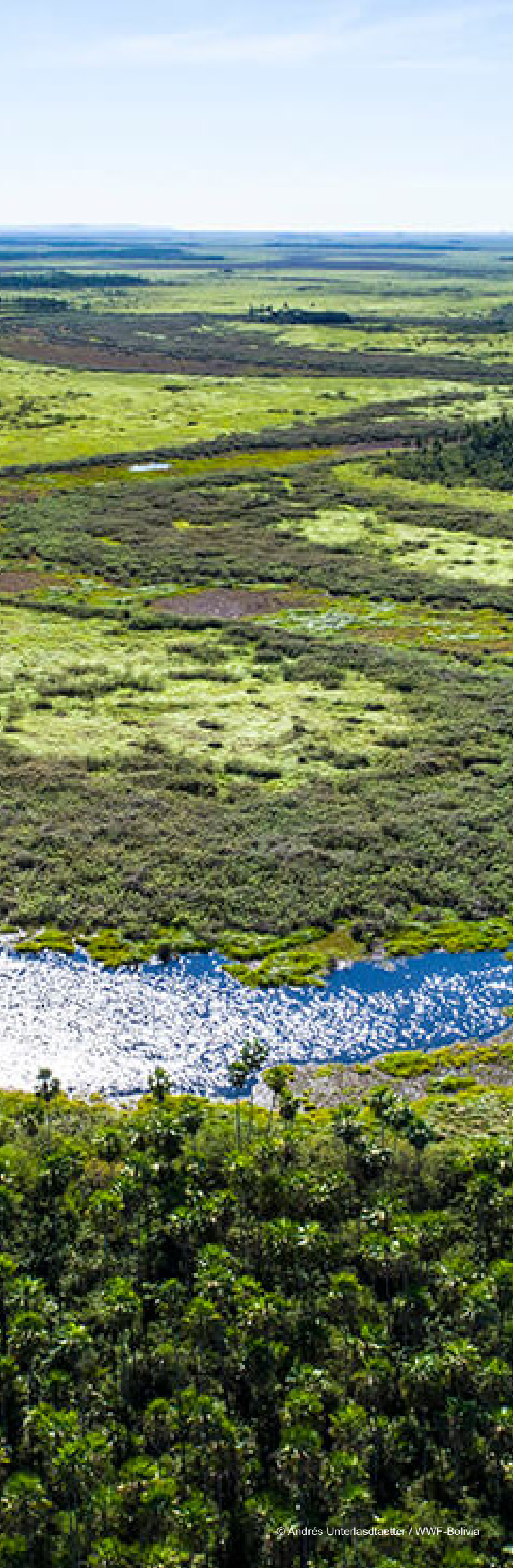


NDCs – A FORCE FOR NATURE?

3RD EDITION | ENHANCED NDCS

JULY 2021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CONTENTS

Publisher: WWF-UK

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Authors:

Haseeb Bakhtary, Climate Focus
Franziska Haupt, Climate Focus
Jana Elbrecht, Climate Focus

Coordinators:
Clement Metivier, WWF-UK
Richard McLaverty, WWF-UK

With contributions from and thanks to:
Stephen Cornelius, WWF-UK
Bernadette Fischler Hooper, WWF-UK
Shirley Matheson, WWF-EU
Mark Lutes, WWF Climate & Energy Practice
Fernanda Viana de Carvalho, WWF International

Contact: Richard McLaverty RMcLaverty@wwf.org.uk

Designed by: Jo Curnow, 1 Tight Ship, South Africa

Front cover photo: © Jürgen Freund / WWF

Back cover photo: © Day's Edge Productions / WWF-US

1. EXECUTIVE SUMMARY

Nature-based Solutions (NbS) provide an opportunity we can't afford to miss. NbS are crucial to have a chance at averting the worst impacts of climate change and ending the destruction of natural ecosystems and their essential services.

Encompassing a wide range of interventions for ecosystem conservation, management and restoration, NbS will play an essential role to achieve the 1.5°C target of the Paris Agreement.[1] They are also critical to stop and reverse the unprecedented loss of ecosystems and to build resilience against climate change impacts, while also providing additional benefits for sustainable development and the livelihoods of people across the world. For example, NbS for flood management can reduce flood risk while supporting improved water quality, nutrient sequestration, and biodiversity, offering more benefits and requiring less maintenance compared to technological solutions like flood walls.

The 2015 Paris Agreement has been ratified by 191 out of 197 Parties to the United Nations Framework Convention on Climate Change (UNFCCC). The Paris Agreement explicitly recognises the importance of the conservation and enhancement, as appropriate, of sinks and reservoirs of greenhouse gases and the importance of ensuring the integrity of all ecosystems, including oceans, in its Preamble. It also highlights in Article 5 the need to protect ecosystems including forests and oceans as well as other terrestrial, coastal marine ecosystems. This reflects the growing recognition that climate change, degradation of ecosystems and biodiversity loss are interconnected and have devastating consequences for our economic and social stability, health and well-being. The COVID-19 crisis has made this fact clear, with a growing body of literature pointing to a direct link between the destruction of nature and disease outbreaks.[2]

As the vehicles for Parties to the Paris Agreement to communicate their climate plans, Nationally Determined Contributions (NDCs) are an important platform to state their ambitions in relation to NbS for climate. WWF's #NDCsWeWant checklist shines a spotlight on all kinds of progress, encourages best practices, identifies challenges and calls out laggards, with the goal of increasing the overall ambition of the NDC process. As of May 01, 2021, 55 Parties to the UNFCCC (including the EU-27 which represents 27 member states of the European Union) have submitted updated or revised NDCs. To complement the #NDCsWeWant this report assesses the integration of NbS in the updated NDCs and how this has changed compared to their previous NDC submission.

Below are key findings from our assessment of integration of nature and Nature-based solutions in NDCs:

Overall, there is a positive trend with the large majority of the 55 enhanced NDCs clearly referencing NbS in their mitigation or adaptation measures. 34 Parties improved the integration of NbS in their updated NDCs compared to previous versions, while for 8 Parties, there was no significant change, and for 13 we saw a decline.

1. The number of NDCs that make explicit reference to NbS approaches has increased from 43 to 50 out of 55 Parties in their enhanced NDCs: 44 in the context of mitigation measures, 42 in the context of adaptation plans - with 36 of these in both mitigation and adaptation. This reflects a positive trend compared to previous submissions.

2. Out of the 44 NDCs that include NbS for mitigation, 28 have quantified these as numerical targets, mostly for the forest sector. The comparison with previous submissions also shows a positive trend, with 6 additional countries including numerical targets.

3. Most NDCs refer to a broad range of ecosystems, including forests, agricultural lands, mangroves, wetlands and marine ecosystems. There was a significant increase in the number of Parties that mention wetlands and marine ecosystems in their updated NDCs. 19 Parties mentioned wetlands compared to 8 in their previous NDCs, and 26 mentioned marine ecosystems compared to 20 previously.

4. 38 Parties present national plans and policies in relation to the implementation of NbS, mostly for the forest sector. Overall, this is one more than in the previous NDCs. However, 8 Parties who mentioned national policies for NbS in their previous NDCs dropped those references in the updated versions, while 9 countries added specific mention of national policies for NbS where they had not earlier.

5. 17 NDCs refer to global processes and agreements in the context of NbS. This reflects an increase compared to the previous round, with 11 additional NDCs making such references.

6. 13 NDCs explicitly refer to the Indigenous Peoples and other local communities in relation to the development and implementation of NbS. This is an increase of 4 NDCs, which demonstrates increasing attention to their essential role in the context of NbS.

7. From 117 Parties yet to submit an updated NDC, 71 have included some NbS actions for ecosystem-based adaptation and conservation in their first NDCs. 57 of these NDCs focus on forests, woodlands, grasslands and other land-based ecosystems while another 14 of them focus on coastal and marine ecosystems.

An update to this report assessing the integration of nature in updated NDCs submitted after May 01, 2021 will be published towards the end of the year.

CONCLUSIONS AND RECOMMENDATIONS

Nature plays a vital role in helping deliver a 1.5°C world - limiting global warming to this level won't be possible through fossil-fuel decarbonisation alone. Nature-based Solutions, land use and agriculture must be put at the forefront of global efforts to tackle the climate crisis. **All countries should therefore strengthen their national climate plans and raise global ambition by better incorporating nature-based solutions, land use and agriculture in their enhanced NDCs.** Enhancing NDCs for nature should include the following steps:

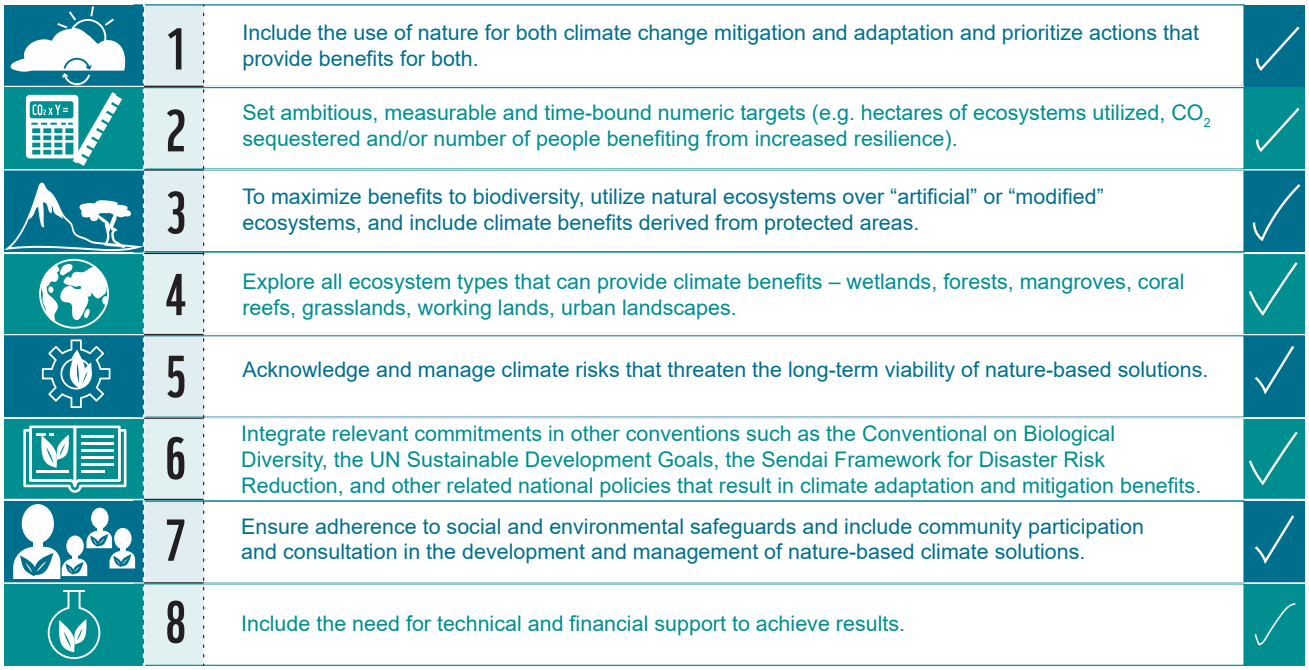
Recommendations to governments for the UNFCCC process and for COP26

- COP26 decisions should include a **clear request for countries to maximise the potential of nature in their enhanced NDCs and other national climate plans**, for example by including nature-based solutions, land use and agriculture.
- COP26 should **give greater formal recognition to the role of nature for climate adaptation and mitigation to achieve the objectives of the Paris Agreement, including limiting global temperature rise to 1.5°C.** COP26 decisions should:
    - Set a process to further operationalize the references to ecosystems and biodiversity from Article 5 of the Paris Agreement and COP25 decisions.
    - Recognize the link between biodiversity and climate change as highlighted by the joint IPBES - IPCC workshop report[3] including the critical role played by all ecosystems for climate mitigation and adaptation.
    - Highlight the need to protect and restore natural ecosystems, and reverse biodiversity loss, to achieve the 1.5°C target.
    - Acknowledge the goal to be nature-positive by 2030.
- In the run-up to COP26, governments must ensure the provision of **scaled up, new, and additional financing for nature-based solutions**. Funding for nature-based solutions should be increased to at least 30% of overall climate finance, as appropriate, both for adaptation and mitigation.

Recommendations to governments for national level implementation

- All enhanced NDCs should maximize the potential of nature-based solutions and land use in addressing the climate crisis. They should **prioritize those nature-based solutions that address climate change mitigation and adaptation, while supporting sustainable development and biodiversity conservation**.
- Enhanced NDCs should clearly identify the **co-benefits of nature-based solutions for climate change**, such as addressing desertification, food security and livelihoods of local communities.
- Enhanced NDCs should be **aligned with other environmental policy instruments**, such as commitments for the Global Biodiversity Framework under the Convention on Biological Diversity (CBD), in particular **National Biodiversity Strategies and Action Plans (NBSAPs)**.
- Relevant stakeholders should be included in the design and implementation of enhanced NDCs that maximize the potential of nature-based solutions. **Participatory and rights-based approaches** are key when consulting and engaging with stakeholders to enhance an NDC.

Recommendations for integrating nature-based solutions for climate in enhanced NDCs[4]:



Box 1. Sources for further guidance on integrating NbS in the enhanced NDCs.

Key sources for guidance on integrating NbS in NDCs

WWF, Checklist for the NDCs We Want (2020)

WWF, Enhancing NDCs through Nature-Based Solutions (2020)

WWF, Enhancing NDCs for Food Systems – Recommendations for Decisions-Makers (2020)

WWF, Enhancing forest targets and measures in nationally determined contributions (NDCs) (2020)

Climate Action Network, What are transformative nationally determined contributions? (2020)

WWF, Enhancing Nationally Determined Contributions Through Protected Areas (2019)

WWF, The Case for Ambition – Practical lessons for enhancing NDCs in Latin America (2019)

IUCN, University of Oxford. Nature-based Solutions in Nationally Determined Contributions (2019)

CI, NWF, Nature4Climate, TNC, EDF, Climate Advisors, WCS and Land Use & Climate Knowledge Initiative. Guide to including nature in nationally determined contributions (2019)

WWF, NDCs – A Force for Nature – Second Edition (2018)

WWF, NDCs – A Force for Nature? (2017)

2. BACKGROUND

The Paris Agreement sets an ambitious goal for climate change mitigation that requires urgent action in all sectors. Its Parties agreed to limit the increase in global average temperature to well below 2°C above pre-industrial levels, while pursuing efforts to limit warming below 1.5°C by the end of the century. Under the Paris Agreement, countries must present their plans, known as Nationally Determined Contributions (NDCs), to address the climate crisis, and revise those plans every five years - with each new plan more ambitious than the previous one. The deadline for the revision of the first round of NDCs was 2020 but was delayed due the COVID-19 crisis, and while many countries have submitted an updated NDC, it is expected that many more countries will present their revised NDCs in the run-up to the UNFCCC 26th Conference of the Parties (COP26) in November 2021.

Box 2. What are NDCs?[5]

Nationally Determined Contributions (NDCs)

NDCs are at the heart of the Paris Agreement and the achievement of long-term climate goals. They embody efforts by each country to reduce national emissions and adapt to the impacts of climate change. The Paris Agreement (Article 4, paragraph 2) requires each Party to prepare, communicate and maintain successive NDCs that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions.

NDCs are submitted every five years to the UNFCCC secretariat. In order to enhance ambition over time, successive NDCs shall represent a progression compared to the previous NDC and reflect each Party's highest possible ambition. Parties are requested to submit the next round of NDCs (new NDCs or updated NDCs) by 2020 and every five years thereafter (e.g., by 2020, 2025, 2030), regardless of their respective implementation time frames.

NbS have attracted a growing interest and gained momentum in international fora, such as the UNFCCC, and nature is a key theme in the upcoming COP26. NbS provide a relatively cost-effective mitigation opportunity to remove and store carbon at large scales, while also offering important benefits for resilience and adaptation to climate change impacts. From a climate perspective, it is important to leverage their cost-effective potential in the short-term while in parallel accelerating transitions in the energy and transport sectors, where additional and aggressive emission reductions are urgently required. NbS offer solutions for efforts to tackle climate change, and for avoiding and reversing the loss of natural ecosystems and their essential functions for life on this planet.

Since 2017, WWF has published a series of policy papers titled "NDCs – a Force for Nature?". The first edition of the series, published in November 2017, assessed how NDCs contribute to tackling the biodiversity crisis and achieving the Sustainable Development Goals (SDGs). The second edition, published in October 2018, focused on the integration of biodiversity in NDCs. This third edition of the series assesses the integration of NbS in the enhanced NDCs that were published in the run-up to COP26, and compares this integration of NbS with the first round of NDCs.

3. THE CASE FOR INTEGRATING NATURE-BASED SOLUTIONS INTO NDCs

WHAT ARE NATURE-BASED SOLUTIONS FOR CLIMATE CHANGE?

WWF defines Nature-based Solutions for Climate Change as

"ecosystem conservation, management and restoration interventions that are intentionally designed to deliver measurable climate change adaptation and/or mitigation outcomes while delivering co-benefits for human development and biodiversity, and managing anticipated climate risks to nature that can undermine their long-term effectiveness."6

This WWF definition builds on and is complementary to the IUCN definition of Nature-based Solutions as

"actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits".7

WWF outlines the following five Principles for NbS for Climate Change:

1. Result in increased climate ambition and ecosystem functionality: Nature-based Solutions interventions contribute

   to increased climate change adaptation and/or mitigation rather than compensating for low ambition in other sectors, ensuring that needed energy, food, urban and infrastructure net-zero transformations support one another. Improving ecosystem functionality involves assessing how climate change will affect nature and taking steps to better manage these risks.

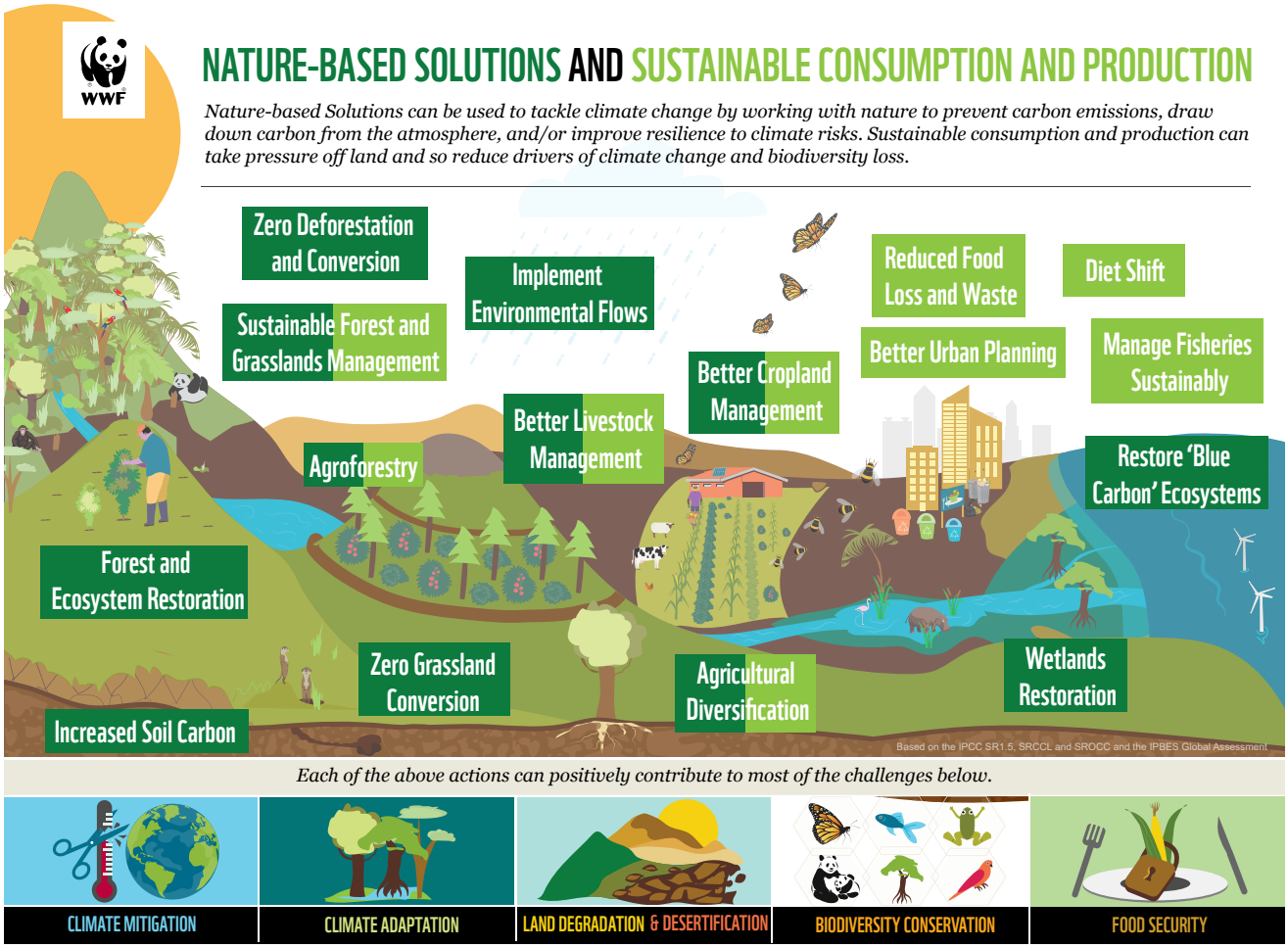
2. Informed by science: use the best available climate, biological and social sciences to set achievable and measurable targets.

3. Synergistic: help reduce and/or avoid emissions and/ or reduce human vulnerability while conserving nature and minimizing trade-offs among other societal goals as well as avoiding adverse impacts on biodiversity e.g., through broad, single-species restoration.

4. Co-designed and co-implemented with Indigenous Peoples and local stakeholders as both a way to understand their most pressing challenges and building co-responsibility.

5. Measurable and traceable: Outcomes can be quantified and attributed to interventions through robust monitoring, evaluation and reporting frameworks.

Figure 1. Nature-based Solutions for Climate Change. Source: WWF (2020). Climate, Nature and our 1.5°C Future report



MITIGATION POTENTIAL OF NBS

Natural ecosystems such as forests and peatlands are both a source of and a sink for greenhouse gas emissions, and as such play an essential role in regulating our climate and provide essential ecosystem services to local communities. Since 1990, global net conversion of forests alone has annually emitted 3.7 gigatons of carbon dioxide ($GtCO_2$) while remaining forests have removed 3.3$GtCO_2$ from the atmosphere, resulting in annual average net emissions of 0.4$GtCO_2$.[8] Other ecosystems such as coastal and marine ecosystems act as 'blue' carbon sinks that can sequester even larger amounts, up to ten times more carbon dioxide than boreal, temperate or tropical forests.[9] For example, seagrass meadows have the potential to sequester large amounts of organic carbon and account for 10% of the ocean's capacity to store carbon while occupying only 0.2% of the sea floor.[10] Mitigation actions within food systems, including addressing land-use change and agricultural emissions as well as reducing food loss and waste and shifting towards sustainable and healthy diets, could contribute about 20% of the global mitigation needed in 2050 to deliver on the 1.5°C target.[11]

However, natural ecosystems are being degraded and lost at an alarming rate due to human activities, not only releasing stored carbon into the atmosphere but also losing their function as sinks. According to the WWF Living Planet Report 2020, "75% of the Earth's ice-free land surface has already been significantly altered, most of the oceans are polluted, and more than 85% of the area of wetlands has been lost, threatening 1 million species (500,000 animals and plants, and 500,000 insects) with extinction over the coming decades to centuries".[12]

Reversing this trend by protecting and enhancing these natural ecosystems through NbS is essential, and offers a major opportunity for climate change mitigation. Encompassing a wide range of interventions for ecosystem conservation, management and restoration, NbS will play an essential role to achieve the 1.5°C target of the Paris Agreement.[13]

ADAPTATION BENEFITS OF NBS

NbS are also an essential way to improve the resilience of societies to climate change by providing ecosystem goods and services that support food and financial security, by empowering local communities to manage natural resources and to participate in the design, implementation and management of these solutions.[14,15] Protecting and restoring natural forests and wetlands help to retain water supplies, reduce flood risk and prevent soil erosion and landslides.[16,17] Similarly, coastal ecosystems provide protection against sea-level rise, storm surges and erosion while offering critical habitat for marine species.[18] Improved agricultural practices such as crop diversification can enhance resilience of food supplies to pests, diseases and climatic extremes.[19]

OTHER BENEFITS AND TRADE-OFFS

NbS have the capacity to address societal challenges by fostering synergies among the Sustainable Development Goals (SDGs).[20] Improved practices in agriculture and forestry, for example, can help enhance biodiversity and food security by increasing the number of species, functional diversity, and plant and animal productivity.[21,22] They can also deliver social outcomes and economic benefits such as food and water security, livelihood diversification, recreation opportunities, capacity building and empowerment as well as social cohesion.[23] NbS can create jobs and alleviate poverty by increasing the productivity of agriculture in developing countries. In the fishery and forestry sectors the use of NbS can sustain or enhance jobs and productivity. Around the world, for example, close to 46 million workers are dependent on fisheries and aquaculture.[24] Improving the state of nature can also boost the tourism sector and consequently create jobs.[25]

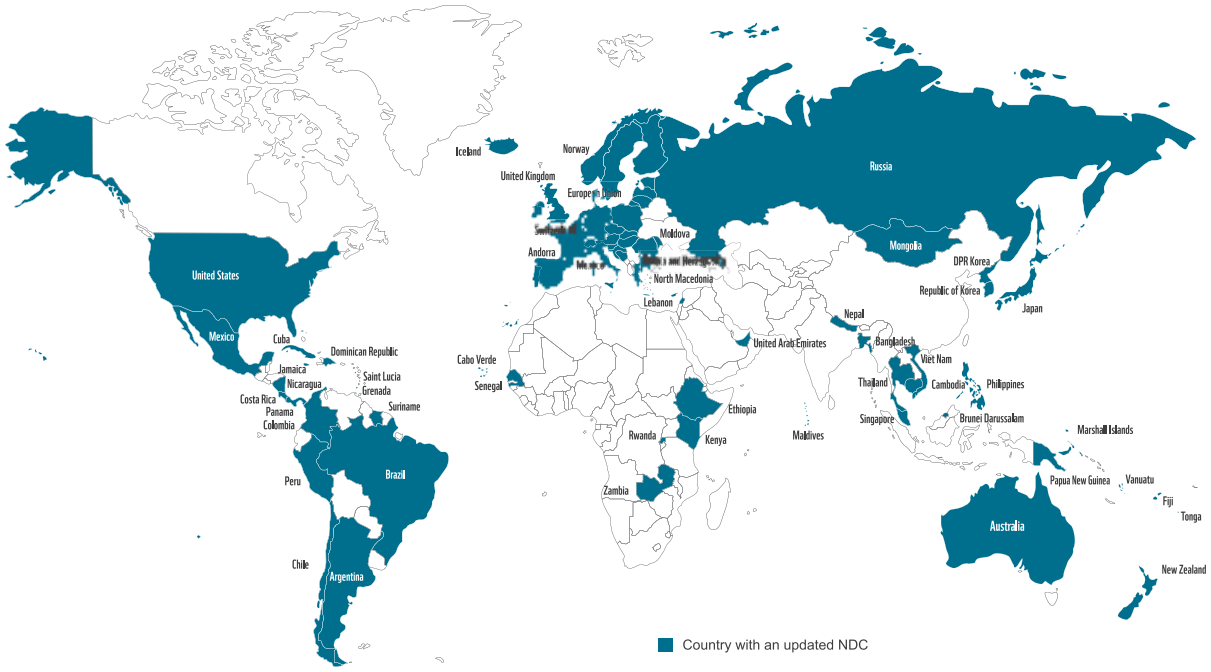
By definition, NbS interventions should contribute to sustainable development and provide benefits for human wellbeing and biodiversity. They should not lead to harm by replacing natural ecosystems with non-native species or failing to respect the rights, knowledge and culture of local communities. For example, poorly adapted monoculture plantations of non-native species can lead to water scarcity for local food production.

Even where planning and implementation account for local conditions and follow best practices, NbS can involve trade-offs and difficult decisions, for example, between developing a forest area for food production or conserving its essential ecosystem functions. To fully embrace sustainable development goals and minimize these trade-offs, decision-makers need to balance different, and sometimes competing priorities. Any given decision may be framed as a choice between, on the one hand, protecting, restoring and enhancing nature for climate, biodiversity and other essential services, on the other hand, promoting economic development, poverty reduction, food security, and infrastructure development.

To address the triple challenge of climate change, environmental degradation and poverty in an integrated way, NbS must be designed, implemented and overseen in a way that recognises and minimises these trade-offs.

4. METHODOLOGY

For this analysis, we reviewed the NDCs of 55 Parties who made an updated submission as of May 1, 2021, and compared them with their previous versions.[26] The 55 Parties include the European Union (EU 27) for a total of 81 countries covered. In this report, we refer to the most recent submitted NDC as 'updated NDC' and to the NDC that immediately preceded it as 'previous NDC'[27].



The analysis involved three steps:

1. **Identifying references to 'nature' and 'Nature-based Solutions' in NDCs**

   We reviewed the texts of the updated and previous NDC documents of Parties that have made more than one submission. The NDC documents varied in length and level of detail. In each NDC document, we looked for references to "nature" and "Nature-based Solutions" by searching for keywords like "nature-based solutions", "NbS", "ecosystems", "forests", "wetlands", "mangroves", "protected areas", "agriculture", "peatlands", "oceans", "deforestation", "afforestation", "restoration", "reforestation", "rivers", "coastal zones", "grasslands", "land-use", and "conservation".

2. **Assessing quality of references to 'nature' and 'Nature-based Solutions' in NDCs**

   We extracted relevant information for each of these Parties when we found references to nature and NbS related terms (see Step 1). To assess how they included nature and NbS in their NDCs and how they are referenced in climate change adaptation and mitigation goals, we relied on the following assessment criteria based on the "recommendations for integrating NbS for climate change in revised NDCs" outlined by WWF:

   - Include the use of nature for both climate change mitigation and adaptation and prioritize actions that provide benefits for both;
   - Set ambitious, measurable and time-bound numeric targets;
   - Explore all ecosystem types that can provide climate benefits;
   - Integrate commitments to other international conventions and relevant national policies; and
   - Include community participation and consultation in the development and management of NbS.

3. **Assessing progress in integrating 'nature' and 'Nature-based Solutions' in updated NDCs**

   After assessing the references to nature and NbS in both updated and previous NDCs, we compared how the quality of these references has changed over time based on the assessment criteria in Step 2. The findings of this comparison are presented for each Party in Table 1 on page 25.

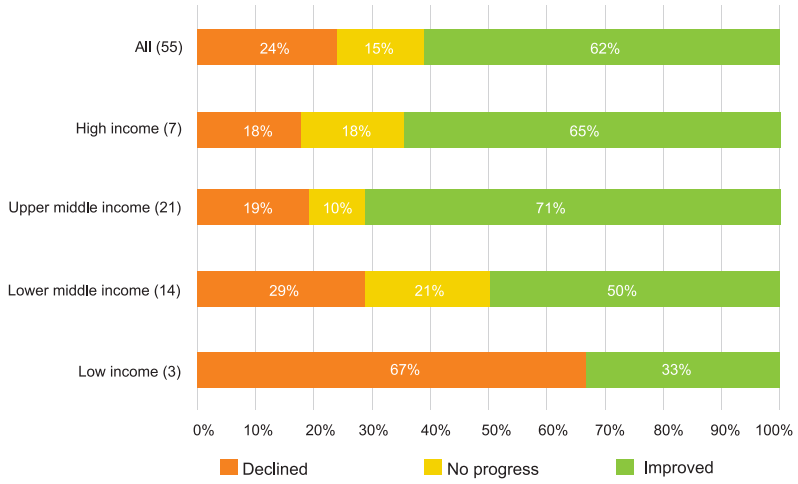
5. FINDINGS: NATURE-BASED SOLUTIONS IN UPDATED NDCs

Overall, the inclusion of NbS has improved in the majority of updated NDCs.

We assessed whether NbS were mentioned for both mitigation and adaptation, whether ambitious numerical targets were specified, how many different ecosystems were incorporated, whether reference was made to global processes and domestic policies, and whether the role of Indigenous Peoples and local communities was mentioned and recognized. For 34 Parties, we saw an improved integration of NbS in updated NDCs compared to previous NDCs, while for 8 there was no change, and for 13 Parties we saw a decline.

Progress differs across continents and income groups. Parties in high and upper middle income groups show significant improvements compared to those in the low and lower middle income groups. This indicates the need for significant technical and financial capacities in revising and enhancing NDCs which many low income countries lack, and the need for sharing of such capacities by the higher income countries. Among the low and middle income countries that submitted significantly improved NDCs, some had received technical or financial support from international development partners in enhancing their NDCs which likely contributed to improvements of updated NDCs. For example, the process of updating Cambodia's NDC was funded by the European Union, Sweden, and UNDP, and supported by the World Bank, and the NDC Partnership[28], among other development partners.

Figure 2 Progress in integration of NbS in NDCs by income groups



50 Parties out of 55 included NbS in their updated NDCs in some way.

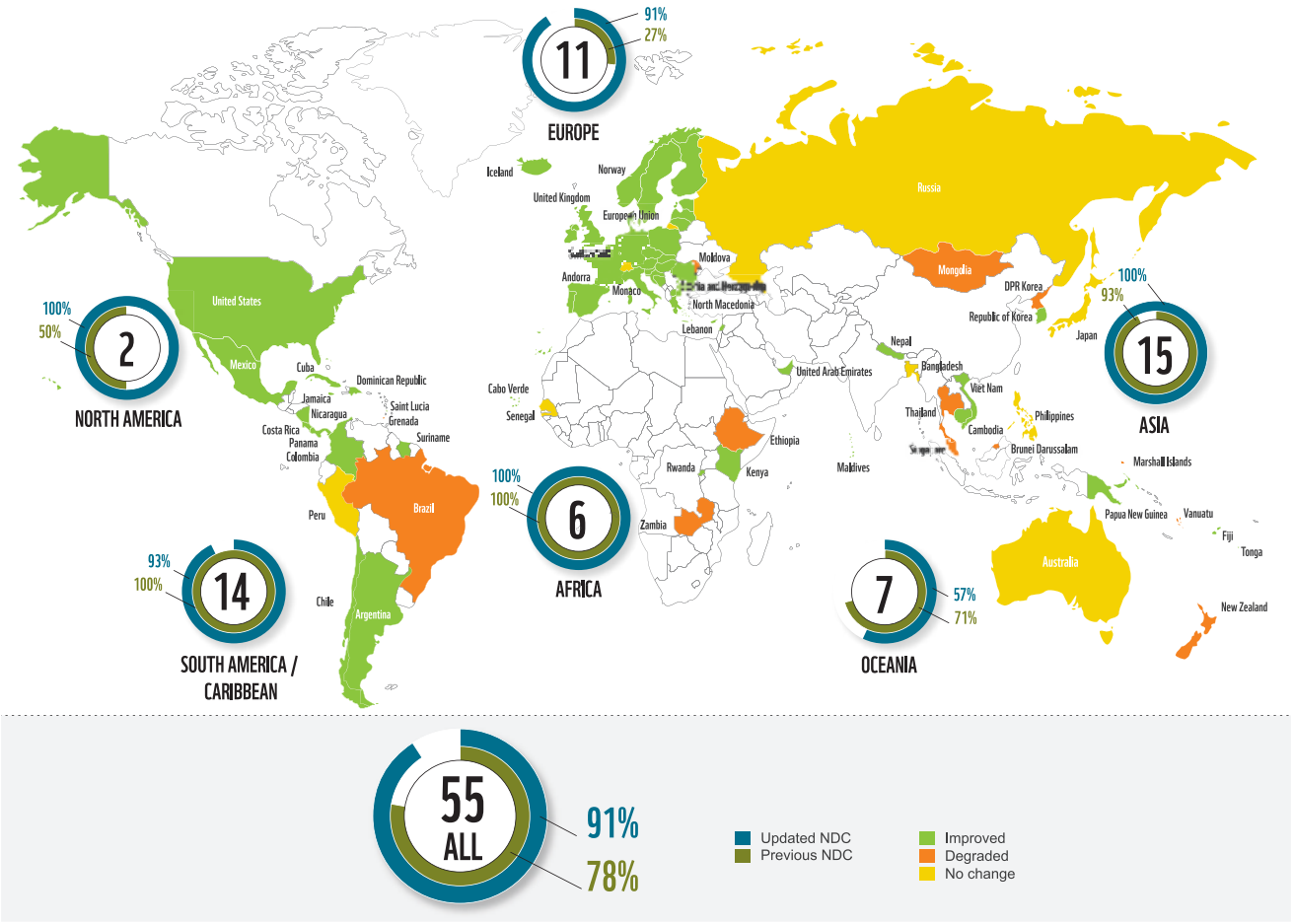
Of the 55 updated NDCs submitted by 1 May 2021, 50 included NbS in some way, compared to 43 in the previous round of submissions. Most of these NDCs made specific mention of the concept of 'Nature-based Solutions'. For example, the updated NDC of **Cabo Verde** states, *"There is often no clear boundary between adaptation and mitigation, which can overlap and which should be ideally mutually beneficial. This is why Cabo Verde favours, where possible, 'green' nature-based solutions (NbS) over 'grey', engineered, solutions. ... They are more cost-effective and hold larger co-benefits than engineered solutions which demand permanent maintenance."* And the updated NDC of **Suriname** states, *"Suriname is strengthening coastal protection through nature-based solutions, such as mangrove planting, which beyond improved resilience brings significant co-benefits in the form of carbon sequestration and enhanced food security."* Countries also included NbS approaches such as ecosystem restoration (e.g., reforestation and restoration), ecosystem-based management (e.g., agroforestry) and ecosystem protection (e.g., marine ecosystem conservation and forest protection).

The increase is mostly due to updated NDCs of Parties in Europe making references to nature-based solutions (see Figure 3). The **European Union's** updated NDC, for example, noted that *"nature-based solutions play an important role to solve global challenges such as biodiversity loss and ecosystems degradation, poverty, hunger, health, water scarcity and drought, gender inequality, disaster risk reduction and climate change."* In its initial NDC, the **European Union** had no reference to the concept. Besides the European Union, Parties that did not mention NbS at all in their previous NDCs but did in their updated NDCs were **Andorra, Bosnia and Herzegovina, Monaco, North Macedonia, the UK, Norway,** the **United States**, and the **Republic of Korea.** For example, the **United States**

NDC states, *"the United States will support scaling of climate smart agricultural practices (including, for example, cover crops), reforestation, rotational grazing, and nutrient management practices. In addition, federal and state governments will invest in forest protection and forest management, and engage in intensive efforts to reduce the scope and intensity of catastrophic wildfires, and to restore fire-damaged forest lands. Alongside these efforts, the United States will support nature- based coastal resilience projects including pre-disaster planning as well as efforts to increase sequestration in waterways and oceans by pursuing 'blue carbon.'"* Another example of the integration of Nature-based solutions is **Moldova's** updated NDC which states its intention to *"incorporate nature-based solutions into adaptation planning and policy development, with a focus on biodiversity conservation, ecosystem services management, and disaster risk reduction."*

Two Parties included NbS in their previous but not in their updated NDCs. **Marshall Islands'** previous NDC mentioned mitigation co-benefits of adaptation actions, including efforts such as mangrove and agriculture rehabilitation programs likely to enhance carbon sinks as well as assist with protection of water resources and the health of the Republic of Marshall Islands' people. In contrast, the updated NDC refers to mitigation opportunities in other sectors, including, for example, increased efficiency in the electricity, transport and waste sectors. This may reflect that most emissions in the country come from these sectors. The updated NDC however does mention that Marshall Islands could consider carbon sinks and offsets to meet any residual emissions in order to meet the target of net-zero emissions by 2050. Similarly, the previous NDC of **Grenada** mentions NbS both in mitigation and adaptation actions. For mitigation the focus was on the protection of forest areas and replacing bamboo with indigenous tree species that are likely to sequester more carbon; for adaptation, the previous NDC focused on preservation of coastal ecosystems, including through coral restoration and mangrove rehabilitation. The updated NDC however does not provide details of NbS mitigation and adaptation actions and measures. Instead, it indicates that Grenada will develop an implementation plan with concrete measures and timelines, which will be communicated separately.

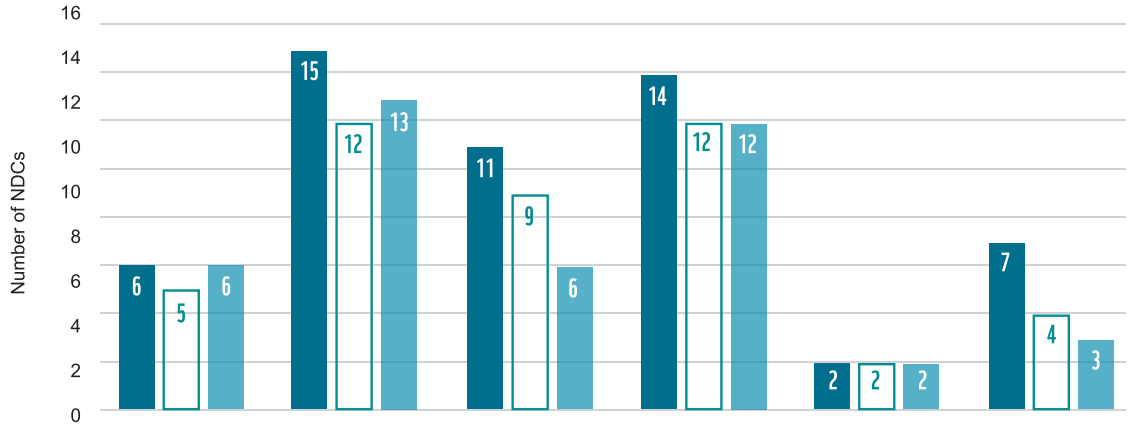
Figure 3 References to NbS in NDCs. Total Parties: Africa 6, Asia 15, Europe (10+ EU27), Latin America and the Carribean (LAC) 14, North America 2 and Oceania 7



44 updated NDCs mention NbS approaches in the context of mitigation measures and 42 in the context of adaptation plans, which is a small increase compared to previous NDCs.

The increased references to NbS can mostly be seen in mitigation measures. 44 updated NDCs mentioned nature-based mitigation, compared to 37 previous NDCs. The number of submissions mentioning NbS in relation to adaptation slightly increased, from 40 to 42. There are clear geographical differences in the uptake of NbS for mitigation and adaptation. While all 6 updated NDCs from Africa included NbS for adaptation, only 6 of the 11 updated NDCs from Europe did the same (see Figure 4).

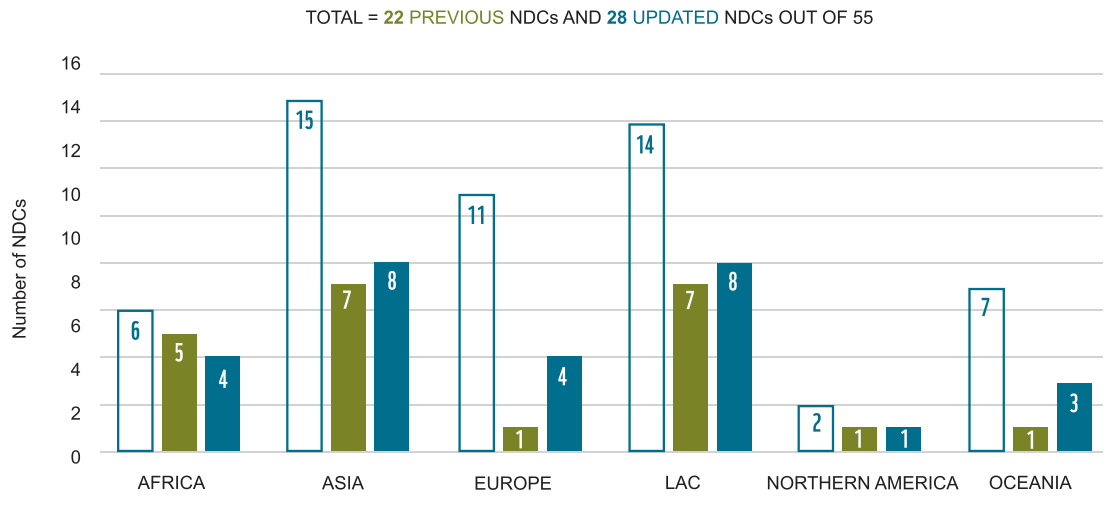
Figure 4 References to NbS in mitigation and adaptation measures in the updated NDCs.



Out of the 44 NDCs that include NbS mitigation measures, 28 have quantified these as numerical targets, mostly for the forest sector. The comparison with previous submissions also shows a positive trend, with six additional Parties including numerical targets.

In addition to the increase in the number of Parties that included NbS in their NDCs, there is a clear trend towards a more detailed and precise inclusion of NbS approaches. 28 of updated NDCs included a numerical mitigation target related to NbS compared to 22 of previous NDCs. The prevalence of numerical targets increased on all continents except Africa, with the sharpest increase observed in Europe (see Figure 5), which may be an indication of disparities in institutional and technical capacities needed to quantify mitigation potential of NbS and set numerical targets.

Figure 5 Numerical targets for NbS in the updated NDC and previous NDCs by regions.



12 Parties included a numerical target for nature-based mitigation in their updated NDCs for the first time, while 6 Parties had included numerical targets for NbS in their previous NDCs that were not repeated in the updated submissions. Of the 16 Parties that included numerical NbS targets in both their updated and previous NDCs, 9 increased the ambition of their targets. For example, in their previous NDC, **Costa Rica** targeted to increase forest cover to 60% from 54.4% in 2013; in their updated NDC, they included additional targets of zero deforestation rate in mature forests (by 2030), applying silvo-pastoral and agroforestry systems in additional 69,500 hectares (by 2030), and sustainable management of 1 million hectare (by 2030). Similarly, **Chile** had set a target of 100,000 hectares of reforestation by 2030 in their previous NDC. In their updated NDC, they included sustainable management and recovery of 200,000 hectares of native forests, of which at least 100,000 hectares will comprise permanent forest cover, with at least 70,000 hectares of native species, by 2030; and reduce emissions in the forestry sector associated with degradation and deforestation of the native forest by 25%, with respect to average emissions in the period 2001-2013.

Two Parties slightly decreased their level of ambition. **Cabo Verde** had an unconditional target of 10,000 hectares and a conditional target of 20,000 hectares of afforestation/reforestation by 2030 in their previous NDC, while in their updated NDC, the conditional target is not included. In their previous NDC, **Viet Nam** had a target of increasing forest coverage to 45% by 2030; this target was reduced to 42-42.5% in the updated NDC. The **United Kingdom** (UK) did not include any numerical targets for NbS in their first NDC submitted after leaving the EU. This is despite the fact that a WWF-UK and RSPB study last year showed the UK's large mitigation potential through NbS. Protecting existing carbon stocks in the UK land sector has a cumulative climate change mitigation potential of between 75-123 mega tons of CO2e through further actions over the period 2017-2030.[29]

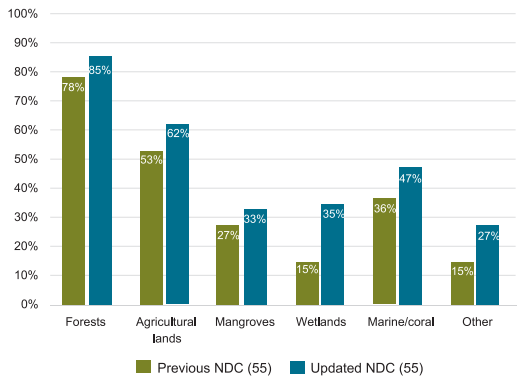
Most numerical targets in the updated NDCs are set for the forest sector. These targets range from tree planting commitments and increasing forest coverage as a share of land to commitments to significantly reduce deforestation. For example, **Brunei** has pledged to plant 500,000 trees, **Tonga** targets planting one million trees by 2023, and **Cuba** aims to increase forest coverage to 33% of total land by 2030. **Mexico** and **Cambodia** have pledged to significantly reduce deforestation. Other countries have set targets more directly measured against mitigation, expressing intended removals in the forestry sector in tonnes of CO_2. Examples of such targets can be found in NDCs of **Japan**[30], **Bosnia and Herzegovina**, **Chile** and **Moldova**, among others.

Few Parties set numerical targets for other ecosystems. Eight updated NDCs include a target to establish a certain amount of marine protected areas, in order to better preserve blue ecosystems. **Costa Rica**, for example, pledged to put 30% of its ocean area under protection by 2022 and 100% of coastal wetlands by 2025 and to stop the net loss of coastal wetlands by 2030. Many countries are still in an early stage of assessing the possibilities and mitigation potential of ocean ecosystems.

Out of 55 NDCs, 51 make reference to at least one ecosystem while 29 countries mention more ecosystems in their updated NDCs than in their previous submissions. Most Parties refer to a broad range of ecosystems, including forests, agricultural lands, mangroves, wetlands and marine ecosystems.

Forests are the most commonly mentioned ecosystems in commitments to counter climate change, but there is increasing diversity in ecosystems mentioned in NDCs (see Figure 6).

Figure 6. References to different ecosystems in updated and previous NDCs. Total Parties: Africa 6, Asia 15, Europe (10+ EU27), LAC 14, NA 2 and Oceania 7



For example, there was a significant increase in the number of Parties that mention wetlands and marine ecosystems in their updated NDCs. The increase may be partly due to an expanding awareness in recent years of the mitigation and adaptation potential of these ecosystems and available guidance and support for governments to include these in their climate goals and measures. 19 Parties mentioned wetlands compared to 8 in their previous NDCs, and 26 mentioned marine ecosystems compared to 20 previously. Mentions of mangroves also rose. Mangroves were most often mentioned in updated NDCs of **South American** and **Asian** countries, while wetlands were most often mentioned in **South American** and **European countries**. Another notable ecosystem that is increasingly mentioned is seagrass, which was mentioned in only two of the previous NDCs but in six of the updated NDCs. The implementation of NbS on agricultural lands also received notable attention, with many Parties presenting plans for agroforestry or climate-smart agriculture.

Marine ecosystems, including coral reefs, are also mentioned relatively frequently (in 26 updated NDCs) and are the second most common subject of numerical targets. Eight updated NDCs include a target to establish a certain amount of marine protected areas, in order to better preserve blue ecosystems. The use of blue ecosystems appeared in both adaptation and mitigation commitments. Many countries are still in an early stage of assessing the mitigation potential of these ecosystems. To inform them, WWF released in June 2021 a "Blueprint for a Living Planet", which proposes four principles to guide integrated ocean and climate action and maximize the mitigation, adaptation and resilience potential of marine and coastal ecosystems, with concrete recommendations regarding the inclusion of ocean-related conservation measures into NDCs[31]. The **UAE** indicates in its updated NDC that it is researching the soil carbon sequestration rates of mangroves, and **Kenya** will conduct a blue carbon readiness assessment with the purpose of fully integrating blue carbon/ocean climate actions into NDCs.

In their updated NDCs, 38 Parties present national plans and policies in relation to the implementation of NbS, mostly for the forest sector.

Several Parties indicate a concrete commitment to an ecosystems approach to the climate crisis by linking their commitments to national strategies and plans. Around two thirds of updated NDCs contain direct linkages between NbS and national policies. Most commonly, NDCs referred to national plans for reducing deforestation and forest degradation (REDD+) or other forest sectoral plans. Other national policies include national adaptation plans, biodiversity strategies, and agriculture and land-use policies. The number of different policies Parties referred to slightly increased in updated NDCs, and national forest sector policies other than REDD+ implementation plans became even more prevalent. Examples of other national policies include **Bangladesh's** Forest Investment Plan, Zero Deforestation Agreements in **Colombia**, National Reforestation and Afforestation Strategies in **Papua New Guinea**, and National Strategy for Forest Fire Management in **Lebanon**.

From the 55 NDCs reviewed, 17 have references to global processes and agreements in the context of NbS. This reflects an increase compared to the previous round, with 11 additional Parties making such references.

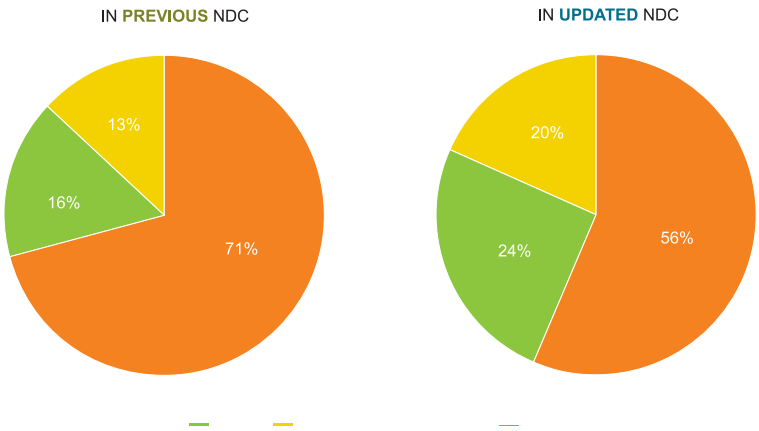
Most commonly referenced were the UN Convention on Biodiversity, the Sustainable Development Goals, and the Sendai Framework for Disaster Reduction. Other treaties mentioned included the UN Convention to Combat Desertification and the Ramsar Convention on Wetlands. For example, the **UK** NDC states, "*The UK will fulfil its responsibilities under the Convention on Biological Diversity, the Ramsar Convention and the Leaders' Pledge for Nature; and implement the Convention on Biological Diversity's vision that by 2050 biodiversity is valued, conserved, restored and wisely used, maintains ecosystem services, sustains a healthy planet and delivers benefits essential for all people. This will provide significant climate mitigation and adaptation benefits."* Similarly, the updated NDC of **Thailand** mentions, *"Thailand's NAP has taken into account the linkages between climate change adaptation under UNFCCC and other Conventions and agreements, such as the UNCCD, CBD, SDGs, Sendai Framework, and the Convention on Wetland (Ramsar Convention)."*

13 Parties explicitly refer to the role of Indigenous Peoples and other local communities in planning and implementing NbS measures. While this is an increase by four NDCs, reflecting increasing attention to their essential role in the context of NbS, it is still only a small number of NDCs.

In addition, from the text of the NDCs, it is not always clear what role these groups play in relation to NbS interventions. While almost half of the updated NDCs mention the role of Indigenous Peoples and other local communities, only 24% of them make this clear. **Suriname's** updated NDC states, for example, that "Indigenous peoples and tribal communities play an important role in the sustainable management and maintenance of the integrity of these forests." And the **Colombian** updated NDC points to the particularly important role of Indigenous and Afro-Colombian communities in forest conservation. Their updated NDC underlines that **Colombia** recognises the crucial role of involving local communities to define climate actions, strengthen climate governance and meet deforestation reduction targets, while also engaging rural communities to transform agricultural practices. For updating the NDC, dialogues with 10 different community groups took place, including Indigenous, Afro-descendant and rural communities. Similarly, the updated NDC

of **Costa Rica** states that the updated NDC was informed by Indigenous and Afro-descendant communities' contributions and respects their world-views and their rights.[32] The NDC declares the intention of carrying out a consultation process with Indigenous communities for implementing the National REDD+ Strategy and national forestry plans.

Figure 7. References to Indigenous Peoples and/or local communities in relation to NbS



6. NATURE IN THE NDCs YET TO BE UPDATED

As of May 1, 2021, 55 Parties including the **European Union** (EU 27) submitted updated NDCs, while 117 Parties were yet to make an updated NDC submission. Among these remaining Parties, 71 have included some NbS actions for ecosystem-based adaptation and conservation in their first NDCs.[33] 57 NDCs focus on forests, woodlands, grasslands and other land-based ecosystems while another 14 NDCs focus on coastal and marine ecosystems.[34]

Examples of countries with strong references to nature and nature-based ecosystems include **Namibia**, **Myanmar**, **Madagascar** and **Jordan**.

Namibia, for example, has based its GHG emission reductions on sequestration in the agriculture, forestry and other land-use sector (AFOLU), which is among the highest emitters in the country. The NDC highlights the importance of biodiversity and ecosystem protection as providers of key services and integral parts of the human environment, but the proposed adaptation measures are not described in detail. Similarly, forestry plays a key role in **Myanmar's** NDC, showing great co-benefit potential within both mitigation and adaptation plans. Moreover, the NDC clearly demonstrates the connection of the climate change-related activities to biodiversity and ecosystem services. **Madagascar** puts emphasis on an ecosystem-based adaptation approach and plans for significant reforestation using native species, as well as enhancing its silviculture. It aims to restore natural forests, including mangroves, and increase habitat connectivity, which should help to build the resilience of the ecosystems and of the country itself. **Jordan** has integrated climate considerations into its National Biodiversity Strategy and Action Plan, which has itself been aligned with the Aichi goals. This integrated thinking is clear in Jordan's NDC which contains details of planned actions, including reforestation for mitigation and adaptation, and a whole section for adaptation on biodiversity, ecosystems and protected areas. The NDC lays out plans to identify vulnerable areas, and review protected areas with a view to extend conservation efforts in surrounding areas.

Among countries yet to submit an updated NDC are seven G20 members: Canada, China, India, Indonesia, Saudi Arabia, South Africa and Turkey[35].

Only China, India and Indonesia include NbS in both their mitigation and adaptation measures and have time bound numerical targets in their NDCs. **Indonesia**, for example, set an unconditional target of reducing forestry emission 17%, and a conditional target of 23% by 2030 compared to business-as-usual. **India** aims to create an additional carbon sink of 2.5 to 3 billion tonnes of CO_2 equivalent through additional forest and tree cover by 2030. And **China** set a target to increase their forest stock volume by around 4.5 billion cubic meters on the 2005 level by 2030.

On the other hand, **Canada**, **Saudi Arabia**, **South Africa** and **Turkey** need to increase their ambitions and set clear targets and actions for NbS in their revised NDCs. While in their first NDC they mention the importance of ecosystems such as forests, agricultural land, mangroves and marine ecosystems for adaptation, they do not set any clear numerical targets for NbS mitigation. The **Saudi Arabian** NDC, for example, mentions NbS for adaptation for several ecosystems including coral reef restoration, blue carbon, mangroves, tree belts which have mitigation co-benefits but no concrete targets or policies for mitigation are included. This is while **South Africa's** NDC does not mention NbS except for a passing reference to a national program on wetlands. Similarly, **Turkey's** INDC mentions intended forestry measures for mitigations but mentions no other NbS or ecosystems and no numerical targets.

7. SUMMARY OVERVIEW OF ALL REVIEWED NDCS

KEYS

WWF'S NDC RATING GRADES

- NDC We Want
- Short Way to Go
- Some Way to Go
- Long Way to Go
- NDC We Don't Want

ECOSYSTEMS

STATUS OF INTEGRATION OF NATURE IN NDC

Trend over time

- UPDATED NDC IMPROVED
- NO CHANGE IN THE UPDATED NDC
- UPDATED NDC DECLINED

Quality of the updated NDC

- NATURE WELL INTEGRATED IN THE UPDATED NDC
- NATURE SOMEWHAT INTEGRATED IN THE UPDATED NDC
- NATURE INSUFFICIENTLY INTEGRATED IN THE UPDATED NDC

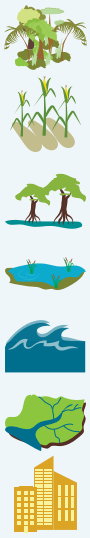
Table 1 references to 'nature' and 'Nature-based Solutions' in NDCs

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Andorra	Previous NDC	✗	✗	None	None	✗		↑	Andorra's previous NDC did not mention nature-based solutions at all, but its updated NDC includes a numerical target to maintain a minimum sink capacity of the country's forest mass in 2017. It also mentions the CBD and Andorra's national biodiversity strategy.
	Updated NDC	✓	✓	Forests, Agriculture	CBD, National Strategic Plan for the implementation of the 2030 Agenda, Andorran National Biodiversity Strategy (ENBA)	✗	⋮		
Argentina	Previous NDC	✓	✗	Forests, Agriculture	National Adaptation Plan	✓ not clearly		↑	In its second NDC, Argentina expansively includes nature-based solutions. Among mitigation plans is the enhancement of policies to protect carbon-rich ecosystems such as forests, wetlands, and natural grasslands. The adaptation communication includes as core principles to take a community-based and ecosystem-based approach.
	Updated NDC	✓	✗	Forests, Agriculture, Wetlands, Marine, Urban	CBD, SDGs, Sendai Framework, UNCCD, REDD+, National Adaptation and Mitigation Plan, Law for Minimum Budgets for Environmental Protection of Native Forests, Forest Watershed Plans, Comprehensive Community Plans, National Forest Management Plan with Integrated Livestock	✓ clearly	⋮		
Australia	Previous NDC	Mitigation only	✗	Forests, Agriculture	None	✗		—	Both previous and updated NDC of Australia include agriculture and land use, land use change and forestry sectors in the economy-wide target but neither of them incorporates nature-based solutions in the text of the NDC.
	Updated NDC	Mitigation only	✗	Forests, Agriculture	None	✗	⋰		

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Bangladesh	Previous NDC	✓	✗		National Adaptation Plan, national afforestation plan	✗		—	Bangladesh mentioned nature-based solutions for mitigation and adaptation in its previous NDC, including plans for coastal mangrove plantation and community-based conservation of wetlands. In the updated NDC, inclusion of NbS is limited to forests, but specific attention is paid to the importance of improving the livelihoods of forest dependent people.
	Updated NDC	✓	✗		Bangladesh National REDD+ Strategy, National Forest Monitoring System, Bangladesh Delta Plan 2100, forest investment plan	✓ clearly			
Bosnia and Herzegovina	Previous NDC	✗	✗	None	None	✗		↑	Bosnia and Herzegovina did not include nature-based solutions at all in its previous NDC, but in its updated NDC it sets a specific target to increase sinks from the forestry sector by 93 GgCO2e by 2030.
	Updated NDC	Mitigation only	✓ 		None	✗			
Brazil	Previous NDC	✓	✓ 		National Policy on Climate Change (Law 12,187/2009), Law on the Protection of Native Forests (Law 12,651/2012, Forest Code), National Strategic Plan for Protected Areas	✓ not clearly		↓	Whereas Brazil's previous NDC included extensive plans for the prevention of deforestation and ensuring the continued provision of ecosystem services, its updated NDC does not include nature-based solutions to the same extent. The updated NDC mentions plans for forest planting, but only in the context of an agricultural policy.
	Updated NDC	Mitigation only	✗		Low Carbon Agriculture Plan (ABC), Floresta+ Program	✓ not clearly	⊗		

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Brunei Darussalam	Previous NDC	✓	✓		National Adaptation Plan, national afforestation plan	✓ not clearly		↓	Brunei Darussalam integrates nature-based solutions in its NDC, with a focus on forests and marine ecosystems. The previous NDC set numerical targets for forest reserves and the establishment of marine protected areas. In the updated NDC, a numerical target is set for planting 500,000 trees. The updated NDC does not mention any global processes relevant to NbS, while the previous NDC mentioned the CBD.
	Updated NDC	✓	✓		Brunei Darussalam National Climate Change Policy (BNCCP), Wawasan Brunei 2035	✓ not clearly			
Cabo Verde	Previous NDC	✓	✓		Economic Transformation Strategy (TEE), National Forestry Action Plan (NFAP), Strategy Document on Growth and Poverty Reduction	✓ clearly		↑	Cabo Verde already included NbS quite extensively in its previous NDC, but deepened and broadened its commitments in its updated NDC, going beyond the forestry sector to include plans for NbS across the board, such as in blue carbon sequestration, nature-based coastal protection, and the empowerment of communities in ecosystem conservation.
	Updated NDC	✓	✓		Sendai Framework, National Forest Law, National Strategy and Action Plan for Biodiversity Conservation, National Blue Economy Investment Plan (PNIEA), Blue Economy Promotion Program (PROMEA), Unified Strategic Framework for the Blue Economy (QEUEA)	✓ clearly			

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Cambodia	Previous NDC	✓	✓		National REDD+ strategy, National Forest Monitoring System (NFMS), FLEGT 7 programme	✓ not clearly			While Cambodia already included NbS in its previous NDC, in its updated NDC NbS are integrated in all key components. Several ecosystems (forests, agricultural land, coastal zones, mangrove ecosystems, oceans, wetlands and rivers) are included in the mitigation and adaptation actions. The NDC lays out detailed plans and scenarios for the implementation of these interventions including the role of IPLCs, women and youth. An ambitious target is set for the forestry sector, which is to be the main contributor to the country's mitigation target.
	Updated NDC	✓	✓		SDGs, Sendai Framework, REDD+, National Protected Area Strategic Management Plan 2017-2031, National Cooling Plan	✓ clearly			
Chile	Previous NDC	✓	✓		Sectoral adaptation plans	✓ not clearly			Chile's updated NDC favours the use of NbS, especially through the use of forestry and marine ecosystems, for which numerical targets are set. The NDC takes an integrated approach to mitigation and adaptation measures for forests, oceans and wetlands as key ecosystems while making references to co-benefits of these measures including linkages to SDGs and other international commitments. In the design and implementation of measures included in the NDC, special consideration is given to the roles of communities vulnerable to climate change impacts.
	Updated NDC	✓	✓		SDGs, Sendai Framework, National Strategy for Climate Change and Vegetation Resources, National Policy for Disaster Risk Reduction 2019-2030	✓ not clearly	⋮		

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Colombia	Previous NDC	Mitigation only	✓		CBD, UNCCD, REDD+, National Adaptation Plan	✓ not clearly			Colombia's previous NDC already recognized the importance of its forests and biodiversity, but its updated NDC makes the use of nature-based solutions for climate action much more concrete, providing an extensive list of nature-based measures for both mitigation and adaptation as well as numerical targets for the forestry sector. Particular attention is paid to measures for avoiding deforestation associated with food production, but also to the importance of protecting and restoring other ecosystems, such as blue carbon ecosystems, and to the involvement of local communities.
	Updated NDC	✓	✓		SDGs, Sendai Framework, REDD+, National Adaptation Plan, Zero Deforestation Agreements (meat, dairy, Palm Oil and Cocoa), Intersectoral Pact for Legal Wood in Colombia.	✓ clearly	✓		
Costa Rica	Previous NDC	✓	✓		REDD+, National Adaptation Plan, National Protected Area System (SINAC), FONAFIFO's Environmental Services Payments program, Forest Certification Program & National Biological Corridor System and the National Protected Areas System (SINAC)	✓ clearly			Costa Rica already displayed a strong commitment to a nature-based approach in its previous NDC, with ecosystem-based adaptation measures and a numerical target for forest coverage. The updated NDC deepens this approach. It includes coastal wetlands as a carbon sink in mitigation measures and targets, refers to relevant global processes and conventions, and stresses the important role that Indigenous People play in ecosystem conservation.
	Updated NDC	✓	✓		SDGs, Sendai Framework, UNCCD, CBD, REDD+, National Composting Strategy, National Strategy for Landscape Restoration	✓ clearly	✓		

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Cuba	Previous NDC	Adaptation only	✗		CBD	✓			In its updated NDC, Cuba sets a target to increase the island's forest cover to 33% by 2030. While nature-based mitigation focuses on forests, adaptation measures also include the restoration of coastal ecosystems, such as mangroves, to restore their naturally protective qualities as well as the protection of coral reefs.
	Updated NDC	✓	✓ 		Economic and Social National Development Plan, State Plan to confront Climate Change	✗	⊘		
Dominican Republic	Previous NDC	Adaptation only	✗		National Adaptation Plan of Action	✗			Following their previous NDC that already highlighted the importance of ecosystem-based adaptation, the Dominican Republic has submitted an updated NDC with concrete plans to integrate nature and climate action, mentioning numerous different ecosystems. Particular attention is paid to the integration of ecosystem-based approaches in the agricultural sector.
	Updated NDC	✓	✓ 		SDGs, Sendai, CBD, REDD+, National adaptation plan, National development strategy, National adaptation strategy for agriculture	✓ not clearly	✓		
DPR Korea	Previous NDC	✓	✗		Law on Forest, Law on Land, Law on Land Use Planning, Land on Landscape, Law on Nature Reserve, Strategy for Agriculture Development	✗			The DPR Korea's previous NDC included plans for afforestation, the recovery of degraded forests, and ecosystem conservation. In its updated NDC, mention of nature-based solutions is limited to a brief mention of continued commitment to the country's forest restoration campaign.
	Updated NDC	Mitigation only	✗		None	✗			

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Ethiopia	Previous NDC	✓	✓		Climate Resilient Green Economy Strategy (CRGE), National Adaptation Programme of Action, Ethiopian Programme of Adaptation to Climate Change	✗ clearly		↓	Ethiopia's previous NDC incorporated nature-based solutions for forests, including a target to extend overall forest cover and plans for enhancing ecosystem health. None of this was mentioned in the updated NDC. However, the updated NDC is only a brief summary of updated baselines and targets rather than a detailed description of mitigation and adaptation strategies.
	Updated NDC	Adaptation only	✗	None	SDGs, Sendai Framework	✗			
European Union	Previous NDC	✗	✗		Legislation for land use, land-use change and forestry (EU Decision 529/2013)	✗		↑	The European Union did not mention nature-based solutions in its previous NDC. Although the NDC of the group of countries does not include specific strategies and policies, the updated NDC specifically highlights that "nature-based solutions play an important role to solve global challenges such as biodiversity loss and ecosystems degradation, poverty, hunger, health, water scarcity and drought, gender inequality, disaster risk reduction and climate change. "
	Updated NDC	✓	✗		None	✗	⋮		
Fiji	Previous NDC	✓	✗		REDD+	✗		↑	While Fiji's previous NDC focused on its forests as a carbon sink, the updated NDC expands the scope to contribute to the ocean as a carbon sink. Fiji's adaptation measures, including defence against natural disasters, prioritise nature-based solutions, such as the restoration of coastal ecosystems.
	Updated NDC	✓	✓ 		National Adaptation Plan	✗ not clearly	⊗		

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Grenada	Previous NDC	✓	✓		CBD, National Climate Change Policy and Action Plan (NCCPAP)	✗ clearly		↓	Grenada's previous NDC mentioned NbS both in mitigation and adaptation, with a focus on the protection of forest areas and native tree species for mitigation and a focus on coral restoration and mangrove rehabilitation for adaptation. The updated NDC is more of a technical document, not specifying any specific policies, and does not mention NbS at all.
	Updated NDC	✗	✗		None	✗	⋮		
Iceland	Previous NDC	Mitigation only	✗		None	✗		↑	In both its previous and updated NDC, Iceland mentions afforestation and wetland restoration as important contributions to mitigation.
	Updated NDC	Mitigation only	✗		National Climate Action Plan	✗			
Jamaica	Previous NDC	Adaptation only	✗		Urban Ecosystem-Based Adaptation in collaboration with UNEP	✗		↑	Mention of NbS was very limited in Jamaica's previous NDC, mentioning only a project for ecosystem-based adaptation in the urban environment of Kingston. The updated NDC includes nature-based solutions more extensively, highlighting the importance of the country's forests and plans for avoided deforestation and the protection of watersheds.
	Updated NDC	✓	✗		The Climate Change Policy Framework for Jamaica (2015)	✗	⋮		
Japan	Previous NDC	✓	✓		None	✗		—	In its previous NDC, Japan set a target for removals in the forest and land use sector, which is to be achieved though forest management, soil management and promoting revegetation. The updated NDC only reiterates the previous NDC's commitments.
	Updated NDC	✓	✓		None	✗	⊗		

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Kenya	Previous NDC	✓	✓		National Climate Change Response Strategy (NCCRS 2010), National Climate Change Action Plan (NCCAP 2013), National Adaptation Plan, National CSA (Climate smart agriculture) Framework	✗		↑	Kenya's updated NDC contains extensive plans for the use of nature-based solutions, both for mitigation and adaption and DRR. Several numerical targets are set and plans are presented for forestry (including a national REDD+ strategy), climate-smart agriculture, blue carbon sinks, payment for coastal carbon ecosystem services, and other sectors impacted by climate change. .
	Updated NDC	✓	✓		REDD+, SDGs Constitution of Kenya, 2010; Climate Change Act 2016, National Climate Change Action plan (2018-2022), NAP Agricultural Sector Transformation and Growth Strategy (ASTGS) (2019-2029), Kenya Climate-Smart Agriculture Strategy (2017-2028), National Drought Management Authority, Water Act, Forest Conversation and Management Act	✗ clearly	⋮		
Lebanon	Previous NDC	✓	✗		National Biodiversity Strategy and Action Plan, National Water Sector Strategy, National Forest Plan	✗		↑	Nature-based solutions play an important role in the adaptation priorities of Lebanon's updated NDC. It also puts focus on the mitigation co-benefits of these adaptation measures and mentions several ecosystems as well as relations to international conventions and national policies. However, there are no concrete targets for afforestation/ reforestation in the NDC.
	Updated NDC	✓	✓		CBD, UNCCD, SDGs, Sendai Framework, National Adaptation Plan, Ministry of Agriculture's 2020-2025 Strategy, Ministry of Agriculture's National Forest Program (NFP), National Strategy for Forest Fire Management and the National Afforestation/ Reforestation Programme 40 Million Forest Trees Planting Programme (NARP), Ministry of Energy and Water's National Water Sector Strategy (NWSS), National Biodiversity Strategy and Action Plan (NBSAP)	✓ not clearly			

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Maldives	Previous NDC	Adaptation only	✗		None	✗			The Maldives' previous NDC included plans for coral reef restoration with an ecosystem-based approach. In the updated NDC, this is supplemented by plans for the restoration of mangroves, with special attention to the role of local communities.
	Updated NDC	Adaptation only	✗		None	✓ clearly			
Marshall Islands	Previous NDC	✓	✗		Joint National Action Plan for Climate Change Adaptation and Disaster Risk Management	✗			Nature-based solutions were only briefly mentioned in the first NDC of the Marshall Islands, relating to the mitigation co-benefits of restoring mangroves and agricultural lands that function as carbon sinks. The updated NDC does not incorporate nature-based solutions at all, taking a more technology-based approach instead.
	Updated NDC	✗	✗		None	✗			
Mexico	Previous NDC	✓	✓ 		None	✗			Mexico extensively incorporates nature-based solutions in its updated NDC, with a target for net-zero deforestation by 2030, plans for the conservation of blue carbon ecosystems, soil conservation, and a cross-cutting nature-based approach to adaptation. The previous NDC already included the protection and enhancement of ecosystems as an adaptation measure, but the inclusion of NbS has become more explicit in the updated NDC and there is increased focus on the contribution of blue carbon.
	Updated NDC	✓	✓ 		SDGs, national REDD+ strategy	✓ not clearly			
Moldova	Previous NDC	✓	✓ 		National Adaptation Plan	✗			Moldova's NDC, both in its previous and updated version, includes plans for sustainable forest management. Its previous NDC included a target for increased removals from land use and forestry, which was not reiterated in its updated NDC.
	Updated NDC	✓	✗		National Adaptation Plan, National Development Strategy, Agriculture Sectoral Adaptation Plan	✓ not clearly			

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Monaco	Previous NDC	✗	✗	None	None	✗		↑	Monaco made substantial progress in the inclusion of nature-based solutions. Although NbS were not mentioned at all in the previous NDC, the updated NDC includes concrete targets to increase tree coverage, references to the national biodiversity strategy, and plans for fostering biodiversity in urban areas.
	Updated NDC	Adaptation only	✓		National Strategy for Biodiversity 2030	✗			
Mongolia	Previous NDC	✓	✓		None	✓ clearly		↓	Mongolia's previous NDC included plans for improving pasture management and increasing forest area, mentioning mitigation co-benefits of these actions. It set a numerical target for protected areas and mentioned community-based forest management. The updated NDC also includes mitigation co-benefits of ecosystem-based adaptation and specifically mentions special consideration for nature-based solutions. However, no numerical targets or references to community-based forest management are included.
	Updated NDC	✓	✗		National Adaptation Plan	✗	⊘		
Nepal	Previous NDC	✓	✓		REDD+, Nepal Biodiversity Strategy and Action Plan (2014-2020), Environment-Friendly Local Governance (EFLG) Framework, Local Adaptation Plan for Action (LAPA), Forest decade 2014-2023	✓ clearly		↑	Nepal's previous NDC already had a clear focus on the potential of the country's forests, with numerical targets for forest coverage and protection, mentioning of national forestry policies, and community-based forest management. The updated NDC expands these commitments and adds the sustainable management of wetlands.
	Updated NDC	✓	✓		SDGs, Sendai Framework, Forest Development Fund	✓ clearly	⊘		

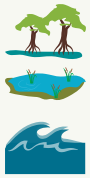
Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
New Zealand	Previous NDC	✗	✗		None	✗			New Zealand's NDC, in both its previous and updated version, does not specify any mitigation or adaptation measures and so does not include nature-based solutions.
	Updated NDC	✗	✗	None	None	✗			
Nicaragua	Previous NDC	✓	✓ 		REDD+, Reforestation Master Plan, National strategy for the environment and climate change (2010), National Adaptation Plan, National Climate Change Policy	✓ clearly			Nicaragua's previous NDCs included reforestation and the protection of wetlands and mangroves among its priorities. It also set numerical targets for the conservation of carbon sinks. The updated NDC reiterates and deepens this commitment to nature-based solutions, with an increased emphasis on the role of Indigenous People in forest conservation.
	Updated NDC	✓	✓ 		SDGs, Emissions Reduction Programme (2021), Resilient Management Program for prioritized ecosystems with a landscape approach and ecosystem-based adaptation, National plan for emissions management, National Adaptation Plan	✓ clearly			
North Macedonia	Previous NDC	✗	✗	None	None	✗			North Macedonia's mitigation target in its previous NDC excluded the forestry and land-use sector. In its updated submission, the county has included a specific target for the LULUCF sector, pledging to increase removals by 95% by 2030, compared to 1990 levels.
	Updated NDC	Mitigation only	✓ 		National plan on Land Use, Land Use Change and Forestry (LULUCF), National Adaptation Plan	✗			

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Norway	Previous NDC	✗	✗		None	✗			In Norway's previous NDC, the land use, land use change and forestry sectors are covered by the economy-wide target, but NbS are not explicitly mentioned. In its updated NDC, Norway commits to emission in the LULUCF sector not exceeding removals and makes references to national policies and plans.
	Updated NDC	Mitigation only	✗		Norwegian Climate Change Act, cooperation with the EU and Iceland for legislation in the period 2021-2030	✗	⊘		
Panama	Previous NDC	✓	✓ 		REDD+, Governmental Strategic Plan (new Forestry Law, Alliance for 1 million ha reforested)	✗			Panama's updated NDC expands the county's scope in ecosystems. Whereas the previous NDC only included measures and targets for forests and land use, the updated NDC also includes the intention to restore marine ecosystems and thereby enhance blue carbon sinks.
	Updated NDC	✓	✓ 		CBD, UNCCD, Sendai Framework, ODS, REDD+, Governmental Strategic Plan (2019, action 76 refers to National Reforestation Programme for the water basins), National forest restoration Programme (2021-2025), Forestry Master Plan	✗	✓		
Papua New Guinea	Previous NDC	Mitigation only	✗		REDD+	✗			Papua New Guinea's second NDC focuses on mitigation actions in the energy and LULUCF sectors, with an ambitious numerical target to turn the LULUCF sector from a net GHG source into a net GHG sink. Power sector plans also include the possibility to offset emissions through increased forestation. Adaptation measures include mangrove planting, coastal rehabilitation, coral rehabilitation, the establishment of marine protected areas, locally managed marine areas, and working with local communities to establish agroforestry practices.
	Updated NDC	✓	✓ 		SDGs, REDD+, National Reforestation and Afforestation Strategies, National Reforestation and Afforestation Strategies, National Strategies on Domestic Processing of Forest Produce, Revised PNG Logging Code of Practice 2nd Edition, PNG Timber Legality Standard	✓ clearly			

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Peru	Previous NDC	Adaptation only	✗		National Adaptation Plan, REDD+	✗		—	Peru's previous NDC briefly mentioned the protection of forest ecosystem services and its REDD+ program. The updated NDC also mentions REDD+ and includes forests among the country's priority areas, but includes no specific measures or targets for forest protection or other nature-based solutions.
	Updated NDC	Adaptation only	✗		REDD+, National Adaptation Plan, Adaptation and Mitigation Action Plan Against Climate Change	✗	⊘		
Philippines	Previous NDC	✓	✗		REDD+, Philippine Biodiversity Strategy and Action Plan, Law 97 on Expanded National Integrated Protected Areas Systems	✗		—	The Philippines' previous NDC recognized the important role of forest and marine ecosystem in both adaptation and mitigation, specifically mentioning blue carbon, REDD+, and the country's strategies for biodiversity and protected areas. The updated NDC only briefly mentions forest protection, forest restoration and reforestation.
	Updated NDC	✓	✗		None	✗			
Republic of Korea	Previous NDC	✗	✗	None	None	✗		↑	The previous NDC of the Republic of Korea did not included nature-based solutions at all. Its updated NDC briefly mentions afforestation and sustainable forest management to increase the capacity of carbon sinks in the forest sector, but includes no other mention of NbS.
	Updated NDC	Mitigation only	✗		None	✗	⊘		
Russia	Previous NDC	✓	✗		None	✗		—	In its previous NDC, Russia called forest management one of the most important elements of its emission reduction strategy. The updated NDC reiterates the importance of the absorbing capacity of forests and includes forest protection belts as a possibility for adaptation. However, no concrete targets or policies are set out for forest protection or other nature-based solutions.
	Updated NDC	✓	✗		None	✗	⊗		

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Rwanda	Previous NDC	✓	✓		REDD+	✗		↑	Rwanda's both previous and updated NDCs focus on adaptation. In its updated NDC, it reiterates the goal set in its previous NDC of reaching a 30% forest cover and promote agroforestry and sustainable land management to increase carbon sequestration. In addition to forests, the updated NDC also mentions the restoration of wetlands.
	Updated NDC	✓	✓		SDGs	✗	✓		
Saint Lucia	Previous NDC	✓	✗		National Resource Management Plan, Draft National Land Policy	✗		↑	Saint Lucia's previous NDC briefly mentioned the importance of forests as carbon sinks for mitigation (although LULUCF was not included in the overall mitigation target) and of land management and natural defenses (mangroves, wetlands) for adaptation. The updated NDC takes a similar approach, but presents more concrete measures, such as a national REDD+ strategy and attention to livelihood opportunities for local communities through forest management.
	Updated NDC	✓	✗		REDD+	✓ not clearly			
Senegal	Previous NDC	✓	✓		National Biodiversity Strategy and Action Plan (SPNAB), National Wetlands Management Policy (NWMP), New Forestry Policy (2005-2025).	✗		—	Senegal's previous NDC included plans for reforestation, participatory forest management, and protecting mangroves. It also specified numerical targets for reforestation and forest protection. The updated NDC reiterated this approach and these targets and added targets for marine protected areas.
	Updated NDC	✓	✓		National Adaptation Plan	✗			

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Singapore	Previous NDC	Adaptation only	✗		CBD, SGBioAtlas smartphone application	✗			Singapore recognises the co-benefits for mitigation and adaptation, as well as ecosystem protection, of nature-based solutions (NBS). In its NDC it includes nature-based adaptation measures and expects nature-based solutions to play a small role in mitigation. In its previous NDC, nature-based approaches were included for moderating temperatures in the city and conserving biodiversity. In its updated NDC, it also included nature-based approaches to coastal protection and tree management programs.
	Updated NDC	Adaptation only	✓ 		Coastal and Flood Protection Fund, Tree Management Measures by the National Parks Board Singapore	✗			
Suriname	Previous NDC	✓	✗		CDB, REDD+, Forest Management Act (1992), National Forest Policy, Interim Strategic Action Plan for the Forest Sector (2008)	✗			Suriname's second NDC extensively discusses the role of forests as a carbon sink contributing to mitigation. It also discusses strengthening coastal protection through NbS such as mangrove planting and wetlands, and the development of a sustainable agriculture and land-use plan. Numerical targets are set for forest coverage and protected areas and attention is paid to the important role of Indigenous communities in forest protection.
	Updated NDC	✓	✓ 		REDD+, National Biodiversity Action Plan, National Forest Policy, Nature Conservation Law	✓ clearly			
Switzerland	Previous NDC	✗	✗		None	✗			Switzerland's NDC, in both its previous and updated version, include LULUCF in the economy-wide target but does not include any clear NbS measures.
	Updated NDC	✗	✗		None	✗			

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Thailand	Previous NDC	✓	✓		REDD+	✓ clearly			Thailand's previous NDC included nature-based solutions in the form of its national REDD+ readiness assessment and in setting a target for increased forest cover through local community participation. The updated NDC, on the other hand, mentions that ecosystem-based adaptation is one of the main principles, but does not include any concrete measures or targets for NbS.
	Updated NDC	Adaptation only	✗	None	CBD, UNCCD, SDGs, Sendai Framework, Ramsar Convention on Wetlands, National Adaptation Policy,	✓ not clearly	⊘		
Tonga	Previous NDC	✓	✓		None	✗			Tonga's previous NDC mentioned the importance of forest management and preventing deforestation and set a target for marine protected areas. The updated NDC reiterated this importance and also set a numerical target for afforestation.
	Updated NDC	✓			Joint National Action Plan 2 on Climate Change and Disaster Risk Management 2018-2028 (JNAP 2), National Forestry Policy	✗			
United Arab Emirates	Previous NDC	✓	✗		National Blue Carbon Project	✗			The UAE's previous NDC described its blue carbon strategy, the restoration and plantation of mangroves and seagrass, and improved understanding of the potential of wetlands. The updated NDC builds on this effort, including numerical targets for planting mangroves and protecting blue carbon areas. It also includes the protection of coral reefs.
	Updated NDC	✓	✓		National Biodiversity Strategy	✗			

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
United Kingdom	Previous (EU) NDC	✗	✗		Legislation for land use, land-use change and forestry (EU Decision 529/2013)	✗			The UK's NDC after Brexit pays specific attention to the conservation of biodiversity and responsibilities under international conventions, such as the CBD and the Ramsar Convention. It also highlights the importance of the "sustainable use, protection and restoration of the UK's marine environment." However, the NDC does not present specific targets for nature-based mitigation or adaptation.
	Updated NDC	✓	✗		CBD, Ramsar Convention, National Adaptation Plan, Wales Nature Recovery Action Plan (NRAP)	✗			
United States	Previous NDC	✗	✗	None	None	✗			The United States new NDC after re-joining the Paris Agreement shows a clear appreciation for the importance of NbS, mentioning the implementation of programs including climate smart agricultural practices, reforestation, rotational grazing, nutrient management practices, forest protection and forest management, nature-based coastal resilience projects, and efforts to increase sequestration in waterways and oceans by pursuing blue carbon.
	Updated NDC	✓	✗		None	✗			
Vanuatu	Previous NDC	✓	✗		REDD+, Land Use Planning Policy, Foreshore Development Act, Physical Planning Act	✗			Vanuatu's previous NDC included plans for reduced deforestation through REDD+ and mentioned the use of ecosystem-based approaches to adaptation, although without detailing specific plans. The updated NDC does not really mention NbS, stating only that forestry plans are not covered under the NDC as they are specified in the country's REDD+ strategy.
	Updated NDC	Mitigation only	✗		REDD+	✗			

Country	NDC version	NbS in mitigation and adaptation measures	Numerical mitigation targets	Ecosystems mentioned	Global processes and domestic policies mentioned	Role of IP/LCs mentioned	WWF overall assessment of the latest NDC	Status of integration of nature in NDC	Summary assessment findings
Viet Nam	Previous NDC	✓	✓		REDD+	✓ not clearly			Forest conservation, afforestation, reforestations are core components of Vietnam's mitigation and adaptation plans, as presented in both its previous and updated NDC. Its updated NDC also pays specific attention to forest management at a local level, with the involvement of communities. However, the country's forest coverage has slightly decreased in ambition. Whereas the target in the previous NDC was to increase forest coverage to 45% by 2030, the updated NDC sets this at 42%-42.5%.
	Updated NDC	✓	✓		REDD+, 2011-2020 National Action Programme on Reduction of GHG Emissions through Efforts to Reduce Deforestation and Forest Degradation, Sustainable Management of Forest Resources, Conservation and Enhancement of Forest Carbon Stocks (2017)	✓ clearly	⊘		
Zambia	Previous NDC	✓	✗		REDD+	✓ clearly			Zambia's previous NDC includes agroforestry, participatory forest management as some of the main strategies for mitigation and adaptation. The updated NDC reiterates these commitments but does not add any additional measures related to NbS.
	Updated NDC	✓	✗						

ENDNOTES

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27 In our analysis (where referred to as 'updated NDC'), we did not make a distinction between an updated 1st NDC or the submission of a 2nd NDC.

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