Pilot Nature-Climate Target Alignment Assessment Report for Guatemala

Aligning Policy Targets for Integrated Action

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About this report

This report was co-developed by UNDP's Nature Hub and Climate Hub in collaboration with other UNDP teams and partner organizations. If this draft report is shared in a final form, please include credit to the Global Environment Facility (GEF), as a key donor.

UN disclaimer

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1. Introduction

1.1 Context and Purpose of the Assessment

Climate change, biodiversity loss, and desertification are interlinked crises that require integrated action. Ecosystem health depends on stable climate conditions. Climate change is one of the major drivers of biodiversity loss and land degradation, with anthropogenic climate-induced warming potentially threatening as many as one in six species of flora and fauna around the globe, according to IPBES. Biodiversity is also a critical part of the solution to climate change. Nature-based solutions, such as reforestation, coastal restoration, and soil management, can help counteract human-caused greenhouse gas (GHG) emissions and provide over 30% of the solution needed to ensure global warming does not increase 2 degree Celsius above pre-industrial levels. According to the IPCC's Sixth Assessment Report (AR6), our success in limiting climate change is dependent on enhanced mitigation from the Agriculture, Forestry, and Other Land Use (AFOLU) sector, which accounts for roughly 22% of global GHG emissions.

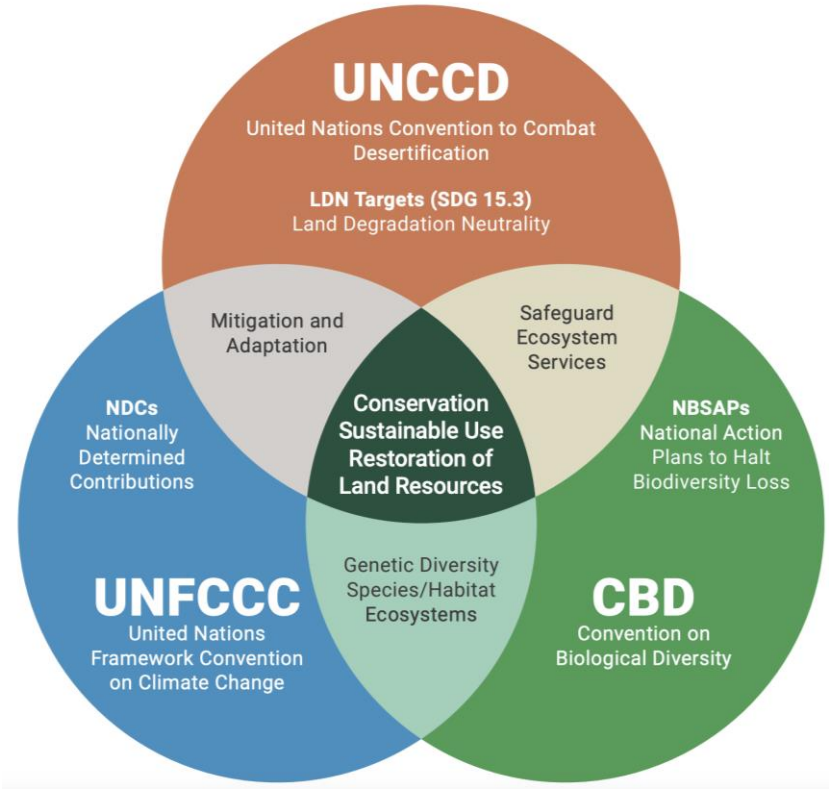
The UN Framework Convention on Climate Change (UNFCCC), the UN Convention to Combat Desertification (UNCCD), and the UN Convention on Biological Diversity (CBD) aim to address climate change, conserve biodiversity, and promote sustainable land management. These are often called the 'Rio Conventions' because they were established during the Earth Summit in Rio de Janeiro in 1992. The conventions and their frameworks reflect the value of integrated action for nature, climate, and land (Table 1 and Box 1). For example, the Kunming-Montreal Global Biodiversity Framework (KMGBF) of the CBD emphasizes climate change mitigation and adaptation as a pathway towards reducing biodiversity loss. For example, in Target 2 of the KMGBF, countries committed to restoring 30% of all degraded ecosystems and in Target 8 countries agreed to minimizing the impacts of climate change and on biodiversity and build resilience by 2030. Similarly, the Paris Agreement of the UNFCCC, including Articles 5 and 7, underscores the importance of forests, biodiversity protection, and ecosystem integrity and the UNCCD highlights coherence across Rio Conventions.

Table 1. The Rio Conventions and their planning processes, adopted from the Rio Conventions Joint Capacity-Building Programme's infobrief "Integrated planning of strategies and policies under the Rio Conventions"

Convention	Global frameworks or agreements	National planning instruments
UNFCCC	**Paris Agreement**: Adopted in 2015, this landmark agreement unites nations under a common cause to combat climate change and adapt to its impacts. It aims to significantly reduce GHG emissions and	**Nationally Determined Contributions (NDCs)**: Part of the UNFCCC framework, NDCs are commitments by countries to reduce national emissions and adapt to the impacts of climate change. These are

	limit global temperature rise this century to well below 2 degrees Celsius above pre-industrial levels, striving for 1.5 degrees Celsius.	submitted every five years and are central to achieving the goals of the Paris Agreement. **National Adaption Plans (NAPs):** Also under the UNFCCC, NAPs aim to reduce vulnerability to the impacts of climate change by building adaptive capacity and resilience. They integrate adaptation into new and existing policies at all levels. NDC 3.0s were due 10 February 2025.
UN Convention on Biological Diversity (CBD)	**KMGBF**: Adopted in 2022, this framework sets 23 targets and four goals for biodiversity conservation, sustainable use, and equitable benefit sharing. It seeks to halt biodiversity loss and ensure that ecosystems are restored, resilient, and adequately protected by the year 2030, emphasizing the integration of biodiversity into all sectors.	**National Biodiversity Strategies and Action Plans (NBSAPs)**: Required by the CBD, NBSAPs are the primary instruments used by countries to implement the KMGBF at the national level. NBSAPs contain national targets, which aim to reflect the 23 targets of the KMGBF, while taking into consideration national circumstances. Updated national biodiversity targets and NBSAPs were requested by the 16th CBD Conference of Parties (COP16) in October 2024, although many countries will submit their NBSAPs later.
UN Convention to Combat Desertification (UNCCD)	**Land Degradation Neutrality (LDN) Target / Sustainable Development Goal (SDG) 15.3**: LDN target aims to combat desertification, restore degraded land and soil, including land affected by desertification, drought, and floods, and achieve a land degradation-neutral world by 2030.	**National Plans to Combat Desertification / National LDN Targets**: Under the UNCCD, these plans focus on setting actionable targets to halt and reverse land degradation to achieve a balance where the amount of healthy and productive land resources remains stable or increases.

Box 1. Diagram of Rio Conventions, from the UNCCD Global Land Outlook



Through integrated planning and implementation of national policy instruments such as NBSAPs for the CBD, NDCs and NAPs for the UNFCCC, and Land Degradation Neutrality (LDN) targets for the UNCCD, countries can optimize resources and ensure coherent approaches to global nature, climate, and land crises. Cohesive policies across sectors can also streamline reporting and enhance transparency. The importance of integrated action towards was emphasized by the Presidents of CBD COP15, UNCCD COP15, and UNFCCC COP27 in 2023 in a joint statement calling on Parties to collectively work to advance the intertwined objectives of the Rio Conventions in accordance with respective mandates of each Convention to ensure a sustainable future for humanity and the planet. At Sixth Session of the United Nations Environment Assembly (UNEA-6) in 2024, a joint resolution was established on promoting synergies, cooperation or collaboration for national implementation of multilateral environmental agreements and other

relevant environmental instruments. At the CBD COP16 in October 2024, Parties to the CBD also agreed on a Biodiversity and Climate decision, which recognizes the interlinkages between nature and climate crisis and urges countries to promote synergies in planning processes with the UNFCCC.

Converging timelines in 2024 and 2025 for national planning towards the Rio Conventions present a unique window to align nature and climate policies. Although NBSAPs, updated in line with the KMGBF, were requested by the CBD COP16 in 2024, most countries are still developing these documents into 2025. Similarly, countries were requested to submit NDCs to the Secretariat of the UNFCCC by February 2025, but many countries do not anticipate finalizing by the end of the year. These intersecting timeframes can facilitate harmonized efforts towards planning across conventions. However, despite the fact that 153 out of 198 Parties have national focal points for two or all three Rio Conventions within the same ministry, planning processes can often be siloed and overlook the importance of synergies, resulting in fragmented efforts and missed opportunities for integrated action.

Given the urgency for rapid action, Artificial intelligence (AI) can provide a helpful starting point for discussion and planning among decision-makers. When applied through a human-centered approach, AI can democratize access to cutting-edge analytics, empowering a broader range of stakeholders. In 2024, over 50 countries piloted the use of AI to conduct assessments of alignment between their national and global biodiversity targets to achieve CBD commitments. Developed by UNDP under the GEF-funded Early Action Support (EAS) Project, NBSAP Target Similarity Assessments offer customized insights on synergies between global and NBSAP targets and provide recommendations for enhanced alignment to bring about a transformation in our societies' relationship with biodiversity by 2030. UNDP is now building on this original methodology to support countries in developing assessments of alignment between their national policy targets.

For this analysis, countries are invited to share their draft and final policy targets that are most relevant to them for analysis, including those related to NBSAPs, NDC, NAPs, and LDN plans, in addition to other national plans. In this case, the term "target" is used as an umbrella term for any type of concise national objective or aim that strives to support national achievement of the Rio Conventions, as well as any other goals that a country deems are relevant for analysis. Often a target may have a quantitative element, such as "Restore *60%* of degraded forest, wetland, and coastal ecosystems by *2030* to enhance biodiversity and carbon sequestration." However, this is not the case for all targets. Given that the guidelines for national planning towards the Rio Conventions differ greatly, there may be great variability in how countries choose to define their targets.

1.2 Goals of the Alignment Assessments

This **Pilot Nature-Climate Alignment Assessment** is developed by UNDP to support Guatemala in evaluating the alignment between nature, climate, and land targets at the national level. Using the targets selected by the country (found in Annex II), this assessment seeks to uncover similarities, locate nature-based solutions, identify quantitative information, and serve as a starting point for decision-making for policy coherence.

The **Nature-Climate Alignment Assessment** offers four custom national analysis:

- **Locate Nature-Based Solutions:** Analyze the integration of nature-based solutions within national climate and biodiversity targets.
- **Identify Thematic Overlaps:** Assess common cross-cutting themes across targets.
- **Evaluate Target-Level Similarities:** Pinpoint specific targets across biodiversity and climate policies show opportunities for greater alignment.
- **Quantitative Information**: Provide information quantitative and timebound elements of targets, such as "protect 30% of biodiversity" or "achieve target by 2030".

The pilot results are intended to provide Parties with guiding information towards:

- **Enhancing Policy Coherence:** Providing actionable insights for aligning nature and climate targets at national levels, as well as other targets a country may find relevant.
- **Fostering Stakeholder Engagement:** Supporting inclusive and participatory processes and strengthening inter-institutional coordination, pursuing whole-of-government and society approaches.

Given that this assessment is produced, in part, through AI, it is bound by certain limitations (Table 2). Countries are strongly encouraged to use these results as a conversation starter rather than prescriptive stand-alone analysis. It is recommended to carefully review results with relevant stakeholders and consider them alongside other types of nationally-validated analysis and desk reviews. As part of the pilot process for this methodology, and to ensure a human-centered approach, Guatemala is invited to provide feedback on the methodology and the presentation of the results through an open survey. This will support further refinements to scale up the approach to support all interested countries to align policy targets.

Table 2: Benefits and limitations of the pilot assessment

What the assessment can do	What the assessment cannot do

Provide an initial assessment of target alignment that a country can then validate using national sources or input	Provide fully-validated, definitive scores on target alignment that take into account national circumstances, baselines, or capabilities
Serve as resource that Parties can elect to consider in their stakeholder engagement processes, based on need and capacity	Make definitive judgments on a country's alignment and determine which national targets should be revised or updated
Inform country-led process to align national targets and support subsequent development and implementation of NBSAP, NDC, NAPs, and LDN plans	Replace national target alignment and planning processes
Provide a baseline information that a country can then compare with future assessments using the same methodology	Replace or qualify COP Decisions
Assess alignment between diverse targets of a country's choosing pertaining to nature, climate, and land	Assess entire documents, headline indicators, financial mechanisms, or other topics

2. Snapshot of Alignment Results for Guatemala

This section provides an overview of the primary findings from the analysis. Key insights include areas of alignment, gaps, and opportunities for policy coherence.

Nature-based solutions

This analysis looked for ten categories of nature-based solutions that may be pertinent for consideration:

- Protection, management, and restoration of marine and coastal zones
- Agriculture and livestock management
- Water management
- Forest management and protection
- Protection and restoration of wetlands and freshwater ecosystems
- Ecosystem protection and connectivity
- Soil management
- Risk management and disaster prevention

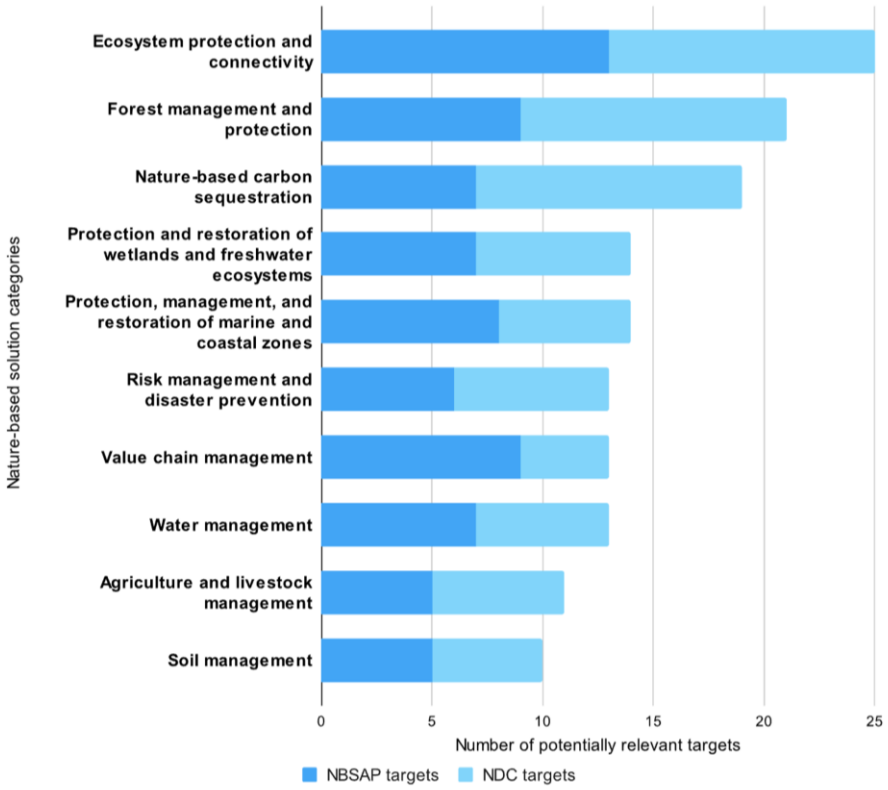
- Value chain management
- Nature-based carbon sequestration

At the recommendation of a UNDP working group, consisting of representatives from the Nature and Climate Hubs, these nature-based solutions categories were identified from the IPCC Special Report on Climate Change and Land and Natural Climate Solutions by Griscom *et al*. In the case of Guatemala, the following targets appear to pertain to at least one nature-based solution category:

- **25 of 31 NAP targets (80%)**
- **13 of 14 NBSAP targets (93%)**

The most common categories of nature-based solutions found among the country's targets appear to be ecosystem protection and connectivity (25 potentially relevant targets) and forest management and protection (21 potentially relevant targets). The categories that are the most infrequent include soil management (10 potentially relevant targets) and agriculture and livestock management (11 potentially relevant targets). The results are described further in Figures 1 and 2, and more information, including descriptions of each nature-based solution category, can be found in section 3.1.

Figure 1. Nature-based solution categories detected in Guatemala's 45 targets
This figure shows the number of targets that the country has related to each category of nature-based solution. The colors indicate whether relevant targets come from the NBSAP or NDC.



Cross-cutting themes

In addition, five general themes for supplemental analysis, identified in part through a working group across UNDP Nature Hub and Climate Hub, as well as conversations with countries. These include:

- Climate change adaptation and mitigation
- Desertification, drought, and land degradation
- Ecosystems and species conservation
- Gender equality
- Capacity building and development

These themes represent common elements across both policy types that can stimulate stakeholder conversation towards stronger policy alignment. Section 3.2 of this document provides more information on these themes and how they are reflected across the country's 45 targets*. Note that countries are encouraged to propose additional themes that could be included for assessment.* Across the targets provided by Guatemala, the theme of species conservation and ecosystems is most prominent, while the theme of gender equality appears to be least prominent.

Figure 2: Number of national targets that appear to pertain to each of the cross-cutting themes
This figure shows the number of targets that the country has related to each theme. The colors indicate whether relevant targets come from the NBSAP or NDC.

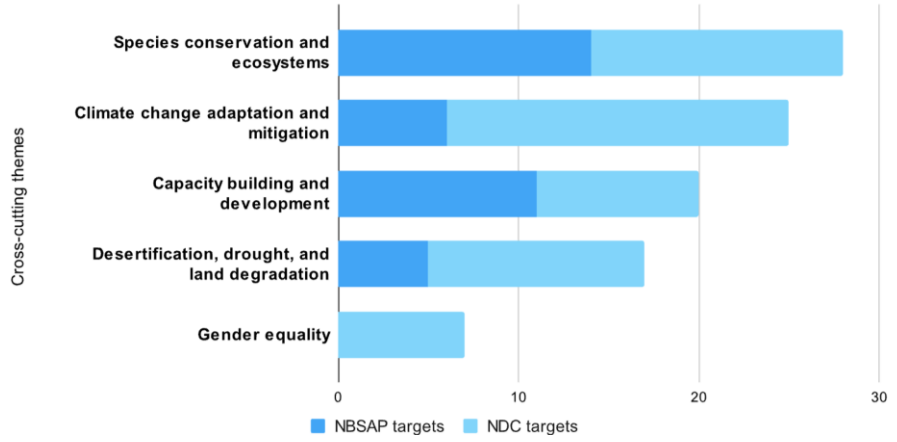


Figure 3: Distribution of national targets across the seven themes

This radar chart illustrates how well each type of target covers the key themes. A larger area within the chart indicates broader thematic coverage. The findings are the same as Figure 4 but provide an additional way to visualize the relationships between targets.

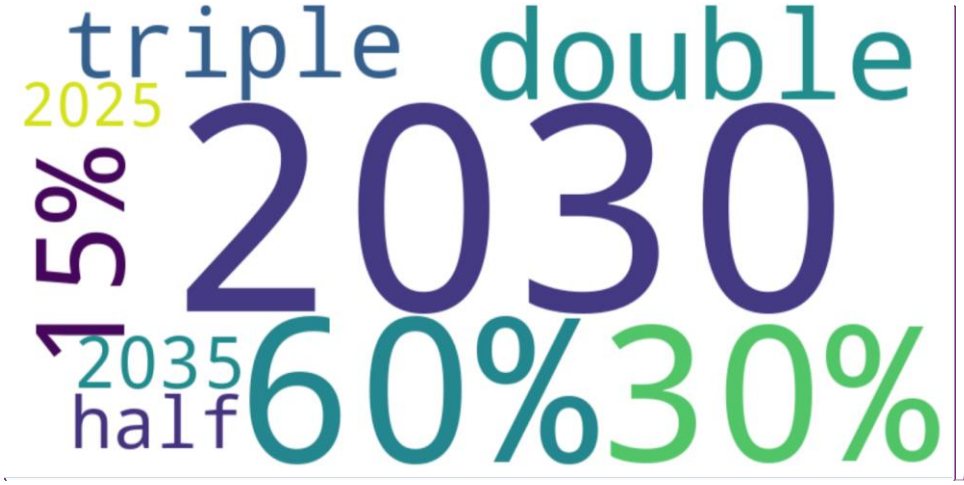
Quantitative features

Commented [LP1]: Awaiting this information from @Julien Pigot

Defining explicit numerical targets, such as safeguarding a specific percentage or number of terrestrial or marine ecosystems, is pivotal for establishing and monitoring progress toward clear conservation and climate benchmarks. Equally, assigning specific timelines for achieving these targets ensures a structured and time-sensitive approach, fostering a sense of urgency and facilitating systematic progress monitoring.

X% percentage of targets are quantitative and X% are time-bound. Of these, X number are NBSAP targets, X number are NDC targets, X number are NAP targets, and X number are other types of targets.

This word cloud shows the types of common quantitative and timebound elements found across the targets.



Commented [HB2]: this is very confusing haha. What is the purpose of this chart?

Commented [LP3R2]: It's meant to be a word cloud that shows the types of common quantitative and timebound elements found across the targets. Do you have any suggestions about other graphics that might work here? In some countries, they may only have around 8 time-bound targets, where that number might be higher in other countries.

Commented [ME4]: I think it would be better to replace this with a data-focused visual, like a bar-chart. Do we have these identified terms and their frequencies? I could do that with the info if needed.

Recommendations on how to use this information

It is recommended that countries manually review these results and, if helpful, use them to support stakeholder engagement for policy planning and implementation processes. By examining alignment, identifying gaps, and indicating areas for further exploration, the assessment can offer valuable insights for improving alignment.

The following guiding questions can be useful to consider when reviewing the results:

- Are there national analyses that could help validate results?
- What nature-based solutions are present across the targets? Did the analysis miss anything?
- Are there additional themes that you would like to cross-check between the targets?
- Which national policies appear to be the most aligned with each other and where are there gaps?
- How could the country's policy targets be updated to improve coherence?
- Are there ways that the implementation of targets across different conventions could be done simultaneously for enhanced impact and reporting?

3. In-depth policy analysis

This section provides a detailed policy analysis of Guatemala's national targets.

3.1 Nature-based solutions

The UNEA defines nature-based solutions as actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human wellbeing, ecosystem services and resilience and biodiversity benefits.

This analysis looked for ten types of nature-based solutions that pertain to climate change adaption and mitigation. At the recommendation of a UNDP working group, these nature-based solutions were sourced from the IPCC Special Report on Climate Change and Land and Natural Climate Solutions by Griscom *et al*. A description of the methodology can be found in Annex III. As found in Box 2, the Nature4Climate Guide for including nature in Nationally Determined Contributions includes certain suggestions for the review of NDC targets, which might be useful to consider alongside this analysis.

In total, the following targets appear to relate to at least one nature-based solution category:

- **25 of 31 NAP targets (80%)**
- **13 of 14 NBSAP targets (93%)**

The nature-based solution categories that appear most referenced across the targets are ecosystem protection and connectivity, and forest protection, management, and restoration. In addition, the nature-based solution categories that appear least referenced are soil management and agriculture and livestock management. These categories may be less relevant to the country's context or priorities, although more consideration may be helpful.

Note that the analysis is structured to be more generous rather than restrictive when tagging targets under different nature-based solution categories in order to provide reviewers the opportunity to see all potential nature-based solutions. This means that the existence of some false positives is likely. As such, a manual reviewer has put an ***asterisk (*)*** *on targets that might not be relevant to encourage more review at the national level. In the feedback survey, countries are requested to provide information on if the assessment is too generous in certain areas.*

Box 2: Questions for consideration on NDC targets, identified through the Nature4Climate's Guide for including nature in Nationally Determined Contributions

Inclusion of nature in mitigation targets

- Are the economy-wide and/or sectoral targets aligned with 1.5°C modeled domestic pathways?
- Have targets been developed or strengthened to incentivize more ambitious mitigation in ecosystems and working lands/water?
- Are targets set for each nature-based pathway: protection/conservation, sustainable management, and restoration?
- Are targets, policies, or measures set for each of the country's key ecosystems and working lands/waters?
- Are there area-based targets that conserve biodiversity values and associated ecosystem services? (More information on this can be found in section 3.4.
- Have nature-based solutions been integrated into mitigation targets related to all sectors? *Agriculture, forestry, other land use, energy, urban environment, infrastructure, food systems, waste, sanitation, etc.*
- Have considerations been taken to ensure that targets avoid impacts to ecosystems whenever possible, minimize unavoidable harms, and restore or compensate for harms when they cannot be avoided?
- Are there measures to ensure targets in the energy sector relate to biopower and biofuels maintain the integrity of carbon stocks (such as forests and peatlands, biodiversity conservation efforts, and net-zero emissions from the AFOLU sector)?

Inclusion of nature in adaption targets

- Have adaptation targets been strengthened to maximize the potential of nature-based solutions and ecosystem-based approaches in reducing climate risks and enhancing reliance across all sectors or ecosystems?
- Have the four-dimensional targets of the UAE Framework for Global Climate Resilience across the adaptation cycle been considered? This includes: 1) assessing impacts, vulnerability and risks, 2) planning for adaptation, 3) implementing adaptation measures, and 4) monitoring and evaluating adaptation.
- Have the thematic targets of the UAE Framework for Global Climate Resilience been considered? These include cultural heritage, infrastructure, health, livelihoods, water and sanitation, ecosystems, and food and agriculture.
- Have adaptation targets been set for different ecosystem types?
- Do the adaptation targets minimize tradeoffs?

Inclusion of nature in loss and damage targets

- Has nature been integrated as an essential component of solutions in addressing loss and damage, while recognizing and documenting nature's vulnerability to such impacts?
- Have targets been developed to address the impacts of climate change on ecosystems in ways that support vulnerable communities?
- Have measures been created for adaptive management planning to account for likely or unavoidable climate impacts and the resulting social and environmental conditions?

Protection, management, and restoration of marine and coastal zones

This can include coastal zone risk retention, marine ecosystem service management, tidal salt marshes, sustainable coastal management, marine production promotion, coastal environment monitoring and risk assessment, disease management of marine resources, mangrove protection, coral reef protection, seagrass protection, marine protected areas, avoiding coastal impacts, restore marine ecosystems, coastal wetland restoration, seagrass restoration, coral reef restoration, and mangrove restoration.

The AI model identified 14 targets that could relate to this nature-based solution category. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC META REA-4:** By 2025, the Ecosystem-based Adaptation (EbA) approach will be integrated into the strategic institutional instruments of government entities*
- **NDC META ZMC-1:** By 2025, at least 1500 hectares of mangrove ecosystems will be restored and reforested, with the full participation of local communities, indigenous and Garifuna peoples, and women's and youth groups.
- **NDC META ZMC-2:** By 2025, fisheries management with an ecosystem approach will be achieved in at least one of the country's main fisheries, that of sharks. This goal covers both industrial and artisanal levels, and includes the participation of men, women, young people and local communities.
- **NDC META ZMC-3.1:** By 2025, CONAP has approved the technical studies of at least two (2) new protected areas in the Pacific marine-coastal zone to be incorporated into the Guatemalan System of Protected Areas (SIGAP). The technical studies will involve the participation and knowledge of women, men and local communities and will have a focus that guarantees their livelihoods.
- **NDC META ZMC-3.2:** By 2025, at least one (1) new protected area has been incorporated into the SIGAP in the Pacific coastal zone. This process will have been socialized with women, men and local communities.
- **NDC META ZMC-4:** By 2025, Guatemala's reef health index (RHI) will remain at the same level as the 2020 baseline.

NBSAP targets:

- **NBSAP META-4:** By 2022, at least 10% of coastal-marine ecosystems will be under some mechanism of sustainable use and/or conservation.

- **NBSAP META-5**: By 2022, 15% of biological diversity and its ecosystem services will have been restored, improving their capacities to adapt to climate change and contributing to the reduction of socio-environmental vulnerability.*
- **NBSAP META-8:** By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.*
- **NBSAP META-10:** By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.*
- **NBSAP META-11:** By 2017, mechanisms for transforming the institutional framework for the management of biological diversity will be promoted, including the implementation of the political, legal and regulatory instruments necessary to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services, guaranteeing the fair and equitable distribution of benefits.*
- **NBSAP META-12:** By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.*
- **NBSAP META-13:** By 2022, the capacities of the actors and sectors will have been strengthened to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services.*
- **NBSAP META-14:** By 2022, mechanisms will have been implemented to promote, develop and transfer collective scientific and traditional knowledge associated with biological diversity, and technological development will be promoted to improve its conservation and sustainable use.*

AI-generated analysis on synergies and gaps

"The analyzed targets demonstrate a strong overall alignment with the category of protecting, managing, and restoring marine and coastal zones, particularly around targets focused on the restoration of mangrove ecosystems (NDC META ZMC-1) and the establishment of protected marine areas (NDC META ZMC-3.1 and ZMC-3.2), which directly support the goal of enhancing marine ecosystem health and resilience. Furthermore, the emphasis on community participation in these targets strengthens the social dimension of NBS initiatives, aligning with sustainable coastal management objectives.

However, gaps may exist regarding the lack of specific targets on coastal wetland restoration, which could be beneficial for a comprehensive marine ecosystem strategy across NBSAPs and NDCs. Overlap can be seen in targets related to fisheries management (NDC META ZMC-2), as they contribute to both the health of marine ecosystems and the sustainable livelihoods of local communities, reflecting a dual focus. Distinctions lie in the unique contributions of various targets, such as NBSAP META-5, which emphasizes the restoration of biological diversity and ecosystem services, highlighting the importance of ecological resilience alongside direct management efforts. The NBSAP targets do not appear to have the same references to Guatemala's reef health index (RHI) or the NDC target to restore at least 1500 hectares of mangrove ecosystems. In addition, the NDC targets appear to emphasize the participation and knowledge of women, men and local communities, while the NBSAP targets do not have the same focus"

Commented [LP5]: @Hanna Butsko - thanks for your help with these. I think these descriptions are decent for now - but for the next assessment - it would be helpful to compare for alignment more across the two categories of documents (NBSAPs and NDCs), rather than alignment within those documents or with the overall theme. So for example, the NDC targets do not need to align with the theme, but they do need to align ideally with the NBSAP targets. I'm sorry that wasn't clear.

Commented [LP6R5]: Also, could you ask the AI to be a bit softer in their tone - meaning instead of saying "gaps include", say "Gaps might include"?

Commented [LP7R5]: You could also add to the analysis common elements - for example "The NBSAP targets appear to focus primarily on X, X, and X, while the NDC targets appear to focus on X, X, and X."

Agriculture and livestock management.

This can include climate-resilient crops, climate-resilient livestock management, regenerative agriculture, crop diversification, integrated water management, grazing land management, agricultural soil management, post-harvest processing, sustainable intensification, agricultural disaster risk reduction, agriculture and livestock disease management, agricultural education and consulting, increased food productivity, agroforestry, agricultural diversification, improved grazing land management, and reduced grassland conservation to cropland.

The AI model identified 11 targets that could relate to this nature-based solution category. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC META REA-3:** By 2025, forest restoration and area under management has increased by 30,300 hectares through the modalities of "forest plantations", "agroforestry systems" and "restoration of degraded forest land" of the forest incentive programs PROBOSQUE (26,900 hectares) and PINPEP (3,400 hectares).
- **NDC Sub-meta REA-3.1**: Increase the area under the "agroforestry systems" modality of the PROBOSQUE (7,587 hectares) and PINPEP (3,072 hectares) forestry incentive programs by 10,659 hectares.
- **NDC META AGS-1**: By 2025, soil conservation measures have been implemented on an additional 19,500 hectares to those existing in the 2020 baseline.
- **NDC META AGS-5**: By 2025, at least 600 producers in the department of Petén implement best sustainable livestock practices on 13,500 hectares. These include silvopastoral systems, soil protection, pasture recovery, conservation of forest remnants, among others.
- **NDC META AGS-6**: By 2025, Guatemala will present at least one project proposal addressing the issue of sustainable livestock farming to international climate finance funds.
- **NDC MEDIDA AGR-1**: National strategy for sustainable low-emission cattle farming. 0.63 million tons of CO2-eq by 2030.

NBSAP targets:

- **NBSAP META-8:** By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.

- **NBSAP META-9:** By 2022, community business development based on the sustainable use of biological diversity and the fair and equitable distribution of the benefits derived from the use of biological resources and collective traditional knowledge will enable the economic and social development of the Guatemalan population.
- **NBSAP META-10:** By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.*
- **NBSAP META-12:** By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.*
- **NBSAP META-13:** By 2022, the capacities of the actors and sectors will have been strengthened to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services.*

AI-generated analysis on synergies and gaps

"The alignment between the identified targets and the Nature-Based Solution (NBS) category of agriculture and livestock management is moderate, demonstrating some synergies towards achieving sustainable agricultural practices in Guatemala. Specifically, NDC META AGS-5 focuses on the implementation of sustainable livestock practices across a notable area, directly correlating with the regenerative agriculture and livestock management aspects of the NBS category. Further, NDC META AGS-1 highlights the implementation of soil conservation measures, supporting agricultural soil management, while NDC META REA-3 emphasizes the role of agroforestry systems, which complement climate-resilient crop strategies. However, the NBSAP targets indirectly relate to agriculture. For example, NBSAP META-10's focus on mechanisms for adaptation to climate change, which supports the overall integrity of biodiversity and ecosystem services but is less focused specifically on the practices within agriculture and livestock management itself."

Commented [LP8]: @Hanna Butsko - thanks for your help with these. I think these descriptions are decent for now - but for the next assessment - it would be helpful to compare for alignment more across the two categories of documents (NBSAPs and NDCs), rather than alignment within those documents or with the overall theme. So for example, the NDC targets do not need to align with the theme, but they do need to align ideally with the NBSAP targets. I'm sorry that wasn't clear.

Commented [LP9R8]: Also, could you ask the AI to be a bit softer in their tone - meaning instead of saying "gaps include", say "Gaps might include"?

Commented [LP10]: @Hanna Butsko, did you give it this acronym? I would suggest that it doesn't use a given acronym or else we need to use this across the whole doc.

Commented [HB11R10]: I did. Okay, makes sence.

Water management

This includes catchment protection, watershed restoration, freshwater ecosystem restoration, integrated water resource management, maintaining sustainable water supply, securing water quality, water education and consulting, and monitoring of water resources, and service management of water ecosystems.

The AI model identified 13 targets that could relate to this nature-based solution category. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC META AGS-5:** By 2025, at least 600 producers in the department of Petén implement best sustainable livestock practices on 13,500 hectares. These include silvopastoral systems, soil protection, pasture recovery, conservation of forest remnants, among others.*
- **NDC META ZMC-1:** By 2025, at least 1500 hectares of mangrove ecosystems will be restored and reforested, with the full participation of local communities, indigenous and Garifuna peoples, and women's and youth groups.
- **NDC META GRH-1:** By 2025, in at least 35% of the country's basins, sub-basins and micro-basins, programs, plans, strategies and technical manuals for the integrated management of water resources at the territorial level have been implemented, respecting their governance, with a gender focus and cultural relevance.
- **NDC META GRH-2:** By 2025, 50% of the basins in strategic sites of hydrological importance will have plans for the protection of the area and for sustainable management. These plans will focus on watersheds and land use planning with cultural relevance and a gender focus, according to the social context.
- **NDC META GRH-3:** By 2025, the country's 38 river basins will have a guide for measuring quality and flow, and will allow for reporting on their status. Ten percent of the basins will have water quality and flow indices.
- **NDC META GRH-4:** By 2025, there will be more than 3,000 hectares of restored riparian forests.*

NBSAP targets:

- **NBSAP META-2:** By 2015, mechanisms have been implemented that allow for the valuation of biological diversity and its ecosystem services, considering it a national priority for integral intergenerational human development.*
- **NBSAP META-5:** By 2022, 15% of biological diversity and its ecosystem services will have been restored, improving their capacities to adapt to climate change and contributing to the reduction of socio-environmental vulnerability.*
- **NBSAP META-8:** By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.*
- **NBSAP META-10:** By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.*
- **NBSAP META-11:** By 2017, mechanisms for transforming the institutional framework for the management of biological diversity will be promoted, including the implementation

of the political, legal and regulatory instruments necessary to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services, guaranteeing the fair and equitable distribution of benefits.*

- **NBSAP META-12:** By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.*
- **NBSAP META-13:** By 2022, the capacities of the actors and sectors will have been strengthened to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services.*

AI analysis on synergies and gaps:

"The reviewed targets demonstrate a moderate alignment with the Nature-Based Solutions (NBS) category of water management, particularly in promoting integrated water resource management and ecosystem restoration. The NDC targets appear to pertain most strongly to this theme, such as NDC META GRH-1 and GRH-2, which emphasize the implementation of integrated water management plans that respect local governance and cultural relevance, thereby enhancing the sustainable management of water resources. Additionally, NDC META ZMC-1 and GRH-4 align with the restoration of ecosystems, specifically mangroves and riparian forests, contributing to improved water quality and ecosystem services. There are many NBSAP targets that also relate to this theme, but are a bit more general, focusing on ecosystems rather than water. The country may choose to consider areas for further alignment."

Forest protection, management, and restoration

This includes natural forest management, improved plantations, sustainable forestry practices, avoiding fuelwood harvest, preventing illegal logging, agro-forestry, avoiding deforestation and forest degradation, fire management, REDD+ implementation, reforestation, afforestation, tree planting on degraded land, temperate and tropical forest restoration, forest carbon sink management, forest education and consulting, and monitoring forest changes.

The AI model identified 21 targets that could relate to this nature-based solution category. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC META REA-1:** By 2025, 32% of the national territory (3,479,124 ha) will be covered by forests and at least 30% of the forests under management will be tended by indigenous and non-indigenous women.
- **NDC MEDIDA UTCUTS-1:** Conservation, protection and sustainable management of forests. Reduction of 1.5452 million tons of CO2-eq by 2030.

- **NDC MEDIDA UTCUTS-3**: Establishment of forest plantations. Increase in absorptions of 0.1773 million tons of CO2-eq by 2030.
- **NDC META REA-2**: By 2025, the rate of degradation due to forest fires will be reduced to 36,972 hectares per year, which constitutes a 5% improvement on the baseline rate. Forest fire prevention will be improved by addressing strategies related to cyclical problems from a social perspective. The area affected by forest fires will not exceed the limit of 20,000 hectares on average per year for the period 2021-2025.
- **NDC MEDIDA UTCUTS-2:** Reduction of forest degradation through fire prevention and control. Reduction of 0.12933 million tons of CO2-eq by 2030.
- **NDC META REA-3:** By 2025, forest restoration and area under management has increased by 30,300 hectares through the modalities of "forest plantations", "agroforestry systems" and "restoration of degraded forest land" of the forest incentive programs PROBOSQUE (26,900 hectares) and PINPEP (3,400 hectares).
- **NDC Sub-meta REA-3.1:** Increase the area under the "agroforestry systems" modality of the PROBOSQUE (7,587 hectares) and PINPEP (3,072 hectares) forestry incentive programs by 10,659 hectares.
- **NDC UTCUTS-4:** Restoration of degraded areas. Increase in absorptions of 0.9443 million tons of CO2-eq by 2030.*
- **NDC META AGS-5:** By 2025, at least 600 producers in the department of Petén implement best sustainable livestock practices on 13,500 hectares. These include silvopastoral systems, soil protection, pasture recovery, conservation of forest remnants, among others.
- **NDC META ZMC-1:** By 2025, at least 1500 hectares of mangrove ecosystems will be restored and reforested, with the full participation of local communities, indigenous and Garifuna peoples, and women's and youth groups.*
- **NDC META GRH-2:** By 2025, 50% of the basins in strategic sites of hydrological importance will have plans for the protection of the area and for sustainable management. These plans will focus on watersheds and land use planning with cultural relevance and a gender focus, according to the social context.*
- **NDC META GRH-4:** By 2025, there will be more than 3,000 hectares of restored riparian forests.

NBSAP targets:

- **NBSAP META-5**: By 2022, 15% of biological diversity and its ecosystem services will have been restored, improving their capacities to adapt to climate change and contributing to the reduction of socio-environmental vulnerability.*

Commented [LP13]: Note @Julien Pigot and @Hanna Butsko that I put asterisks stating that none of these are super aligned. Do you mind taking a greater look at this to identify if there are areas we can improve the code and accuracy?

Commented [HB14R13]: what do you mean by super aligned? do you think there is 0 oportunity for alignment? or it just doesn't make sence to align them?

Commented [LP15R13]: What I mean is that these targets do not appear to be very relevant to the theme. It is concerning to me that I would need to put so many asterisks on this section.

Commented [HB16R13]: that's true.. most of them have asterisks. We will look into it

- **NBSAP META-7**: By 2022, 50% of the SIGAP and other forms of conservation have been consolidated since their integration into the National System for the Conservation and Sustainable Use of Biological Diversity (SINADIBIO) and the country's territorial planning.*
- **NBSAP META-8**: By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.*
- **NBSAP META-9**: By 2022, community business development based on the sustainable use of biological diversity and the fair and equitable distribution of the benefits derived from the use of biological resources and collective traditional knowledge will enable the economic and social development of the Guatemalan population.*
- **NBSAP META-10**: By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.*
- **NBSAP META-11**: By 2017, mechanisms for transforming the institutional framework for the management of biological diversity will be promoted, including the implementation of the political, legal and regulatory instruments necessary to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services, guaranteeing the fair and equitable distribution of benefits.*
- **NBSAP META-12**: By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.*
- **NBSAP META-13**: By 2022, the capacities of the actors and sectors will have been strengthened to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services.*
- **NBSAP META-14**: By 2022, mechanisms will have been implemented to promote, develop and transfer collective scientific and traditional knowledge associated with biological diversity, and technological development will be promoted to improve its conservation and sustainable use.*

AI-generated analysis on synergies and gaps

"The analyzed targets demonstrate a moderate alignment with the Nature-Based Solution (NBS) category of forest protection, management, and restoration. There are notable synergies, particularly with the NDC targets focused on forest conservation, sustainable management, and restoration, such as NDC META REA-1 and NDC META REA-3, which emphasize increasing forest cover and restoring degraded areas. Additionally, the NDC MEDIDA UTCUTS-1 and NDC UTCUTS-4 targets contribute to reducing CO2 emissions through forest management practices, further supporting the NBS objectives.

Commented [LP17]: @Hanna Butsko - thanks for your help with these. I think these descriptions are decent for now - but for the next assessment - it would be helpful to compare for alignment more across the two categories of documents (NBSAPs and NDCs), rather than alignment within those documents or with the overall theme. So for example, the NDC targets do not need to align with the theme, but they do need to align ideally with the NBSAP targets. I'm sorry that wasn't clear.

Commented [LP18R17]: Also, could you ask the AI to be a bit softer in their tone - meaning instead of saying "gaps include", say "Gaps might include"?

Commented [LP19R17]: When talking about gaps, you could also add information on if the timelines for the various targets are different or if the quantitative targets are different.

However, gaps may exist in the NBSAP targets, as several of them focus on broader biodiversity and socio-environmental aspects without directly addressing forest-specific management practices. The NBSAP targets also appear to have less quantitative indicators, which could make them more challenging to implement and report on."

Protection, management, and restoration of wetlands and freshwater ecosystems

This includes wetland protection, peatland rewetting, avoiding peat impacts, freshwater ecosystem protection, wetland management, service management of freshwater ecosystems, peatland restoration, dune restoration, freshwater ecosystem restoration, catchment restoration, watershed protection, restoration and reduced conversion of coastal wetlands, and restoration and reduction of conversion of peatlands.

The AI model identified 14 targets that could relate to this nature-based solution category. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC UTCUTS-4**: Restoration of degraded areas. Increase in absorptions of 0.9443 million tons of CO2-eq by 2030.*
- **NDC META AGS-5**: By 2025, at least 600 producers in the department of Petén implement best sustainable livestock practices on 13,500 hectares. These include silvopastoral systems, soil protection, pasture recovery, conservation of forest remnants, among others.*
- **NDC META ZMC-1**: By 2025, at least 1500 hectares of mangrove ecosystems will be restored and reforested, with the full participation of local communities, indigenous and Garifuna peoples, and women's and youth groups.
- **NDC META GRH-1**: By 2025, in at least 35% of the country's basins, sub-basins and micro-basins, programs, plans, strategies and technical manuals for the integrated management of water resources at the territorial level have been implemented, respecting their governance, with a gender focus and cultural relevance.
- **NDC META GRH-2**: By 2025, 50% of the basins in strategic sites of hydrological importance will have plans for the protection of the area and for sustainable management. These plans will focus on watersheds and land use planning with cultural relevance and a gender focus, according to the social context.
- **NDC META GRH-3**: By 2025, the country's 38 river basins will have a guide for measuring quality and flow, and will allow for reporting on their status. Ten percent of the basins will have water quality and flow indices.
- **NDC META GRH-4**: By 2025, there will be more than 3,000 hectares of restored riparian forests.

NBSAP targets:

- **NBSAP META-4:** By 2022, at least 10% of coastal-marine ecosystems will be under some mechanism of sustainable use and/or conservation.
- **NBSAP META-5:** By 2022, 15% of biological diversity and its ecosystem services will have been restored, improving their capacities to adapt to climate change and contributing to the reduction of socio-environmental vulnerability.*
- **NBSAP META-8:** By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.*
- **NBSAP META-10:** By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.*
- **NBSAP META-11:** By 2017, mechanisms for transforming the institutional framework for the management of biological diversity will be promoted, including the implementation of the political, legal and regulatory instruments necessary to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services, guaranteeing the fair and equitable distribution of benefits.*
- **NBSAP META-12:** By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.*
- **NBSAP META-13:** By 2022, the capacities of the actors and sectors will have been strengthened to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services.*

AI-generated analysis on synergies and gaps

"The reviewed targets demonstrate a moderate alignment with the Nature-Based Solutions (NBS) category focused on the protection, management, and restoration of wetlands and freshwater ecosystems. Notably, targets such as NDC META ZMC-1, which emphasizes the restoration of mangrove ecosystems, and NDC META GRH-4, which focuses on restoring riparian forests, synergistically contribute to the overarching goals of wetland and freshwater ecosystem restoration. Additionally, NDC META GRH-1 and GRH-2 highlight integrated water resource management, reinforcing the importance of sustainable practices in watershed protection and management. However, there are gaps, particularly in the NBSAP targets, where specific references to wetlands and freshwater lacking. Overlap exists in targets related to ecosystem restoration, with multiple NDC and NBSAP targets aiming to enhance biodiversity and ecosystem services. "

Commented [LP22]: @Hanna Butsko and Julien these targets appear to be related to almost every theme because they are so general. We'll need to find a way to make the code a bit more "picky"

Commented [HB23R22]: We can do that. It might be helpful to have a call and discuss Type 1 and Type 2 errors and determine which one is worse for our specific goals. Making the code more picky will, of course, increase false negatives, so we need to determine how we want to balance accuracy and sensitivity.

Commented [LP24]: @Hanna Butsko - thanks for your help with these. I think these descriptions are decent for now - but for the next assessment - it would be helpful to compare for alignment more across the two categories of documents (NBSAPs and NDCs), rather than alignment within those documents or with the overall theme. So for example, the NDC targets do not need to align with the theme, but they do need to align ideally with the NBSAP targets. I'm sorry that wasn't clear.

Commented [LP25R24]: Also, could you ask the AI to be a bit softer in their tone - meaning instead of saying "gaps include", say "Gaps might include"?

Commented [LP26R24]: When talking about gaps, you could also add information on if the timelines for the various targets are different or if the quantitative targets are different.

Commented [LP27]: @Hanna Butsko, just a note that overlaps are good - not bad. We want coherence between NBSAP and NDC targets.

Ecosystem protection and connectivity

This includes establishing protected areas, community reserves, wildlife corridors, restoring pollinator habitats, preventing species extinction, habitat rewilding, restricting invasive species, ecosystem change detection, other effective conservation measures (OECM), and increasing connectivity between protected areas.

The AI model identified 25 targets that could relate to this nature-based solution category. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC META REA-1:** By 2025, 32% of the national territory (3,479,124 ha) will be covered by forests and at least 30% of the forests under management will be tended by indigenous and non-indigenous women.
- **NDC MEDIDA UTCUTS-1:** Conservation, protection and sustainable management of forests. Reduction of 1.5452 million tons of CO2-eq by 2030.
- **NDC MEDIDA UTCUTS-2:** Reduction of forest degradation through fire prevention and control. Reduction of 0.12933 million tons of CO2-eq by 2030.
- **NDC META REA-3:** By 2025, forest restoration and area under management has increased by 30,300 hectares through the modalities of “forest plantations”, “agroforestry systems” and “restoration of degraded forest land” of the forest incentive programs PROBOSQUE (26,900 hectares) and PINPEP (3,400 hectares).
- **NDC META REA-4**: By 2025, the Ecosystem-based Adaptation (EbA) approach will be integrated into the strategic institutional instruments of government entities.*
- **NDC META AGS-5**: By 2025, at least 600 producers in the department of Petén implement best sustainable livestock practices on 13,500 hectares. These include silvopastoral systems, soil protection, pasture recovery, conservation of forest remnants, among others.*
- **NDC META ZMC-1:** By 2025, at least 1500 hectares of mangrove ecosystems will be restored and reforested, with the full participation of local communities, indigenous and Garifuna peoples, and women's and youth groups.*
- **NDC META ZMC-2:** By 2025, fisheries management with an ecosystem approach will be achieved in at least one of the country's main fisheries, that of sharks. This goal covers both industrial and artisanal levels, and includes the participation of men, women, young people and local communities.*
- **NDC META ZMC-3.1:** By 2025, CONAP has approved the technical studies of at least two (2) new protected areas in the Pacific marine-coastal zone to be incorporated into the Guatemalan System of Protected Areas (SIGAP). The technical studies will involve the

Commented [LP28]: Note that all responses to this section would need to mention ecosystem protection, Protected areas, etc.

Commented [LP29R28]: Or conservation.

participation and knowledge of women, men and local communities and will have a focus that guarantees their livelihoods.

- **NDC META ZMC-3.2:** By 2025, at least one (1) new protected area has been incorporated into the SIGAP in the Pacific coastal zone. This process will have been socialized with women, men and local communities.
- **NDC META GRH-2**: By 2025, 50% of the basins in strategic sites of hydrological importance will have plans for the protection of the area and for sustainable management. These plans will focus on watersheds and land use planning with cultural relevance and a gender focus, according to the social context.
- **NDC META GRH-4.:** By 2025, there will be more than 3,000 hectares of restored riparian forests.*

NBSAP targets:

- **NBSAP META-1:** By 2022, scientific knowledge and collective traditional knowledge associated with biological diversity, including that linked to genetic resources, are articulated and protected through the implementation of integrated research and systematization processes and legal or sui generis frameworks for protection.
- **NBSAP META-2:** By 2015, mechanisms have been implemented that allow for the valuation of biological diversity and its ecosystem services, considering it a national priority for integral intergenerational human development.*
- **NBSAP META-4:** By 2022, at least 10% of coastal-marine ecosystems will be under some mechanism of sustainable use and/or conservation.
- **NBSAP META-5:** By 2022, 15% of biological diversity and its ecosystem services will have been restored, improving their capacities to adapt to climate change and contributing to the reduction of socio-environmental vulnerability.
- **NBSAP META-6:** By 2018, a technical and legal framework will be in place that will enable the implementation of international agreements related to risk management of modern biotechnology and invasive alien species.*
- **NBSAP META-7:** By 2022, 50% of the SIGAP and other forms of conservation have been consolidated since their integration into the National System for the Conservation and Sustainable Use of Biological Diversity (SINADIBIO) and the country's territorial planning.
- **NBSAP META-8:** By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.*
- **NBSAP META-9:** By 2022, community business development based on the sustainable use of biological diversity and the fair and equitable distribution of the benefits derived from the use of biological resources and collective traditional knowledge will enable the economic and social development of the Guatemalan population.*

Commented [LP30]: Not relevant.

- **NBSAP META-10:** By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.*
- **NBSAP META-11:** By 2017, mechanisms for transforming the institutional framework for the management of biological diversity will be promoted, including the implementation of the political, legal and regulatory instruments necessary to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services, guaranteeing the fair and equitable distribution of benefits.
- **NBSAP META-12:** By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.
- **NBSAP META-13:** By 2022, the capacities of the actors and sectors will have been strengthened to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services.
- **NBSAP META-14:** By 2022, mechanisms will have been implemented to promote, develop and transfer collective scientific and traditional knowledge associated with biological diversity, and technological development will be promoted to improve its conservation and sustainable use.

AI-generated analysis on synergies and gaps

"The reviewed targets demonstrate a strong alignment with the Nature-Based Solution (NBS) category of ecosystem protection and connectivity, particularly through initiatives focused on forest conservation, restoration, and sustainable management. Synergies are evident in targets such as NDC META REA-1, which aims for significant forest coverage and management by women, and NDC META ZMC-1, which emphasizes the restoration of mangrove ecosystems with community participation. These targets collectively enhance biodiversity and ecosystem resilience, contributing to the overarching goals of the NBS category. Gaps could exist in the NDC and NBSAP targets concerning specific measures for habitat rewilding and invasive species management, which are not explicitly addressed. In addition, there is an opportunity to further align NBSAP META 7 and NDC META ZMC-3.1, as both refer to SIGAP. In addition NBSAP META 4 could be implemented in tandem with NDC META ZMC-3.2, as both could support a new protected area. "

Commented [LP31]: @Hanna Butsko - thanks for your help with these. I think these descriptions are decent for now - but for the next assessment - it would be helpful to compare for alignment more across the two categories of documents (NBSAPs and NDCs), rather than alignment within those documents or with the overall theme. So for example, the NDC targets do not need to align with the theme, but they do need to align ideally with the NBSAP targets. I'm sorry that wasn't clear.

Commented [LP32R31]: Also, could you ask the AI to be a bit softer in their tone - meaning instead of saying "gaps include", say "Gaps might include"?

Commented [LP33R31]: When talking about gaps, you could also add information on if the timelines for the various targets are different or if the quantitative targets are different.

Soil management

This includes increased soil organic carbon, reduced soil erosion, reduced soil salinization, reduced soil compaction, biochar application, improved cropland soil management, soil restoration, soil improvement, and sustainable intensification.

The AI model identified 10 targets that could relate to this nature-based solution category. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC UTCUTS-4**: Restoration of degraded areas. Increase in absorptions of 0.9443 million tons of CO2-eq by 2030.*
- **NDC META AGS-1**: By 2025, soil conservation measures have been implemented on an additional 19,500 hectares to those existing in the 2020 baseline.
- **NDC META AGS-5**: By 2025, at least 600 producers in the department of Petén implement best sustainable livestock practices on 13,500 hectares. These include silvopastoral systems, soil protection, pasture recovery, conservation of forest remnants, among others.
- **NDC META AGS-6**: By 2025, Guatemala will present at least one project proposal addressing the issue of sustainable livestock farming to international climate finance funds.
- **NDC META GRH-2**: By 2025, 50% of the basins in strategic sites of hydrological importance will have plans for the protection of the area and for sustainable management. These plans will focus on watersheds and land use planning with cultural relevance and a gender focus, according to the social context.*

Commented [LP34]: Of there's no mention of soil, Idk why this would be here.

NBSAP targets:

- **NBSAP META-5:** By 2022, 15% of biological diversity and its ecosystem services will have been restored, improving their capacities to adapt to climate change and contributing to the reduction of socio-environmental vulnerability.*
- **NBSAP META-8:** By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.*
- **NBSAP META-10:** By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.*
- **NBSAP META-12:** By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.*
- **NBSAP META-13:** By 2022, the capacities of the actors and sectors will have been strengthened to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services.*

AI-generated analysis on synergies and gaps

The analysis of the identified targets in relation to the Nature-Based Solution (NBS) of soil management reveals some alignment with the overarching goals of enhancing soil health and sustainability. Notably, targets such as NDC UTCUTS-4 and NDC META AGS-1 demonstrate significant synergies by focusing on restoration and conservation measures that directly contribute to increased soil organic carbon and reduced erosion. Additionally, NDC META AGS-5 and NDC META GRH-2 further reinforce these efforts by promoting sustainable livestock practices and watershed management, which are crucial for maintaining soil integrity.

However, there are gaps in the alignment, particularly with targets like NBSAP META-10 and NBSAP META-12, which, while relevant to biodiversity and ecosystem services, do not directly address specific soil management practices or outcomes. Distinct contributions emerge from NBSAP META-5 and NBSAP META-13, which emphasize the importance of enhancing biodiversity and ecosystem services, thus providing a unique perspective on the socio-environmental context of soil management.

Commented [LP35]: @Hanna Butsko - thanks for your help with these. I think these descriptions are decent for now - but for the next assessment - it would be helpful to compare for alignment more across the two categories of documents (NBSAPs and NDCs), rather than alignment within those documents or with the overall theme. So for example, the NDC targets do not need to align with the theme, but they do need to align ideally with the NBSAP targets. I'm sorry that wasn't clear.

Commented [LP36R35]: Also, could you ask the AI to be a bit softer in their tone - meaning instead of saying "gaps include", say "Gaps might include"?

Commented [LP37R35]: When talking about gaps, you could also add information on if the timelines for the various targets are different or if the quantitative targets are different.

Risk management and disaster prevention

This includes agricultural disaster management, fire management, reduced landslides and hazards, environmental risk monitoring, resource-based early warnings, reduced pollution, acidification prevention, disaster risk reduction and management in agriculture, risk sharing instruments, livelihood diversification, and management of urban sprawl.

The AI model identified 13 targets that could relate to this nature-based solution category. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC META REA-2:** By 2025, the rate of degradation due to forest fires will be reduced to 36,972 hectares per year, which constitutes a 5% improvement on the baseline rate. Forest fire prevention will be improved by addressing strategies related to cyclical problems from a social perspective. The area affected by forest fires will not exceed the limit of 20,000 hectares on average per year for the period 2021-2025.
- **NDC MEDIDA UTCUTS-2:** Reduction of forest degradation through fire prevention and control. Reduction of 0.12933 million tons of CO2-eq by 2030.
- **NDC META REA-4:** By 2025, the Ecosystem-based Adaptation (EbA) approach will be integrated into the strategic institutional instruments of government entities.*
- **NDC META AGS-3:** By 2025, a system for accessing climate information that disseminates the data generated by the Agroclimatic Technical Committees has been implemented and strengthened, through bulletins and an application that facilitates the updating of climate information for all users.*

- **NDC META AGS-5**: By 2025, at least 600 producers in the department of Petén implement best sustainable livestock practices on 13,500 hectares. These include silvopastoral systems, soil protection, pasture recovery, conservation of forest remnants, among others.*
- **NDC META GRH-2**: By 2025, 50% of the basins in strategic sites of hydrological importance will have plans for the protection of the area and for sustainable management. These plans will focus on watersheds and land use planning with cultural relevance and a gender focus, according to the social context.*
- **NDC META GRH-5**: By 2025, work will have begun on the creation of a national early warning system. To this end, all existing systems and those in the process of implementation will be mapped, which will serve as input for their integration at the national level.

NBSAP targets:

- **NBSAP META-5**: By 2022, 15% of biological diversity and its ecosystem services will have been restored, improving their capacities to adapt to climate change and contributing to the reduction of socio-environmental vulnerability.
- **NBSAP META-6**: By 2018, a technical and legal framework will be in place that will enable the implementation of international agreements related to risk management of modern biotechnology and invasive alien species.
- **NBSAP META-8**: By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.*
- **NBSAP META-9**: By 2022, community business development based on the sustainable use of biological diversity and the fair and equitable distribution of the benefits derived from the use of biological resources and collective traditional knowledge will enable the economic and social development of the Guatemalan population.*
- **NBSAP META-10:** By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.
- **NBSAP META-12**: By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.

AI-generated analysis on synergies and gaps

Commented [LP38]: @Hanna Butsko - thanks for your help with these. I think these descriptions are decent for now - but for the next assessment - it would be helpful to compare for alignment more across the two categories of documents (NBSAPs and NDCs), rather than alignment within those documents or with the overall theme. So for example, the NDC targets do not need to align with the theme, but they do need to align ideally with the NBSAP targets. I'm sorry that wasn't clear.

Commented [LP39R38]: Also, could you ask the AI to be a bit softer in their tone - meaning instead of saying "gaps include", say "Gaps might include"?

Commented [LP40R38]: When talking about gaps, you could also add information on if the timelines for the various targets are different or if the quantitative targets are different.

"The alignment between the identified targets and the Nature-Based Solution (NBS) category of risk management and disaster prevention is notably strong, with multiple targets addressing critical aspects of disaster risk reduction, environmental monitoring, and sustainable practices. Targets such as NDC META REA-2 and NDC META REA-4, focus on forest fire prevention and the integration of Ecosystem-based Adaptation (EbA) into government strategies, directly supporting the overarching goal of disaster risk management. Additionally, NDC META GRH-5's aim to create a national early warning system complements these efforts by enhancing preparedness and response capabilities. However, there are gaps, particularly with targets like NBSAP META-6 and NBSAP META-12, which, while important for biodiversity and sustainable development, do not directly address immediate disaster risk management needs. Overlaps exist in targets such as NDC META AGS-5 and NBSAP META-10, where both emphasize sustainable agricultural practices and their role in reducing vulnerability to climate change. "

Value chain management

This includes dietary changes, reducing food waste, reducing post-harvest losses, sustainable sourcing, improved food processing and retailing, improved energy use in food systems, reducing food loss, improved supply chain resilience, risk reduction and management in agriculture, risk sharing instruments, and management of urban sprawl.

The AI model identified 13 targets that could relate to this nature-based solution category. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC META AGS-5:** By 2025, at least 600 producers in the department of Petén implement best sustainable livestock practices on 13,500 hectares. These include silvopastoral systems, soil protection, pasture recovery, conservation of forest remnants, among others.
- **NDC META AGS-6:** By 2025, Guatemala will present at least one project proposal addressing the issue of sustainable livestock farming to international climate finance funds.
- **NDC MEDIDA AGR-1:** National strategy for sustainable low-emission cattle farming. 0.63 million tons of CO2-eq by 2030.
- **NDC MEDIDA RES-2:** Clean field project (NO GHG)

NBSAP targets:

- **NBSAP META-2:** By 2015, mechanisms have been implemented that allow for the valuation of biological diversity and its ecosystem services, considering it a national priority for integral intergenerational human development.*
- **NBSAP META-5:** By 2022, 15% of biological diversity and its ecosystem services will have been restored, improving their capacities to adapt to climate change and contributing to the reduction of socio-environmental vulnerability.*

- **NBSAP META-8:** By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.
- **NBSAP META-9:** By 2022, community business development based on the sustainable use of biological diversity and the fair and equitable distribution of the benefits derived from the use of biological resources and collective traditional knowledge will enable the economic and social development of the Guatemalan population.
- **NBSAP META-10:** By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.
- **NBSAP META-11:** By 2017, mechanisms for transforming the institutional framework for the management of biological diversity will be promoted, including the implementation of the political, legal and regulatory instruments necessary to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services, guaranteeing the fair and equitable distribution of benefits.
- **NBSAP META-12:** By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.
- **NBSAP META-13:** By 2022, the capacities of the actors and sectors will have been strengthened to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services.
- **NBSAP META-14:** By 2022, mechanisms will have been implemented to promote, develop and transfer collective scientific and traditional knowledge associated with biological diversity, and technological development will be promoted to improve its conservation and sustainable use.*

AI-generated analysis on synergies and gaps

"The reviewed targets appear to align well with the Nature-Based Solution (NBS) category of value chain management, particularly in promoting sustainable practices within livestock farming and enhancing biodiversity. Synergies are evident in targets such as NDC META AGS-5 and NDC MEDIDA AGR-1, which focus on implementing sustainable livestock practices and reducing emissions, thereby supporting the overall goal of sustainable food systems. Additionally, NBSAP META-9 and NBSAP META-10 emphasize community development and adaptation to climate change, reinforcing the importance of sustainable resource use in agricultural practices. Distinct contributions arise from targets like NBSAP META-12, which focuses on providing resources for sustainable development, highlighting the necessity of institutional support in the NBS category."

Commented [LP41]: @Hanna Butsko - thanks for your help with these. I think these descriptions are decent for now - but for the next assessment - it would be helpful to compare for alignment more across the two categories of documents (NBSAPs and NDCs), rather than alignment within those documents or with the overall theme. So for example, the NDC targets do not need to align with the theme, but they do need to align ideally with the NBSAP targets. I'm sorry that wasn't clear.

Commented [LP42R41]: Also, could you ask the AI to be a bit softer in their tone - meaning instead of saying "gaps include", say "Gaps might include"?

Commented [LP43R41]: When talking about gaps, you could also add information on if the timelines for the various targets are different or if the quantitative targets are different.

Commented [LP44]: @Hanna Butsko, note that these are categories of NBS, not necessarily NBS in themselves.

Nature-based carbon sequestration

This includes Bioenergy with Carbon Capture and Storage (BECCS), enhanced weathering of minerals, tree planting for carbon sequestration, afforestation, reforestation, proforestation, tree intercropping, silvopasture, restoring forests for carbon sequestration, and improve plantations for carbon storage.

The AI model identified 19 targets that could relate to this nature-based solution category. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC META REA-1:** By 2025, 32% of the national territory (3,479,124 ha) will be covered by forests and at least 30% of the forests under management will be tended by indigenous and non-indigenous women.
- **NDC MEDIDA UTCUTS-1:** Conservation, protection and sustainable management of forests. Reduction of 1.5452 million tons of CO2-eq by 2030.
- **NDC MEDIDA UTCUTS-3:** Establishment of forest plantations. Increase in absorptions of 0.1773 million tons of CO2-eq by 2030.
- **NDC MEDIDA UTCUTS-2**: Reduction of forest degradation through fire prevention and control. Reduction of 0.12933 million tons of CO2-eq by 2030.
- **NDC META REA-3**: By 2025, forest restoration and area under management has increased by 30,300 hectares through the modalities of “forest plantations”, “agroforestry systems” and “restoration of degraded forest land” of the forest incentive programs PROBOSQUE (26,900 hectares) and PINPEP (3,400 hectares).
- **NDC Sub-meta REA-3.1**: Increase the area under the “agroforestry systems” modality of the PROBOSQUE (7,587 hectares) and PINPEP (3,072 hectares) forestry incentive programs by 10,659 hectares.
- **NDC UTCUTS-4**: Restoration of degraded areas. Increase in absorptions of 0.9443 million tons of CO2-eq by 2030.
- **NDC META AGS-5**: By 2025, at least 600 producers in the department of Petén implement best sustainable livestock practices on 13,500 hectares. These include silvopastoral systems, soil protection, pasture recovery, conservation of forest remnants, among others.
- **NDC MEDIDA AGR-1**: National strategy for sustainable low-emission cattle farming. 0.63 million tons of CO2-eq by 2030
- **NDC META ZMC-1**: By 2025, at least 1500 hectares of mangrove ecosystems will be restored and reforested, with the full participation of local communities, indigenous and Garifuna peoples, and women's and youth groups.

- **NDC META GRH-4**: By 2025, there will be more than 3,000 hectares of restored riparian forests.
- **NDC MEDIDA RES-2**: Clean field project (NO GHG)

NBSAP targets:

- **NBSAP META-2:** By 2015, mechanisms have been implemented that allow for the valuation of biological diversity and its ecosystem services, considering it a national priority for integral intergenerational human development.*
- **NBSAP META-5:** By 2022, 15% of biological diversity and its ecosystem services will have been restored, improving their capacities to adapt to climate change and contributing to the reduction of socio-environmental vulnerability.*
- **NBSAP META-8:** By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.*
- **NBSAP META-10:** By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.*
- **NBSAP META-12:** By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.*
- **NBSAP META-13:** By 2022, the capacities of the actors and sectors will have been strengthened to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services.*
- **NBSAP META-14:** By 2022, mechanisms will have been implemented to promote, develop and transfer collective scientific and traditional knowledge associated with biological diversity, and technological development will be promoted to improve its conservation and sustainable use.*

AI-generated analysis on synergies and gaps

"The identified targets demonstrate a strong alignment with the Nature-Based Solution (NBS) category of nature-based carbon sequestration, particularly through initiatives focused on forest management, restoration, and sustainable agricultural practices. Synergies are evident in targets such as NDC META REA-1 and NDC MEDIDA UTCUTS-1, which emphasize forest coverage and sustainable management, directly contributing to carbon sequestration goals. Additionally, NDC META AGS-5 and NDC META ZMC-1 showcase integrated approaches that combine silvopastoral systems and mangrove restoration, further enhancing carbon absorption while promoting community engagement. However, some gaps could exist, particularly within the NBSAP targets, which can support carbon storage but do not specifically mention it."

Commented [LP45]: These ones about climate adaptation are less relevant.

Commented [LP46R45]: This is specifically about climate change mitigation and not adaptation.

Commented [LP47]: @Hanna Butsko - thanks for your help with these. I think these descriptions are decent for now - but for the next assessment - it would be helpful to compare for alignment more across the two categories of documents (NBSAPs and NDCs), rather than alignment within those documents or with the overall theme. So for example, the NDC targets do not need to align with the theme, but they do need to align ideally with the NBSAP targets. I'm sorry that wasn't clear.

Commented [LP48R47]: Also, could you ask the AI to be a bit softer in their tone - meaning instead of saying "gaps include", say "Gaps might include"?

Commented [LP49R47]: When talking about gaps, you could also add information on if the timelines for the various targets are different or if the quantitative targets are different.

3.2 Thematic alignment

This section explores important cross-cutting themes across targets. These themes, identified through a working group, represent common elements across policy types that can stimulate stakeholder conversation towards strong policy alignment. *However, countries are encouraged to propose additional themes that could be included for assessment as well, noting that this list is not definitive.*

Note that the analysis is structured to be more generous rather than restrictive when tagging targets under different themes in order to provide reviewers the opportunity to see all potential matches. This means that the existence of some false positives is likely. As such, a manual reviewer has put an asterisk (*) on targets that might not be relevant to encourage more review at the national level. In the feedback survey, countries are requested to provide information on if the assessment is too generous in certain areas.

Climate change adaptation and mitigation

This includes actions that help reduce vulnerability to the current or expected impacts of climate change and prevent global warming from reaching 1.5º Celsius about pre-industrial levels. This can include building flood defenses, switching to drought-resistant crops, blue carbon, reducing GHG emissions, using renewable energy, reducing carbon footprint, minimizing loss and damage, decarbonization, create carbon sinks, and conduct carbon removal or carbon capture.

The AI model identified 25 targets that could relate to this theme. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC META REA-1**: By 2025, 32% of the national territory (3,479,124 ha) will be covered by forests and at least 30% of the forests under management will be tended by indigenous and non-indigenous women.
- **NDC MEDIDA UTCUTS-1**: Conservation, protection and sustainable management of forests. Reduction of 1.5452 million tons of CO2-eq by 2030.
- **NDC MEDIDA UTCUTS-3**: Establishment of forest plantations. Increase in absorptions of 0.1773 million tons of CO2-eq by 2030.
- **NDC META REA-2**: By 2025, the rate of degradation due to forest fires will be reduced to 36,972 hectares per year, which constitutes a 5% improvement on the baseline rate. Forest fire prevention will be improved by addressing strategies related to cyclical

problems from a social perspective. The area affected by forest fires will not exceed the limit of 20,000 hectares on average per year for the period 2021-2025.

- **NDC MEDIDA UTCUTS-2**: Reduction of forest degradation through fire prevention and control. Reduction of 0.12933 million tons of CO2-eq by 2030.
- **NDC META REA-3**: By 2025, forest restoration and area under management has increased by 30,300 hectares through the modalities of "forest plantations", "agroforestry systems" and "restoration of degraded forest land" of the forest incentive programs PROBOSQUE (26,900 hectares) and PINPEP (3,400 hectares).
- **NDC UTCUTS-4**: Restoration of degraded areas. Increase in absorptions of 0.9443 million tons of CO2-eq by 2030.
- **NDC META REA-4**: By 2025, the Ecosystem-based Adaptation (EbA) approach will be integrated into the strategic institutional instruments of government entities
- **NDC MEDIDA ENE-1**: Increase the share of clean energy sources
- **NDC MEDIDA ENE-3**: Change in the energy matrix (NO GHG)
- **NDC META AGS-3**: By 2025, a system for accessing climate information that disseminates the data generated by the Agroclimatic Technical Committees has been implemented and strengthened, through bulletins and an application that facilitates the updating of climate information for all users.
- **NDC META AGS-5**: By 2025, at least 600 producers in the department of Petén implement best sustainable livestock practices on 13,500 hectares. These include silvopastoral systems, soil protection, pasture recovery, conservation of forest remnants, among others.
- **NDC META AGS-6**: By 2025, Guatemala will present at least one project proposal addressing the issue of sustainable livestock farming to international climate finance funds
- **NDC MEDIDA AGR-1**: National strategy for sustainable low-emission cattle farming. 0.63 million tons of CO2-eq by 2030
- **NDC META ZMC-1**: By 2025, at least 1500 hectares of mangrove ecosystems will be restored and reforested, with the full participation of local communities, indigenous and Garifuna peoples, and women's and youth groups.
- **NDC META GRH-2**: By 2025, 50% of the basins in strategic sites of hydrological importance will have plans for the protection of the area and for sustainable management. These plans will focus on watersheds and land use planning with cultural relevance and a gender focus, according to the social context.
- **NDC META GRH-4**: By 2025, there will be more than 3,000 hectares of restored riparian forests.
- **NDC MEDIDA RES-1**: Methane capture at the zone 3 landfill and its use for electricity generation.

- **NDC MEDIDA RES-2**: Clean field project (NO GHG)

NBSAP targets:

- **NBSAP META-4**: By 2022, at least 10% of coastal-marine ecosystems will be under some mechanism of sustainable use and/or conservation.*
- **NBSAP META-5**: By 2022, 15% of biological diversity and its ecosystem services will have been restored, improving their capacities to adapt to climate change and contributing to the reduction of socio-environmental vulnerability.
- **NBSAP META-8**: By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.*
- **NBSAP META-9**: By 2022, community business development based on the sustainable use of biological diversity and the fair and equitable distribution of the benefits derived from the use of biological resources and collective traditional knowledge will enable the economic and social development of the Guatemalan population.*
- **NBSAP META-10**: By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.
- **NBSAP META-12**: By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.*

AI-generated analysis on synergies and gaps

"The targets identified align significantly with the cross-cutting theme of climate change adaptation and mitigation, demonstrating a strong commitment to reducing vulnerability and preventing global warming. Synergies are evident in multiple targets aimed at forest conservation, restoration, and sustainable management, which collectively contribute to carbon sequestration and biodiversity enhancement. Additionally, the integration of Ecosystem-based Adaptation (EbA) approaches and the promotion of clean energy sources further reinforce the overarching goal of climate resilience. However, there may be gaps in the targets related to specific actions addressing the impacts of climate change on coastal and marine ecosystems, which do not appear to be covered. Synergies exist particularly in forest-related targets, where several initiatives aim to reduce CO2 emissions and enhance carbon absorption,. Distinct contributions include the focus on sustainable livestock practices and community engagement in mangrove restoration, highlighting the multifaceted approach needed to address climate challenges effectively."

Commented [LP55]: @Hanna Butsko - thanks for your help with these. I think these descriptions are decent for now - but for the next assessment - it would be helpful to compare for alignment more across the two categories of documents (NBSAPs and NDCs), rather than alignment within those documents or with the overall theme. So for example, the NDC targets do not need to align with the theme, but they do need to align ideally with the NBSAP targets. I'm sorry that wasn't clear.

Commented [LP56R55]: Also, could you ask the AI to be a bit softer in their tone - meaning instead of saying "gaps include", say "Gaps might include"?

Commented [LP57R55]: When talking about gaps, you could also add information on if the timelines for the various targets are different or if the quantitative targets are different.

Commented [LP58]: @Hanna Butsko note that this is no longer a NBS category, but a cross-cutting theme.

Desertification, drought, and land degradation

This includes actions to address desertification and the effects of drought, especially in arid, semi-arid and dry sub-humid areas. It also includes avoiding new degradation of land by maintaining

existing healthy land, reducing existing degradation by adopting sustainable land management practices, maintaining soil health, ramping up efforts to restore and return degraded lands to a natural or more productive state.

The AI model identified 17 targets that could relate to this theme. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC META REA-1**: By 2025, 32% of the national territory (3,479,124 ha) will be covered by forests and at least 30% of the forests under management will be tended by indigenous and non-indigenous women.*
- **NDC MEDIDA UTCUTS**: Reduction of forest degradation through fire prevention and control. Reduction of 0.12933 million tons of CO2-eq by 2030.
- **NDC META REA-3**: By 2025, forest restoration and area under management has increased by 30,300 hectares through the modalities of "forest plantations", "agroforestry systems" and "restoration of degraded forest land" of the forest incentive programs PROBOSQUE (26,900 hectares) and PINPEP (3,400 hectares).*
- **NDC Sub-meta REA-3.1**: Increase the area under the "agroforestry systems" modality of the PROBOSQUE (7,587 hectares) and PINPEP (3,072 hectares) forestry incentive programs by 10,659 hectares.
- **NDC UTCUTS-4**: Restoration of degraded areas. Increase in absorptions of 0.9443 million tons of CO2-eq by 2030.
- **NDC META REA-4**: By 2025, the Ecosystem-based Adaptation (EbA) approach will be integrated into the strategic institutional instruments of government entities.*
- **NDC META AGS-1**: By 2025, soil conservation measures have been implemented on an additional 19,500 hectares to those existing in the 2020 baseline.
- **NDC META AGS-5**: By 2025, at least 600 producers in the department of Petén implement best sustainable livestock practices on 13,500 hectares. These include silvopastoral systems, soil protection, pasture recovery, conservation of forest remnants, among others.
- **NDC META AGS-6**: By 2025, Guatemala will present at least one project proposal addressing the issue of sustainable livestock farming to international climate finance funds.*
- **NDC META ZMC-1**: By 2025, at least 1500 hectares of mangrove ecosystems will be restored and reforested, with the full participation of local communities, indigenous and Garifuna peoples, and women's and youth groups.*
- **NDC META GRH-2**: By 2025, 50% of the basins in strategic sites of hydrological importance will have plans for the protection of the area and for sustainable management. These

Commented [LP59]: Mangroves are the wrong ecosystem - so this seems incorrect.

plans will focus on watersheds and land use planning with cultural relevance and a gender focus, according to the social context.

- **NDC META GRH-4:** By 2025, there will be more than 3,000 hectares of restored riparian forests.*

NBSAP targets:

- **NBSAP META-5**: By 2022, 15% of biological diversity and its ecosystem services will have been restored, improving their capacities to adapt to climate change and contributing to the reduction of socio-environmental vulnerability.*
- **NBSAP META-8**: By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.*
- **NBSAP META-10**: By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.
- **NBSAP META-12:** By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.*
- **NBSAP META-13**: By 2022, the capacities of the actors and sectors will have been strengthened to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services.*

AI-generated analysis on synergies and gaps

"The reviewed targets demonstrate a moderate alignment with theme of desertification, drought, and land degradation. Several targets, particularly those focused on forest restoration (NDC META REA-3 and NDC UTCUTS-4), soil conservation (NDC META AGS-1), and the integration of Ecosystem-based Adaptation (NDC META REA-4), synergistically contribute to maintaining and restoring healthy land, thereby effectively combating land degradation and enhancing resilience against drought. However, land and land degradation do not appear to be directly mentioned in the NBSAP targets, posing a potential gap between these different policy targets ."

Commented [LP60]: @Hanna Butsko - thanks for your help with these. I think these descriptions are decent for now - but for the next assessment - it would be helpful to compare for alignment more across the two categories of documents (NBSAPs and NDCs), rather than alignment within those documents or with the overall theme. So for example, the NDC targets do not need to align with the theme, but they do need to align ideally with the NBSAP targets. I'm sorry that wasn't clear.

Commented [LP61R60]: Also, could you ask the AI to be a bit softer in their tone - meaning instead of saying "gaps include", say "Gaps might include"?

Commented [LP62R60]: When talking about gaps, you could also add information on if the timelines for the various targets are different or if the quantitative targets are different.

Species conservation and ecosystems

This includes halting human-induced extinction of species, sharing of genetic resources and their digital sequence information to ensure genetic diversity, and reducing human-wildlife conflict. This also includes ecosystem services and ecosystem-based adaptation across deserts, forests, grasslands, shrublands, tropical rainforests, oceans, coral reefs, lakes, marine coastal ecosystems, rivers, savanna, woodlands, sub-tropical, wetlands, and other biomes.

The AI model identified 28 targets that could relate to this theme. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC META REA-1**: By 2025, 32% of the national territory (3,479,124 ha) will be covered by forests and at least 30% of the forests under management will be tended by indigenous and non-indigenous women.
- **NDC MEDIDA UTCUTS-1**: Conservation, protection and sustainable management of forests. Reduction of 1.5452 million tons of CO2-eq by 2030.
- **NDC META REA-2**: By 2025, the rate of degradation due to forest fires will be reduced to 36,972 hectares per year, which constitutes a 5% improvement on the baseline rate. Forest fire prevention will be improved by addressing strategies related to cyclical problems from a social perspective. The area affected by forest fires will not exceed the limit of 20,000 hectares on average per year for the period 2021-2025.
- **NDC MEDIDA UTCUTS-2**: Reduction of forest degradation through fire prevention and control. Reduction of 0.12933 million tons of CO2-eq by 2030.
- **NDC META REA-3**: By 2025, forest restoration and area under management has increased by 30,300 hectares through the modalities of "forest plantations", "agroforestry systems" and "restoration of degraded forest land" of the forest incentive programs PROBOSQUE (26,900 hectares) and PINPEP (3,400 hectares).
- **NDC Sub-meta REA-3.1**: Increase the area under the "agroforestry systems" modality of the PROBOSQUE (7,587 hectares) and PINPEP (3,072 hectares) forestry incentive programs by 10,659 hectares.
- **NDC META REA-4**: By 2025, the Ecosystem-based Adaptation (EbA) approach will be integrated into the strategic institutional instruments of government entities.
- **NDC META AGS-5**: By 2025, at least 600 producers in the department of Petén implement best sustainable livestock practices on 13,500 hectares. These include silvopastoral systems, soil protection, pasture recovery, conservation of forest remnants, among others.
- **NDC META ZMC-1**: By 2025, at least 1500 hectares of mangrove ecosystems will be restored and reforested, with the full participation of local communities, indigenous and Garifuna peoples, and women's and youth groups.
- **NDC META ZMC-2**: By 2025, fisheries management with an ecosystem approach will be achieved in at least one of the country's main fisheries, that of sharks. This goal covers both industrial and artisanal levels, and includes the participation of men, women, young people and local communities.
- **NDC META ZMC-3.1**: By 2025, CONAP has approved the technical studies of at least two (2) new protected areas in the Pacific marine-coastal zone to be incorporated into the

Guatemalan System of Protected Areas (SIGAP). The technical studies will involve the participation and knowledge of women, men and local communities and will have a focus that guarantees their livelihoods.

- **NDC META ZMC-3.2**: By 2025, at least one (1) new protected area has been incorporated into the SIGAP in the Pacific coastal zone. This process will have been socialized with women, men and local communities.
- **NDC META GRH-2**: By 2025, 50% of the basins in strategic sites of hydrological importance will have plans for the protection of the area and for sustainable management. These plans will focus on watersheds and land use planning with cultural relevance and a gender focus, according to the social context.
- **NDC META GRH-4**: By 2025, there will be more than 3,000 hectares of restored riparian forests.

NBSAP targets:

- **NBSAP META-1**: By 2022, scientific knowledge and collective traditional knowledge associated with biological diversity, including that linked to genetic resources, are articulated and protected through the implementation of integrated research and systematization processes and legal or sui generis frameworks for protection.
- **NBSAP META-2**: By 2015, mechanisms have been implemented that allow for the valuation of biological diversity and its ecosystem services, considering it a national priority for integral intergenerational human development.
- **NBSAP META-3**: By 2022, it has been consolidated that the benefits derived from the use of collective traditional knowledge of Biological Diversity and its Ecosystem Services are distributed in a fair and equitable manner.
- **NBSAP META-4**: By 2022, at least 10% of coastal-marine ecosystems will be under some mechanism of sustainable use and/or conservation.
- **NBSAP META-5**: By 2022, 15% of biological diversity and its ecosystem services will have been restored, improving their capacities to adapt to climate change and contributing to the reduction of socio-environmental vulnerability.
- **NBSAP META-6**: By 2018, a technical and legal framework will be in place that will enable the implementation of international agreements related to risk management of modern biotechnology and invasive alien species.
- **NBSAP META-7**: By 2022, 50% of the SIGAP and other forms of conservation have been consolidated since their integration into the National System for the Conservation and Sustainable Use of Biological Diversity (SINADIBIO) and the country's territorial planning.
- **NBSAP META-8**: By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.

- **NBSAP META-9**: By 2022, community business development based on the sustainable use of biological diversity and the fair and equitable distribution of the benefits derived from the use of biological resources and collective traditional knowledge will enable the economic and social development of the Guatemalan population.
- **NBSAP META-10**: By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.
- **NBSAP META-11**: By 2017, mechanisms for transforming the institutional framework for the management of biological diversity will be promoted, including the implementation of the political, legal and regulatory instruments necessary to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services, guaranteeing the fair and equitable distribution of benefits.
- **NBSAP META-12**: By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.
- **NBSAP META-13**: By 2022, the capacities of the actors and sectors will have been strengthened to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services.
- **NBSAP META-14**: By 2022, mechanisms will have been implemented to promote, develop and transfer collective scientific and traditional knowledge associated with biological diversity, and technological development will be promoted to improve its conservation and sustainable use.

AI-generated analysis on synergies and gaps

"The reviewed targets demonstrate a strong alignment with the theme of species conservation and ecosystems, particularly in promoting sustainable management and restoration of diverse ecosystems. Synergies are evident in multiple targets aimed at forest conservation, restoration, and the integration of ecosystem-based adaptation, which collectively contribute to halting species extinction and enhancing ecosystem services. Additionally, targets focused on mangrove restoration and sustainable fisheries management further support the overarching theme of preserving biodiversity across various biomes. However, some gaps could exist, particularly in the explicit mention of genetic resource sharing and reducing human-wildlife conflict."

Gender equality

Commented [LP63]: @Hanna Butsko - thanks for your help with these. I think these descriptions are decent for now - but for the next assessment - it would be helpful to compare for alignment more across the two categories of documents (NBSAPs and NDCs), rather than alignment within those documents or with the overall theme. So for example, the NDC targets do not need to align with the theme, but they do need to align ideally with the NBSAP targets. I'm sorry that wasn't clear.

Commented [LP64R63]: Also, could you ask the AI to be a bit softer in their tone - meaning instead of saying "gaps include", say "Gaps might include"?

Commented [LP65R63]: When talking about gaps, you could also add information on if the timelines for the various targets are different or if the quantitative targets are different.

Commented [LP66]: @Hanna Butsko, an FYI that I have been deleting the line on direct contributions as countries do not need to aim to have targets to align with each cross-cutting theme. Instead, countries need targets that ideally align with each other. Let me know if you want to work shop together example assessments to feed into the GPT.

This includes gender mainstreaming, gender-responsive decision-making, ensuring women's rights and participation, reducing gender-based violence, and implementation of the KMGBF Gender Plan of Action, UNCCD Gender Action Plan, and the Lima work programme on gender.

The AI model identified 7 targets that could relate to this theme. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC META REA-1**: By 2025, 32% of the national territory (3,479,124 ha) will be covered by forests and at least 30% of the forests under management will be tended by indigenous and non-indigenous women.
- **NDC META ZMC-1**: By 2025, at least 1500 hectares of mangrove ecosystems will be restored and reforested, with the full participation of local communities, indigenous and Garifuna peoples, and women's and youth groups.
- **NDC META ZMC-2**: By 2025, fisheries management with an ecosystem approach will be achieved in at least one of the country's main fisheries, that of sharks. This goal covers both industrial and artisanal levels, and includes the participation of men, women, young people and local communities.
- **NDC META ZMC-3.1**: By 2025, CONAP has approved the technical studies of at least two (2) new protected areas in the Pacific marine-coastal zone to be incorporated into the Guatemalan System of Protected Areas (SIGAP). The technical studies will involve the participation and knowledge of women, men and local communities and will have a focus that guarantees their livelihoods.
- **NDC META ZMC-3.2**: By 2025, at least one (1) new protected area has been incorporated into the SIGAP in the Pacific coastal zone. This process will have been socialized with women, men and local communities.
- **NDC META GRH-1**: By 2025, in at least 35% of the country's basins, sub-basins and micro-basins, programs, plans, strategies and technical manuals for the integrated management of water resources at the territorial level have been implemented, respecting their governance, with a gender focus and cultural relevance.
- **NDC META GRH-2**: By 2025, 50% of the basins in strategic sites of hydrological importance will have plans for the protection of the area and for sustainable management. These plans will focus on watersheds and land use planning with cultural relevance and a gender focus, according to the social context.

NBSAP targets:

- There are no targets identified that relate to this theme.

AI-generated analysis on synergies and gaps

"The identified NDC targets demonstrate a strong alignment gender equality, including NDC META REA-1 and META ZMC-1, which prioritize the involvement of women in forest management and mangrove restoration, thereby promoting gender-responsive decision-making. Additionally, NDC META GRH-1 and GRH-2 highlight the integration of gender focus in water resource management, further enhancing the alignment with the NBS goal. However, the NBSAP targets do not appear to have the same focus on gender, as no targets were detected that relate to these cross-cutting theme. This could be an area of futher exploration at the national-level."

Commented [LP71]: @Hanna Butsko - thanks for your help with these. I think these descriptions are decent for now - but for the next assessment - it would be helpful to compare for alignment more across the two categories of documents (NBSAPs and NDCs), rather than alignment within those documents or with the overall theme. So for example, the NDC targets do not need to align with the theme, but they do need to align ideally with the NBSAP targets. I'm sorry that wasn't clear.

Commented [LP72R71]: Also, could you ask the AI to be a bit softer in their tone - meaning instead of saying "gaps include", say "Gaps might include"?

Commented [LP73R71]: When talking about gaps, you could also add information on if the timelines for the various targets are different or if the quantitative targets are different.

Commented [LP74]: @Hanna Butsko, for this one, I would say that there is no alignment between the NBSAP and the NDC targets, because there are no NBSAP targets related to gender. I think we need to refocus this analysis on how the targets across the policies relate to each other, rather than how the policies relate to the theme descriptions, as those are made up.

Capacity building and development

This includes technology transfer, education and learning, south-south exchange, knowledge sharing, scientific cooperation, developing communities of practice and task forces, access and benefit sharing (ABS) under the Nagoya Protocol, institutional strengthening, and the development of transparent monitoring and reporting systems.

The AI model identified 20 targets that could relate to this theme. A manual reviewer has added an asterisk to those that might be less relevant. These include:

NDC targets:

- **NDC META REA-1**: By 2025, 32% of the national territory (3,479,124 ha) will be covered by forests and at least 30% of the forests under management will be tended by indigenous and non-indigenous women.*
- **NDC META REA-4**: By 2025, the Ecosystem-based Adaptation (EbA) approach will be integrated into the strategic institutional instruments of government entities.
- **NDC META AGS-3**: By 2025, a system for accessing climate information that disseminates the data generated by the Agroclimatic Technical Committees has been implemented and strengthened, through bulletins and an application that facilitates the updating of climate information for all users.
- **NDC META AGS-5**: By 2025, at least 600 producers in the department of Petén implement best sustainable livestock practices on 13,500 hectares. These include silvopastoral systems, soil protection, pasture recovery, conservation of forest remnants, among others.
- **NDC META AGS-6**: By 2025, Guatemala will present at least one project proposal addressing the issue of sustainable livestock farming to international climate finance funds

- **NDC META ZMC-1**: By 2025, at least 1500 hectares of mangrove ecosystems will be restored and reforested, with the full participation of local communities, indigenous and Garifuna peoples, and women's and youth groups.*
- **NDC META ZMC-2**: By 2025, fisheries management with an ecosystem approach will be achieved in at least one of the country's main fisheries, that of sharks. This goal covers both industrial and artisanal levels, and includes the participation of men, women, young people and local communities.*
- **NDC META ZMC-3.1**: By 2025, CONAP has approved the technical studies of at least two (2) new protected areas in the Pacific marine-coastal zone to be incorporated into the Guatemalan System of Protected Areas (SIGAP). The technical studies will involve the participation and knowledge of women, men and local communities and will have a focus that guarantees their livelihoods.
- **NDC META ZMC-3.2**: By 2025, at least one (1) new protected area has been incorporated into the SIGAP in the Pacific coastal zone. This process will have been socialized with women, men and local communities.

NBSAP targets:

- **NBSAP META-1**: By 2022, scientific knowledge and collective traditional knowledge associated with biological diversity, including that linked to genetic resources, are articulated and protected through the implementation of integrated research and systematization processes and legal or sui generis frameworks for protection.
- **NBSAP META-2**: By 2015, mechanisms have been implemented that allow for the valuation of biological diversity and its ecosystem services, considering it a national priority for integral intergenerational human development.*
- **NBSAP META-3**: By 2022, it has been consolidated that the benefits derived from the use of collective traditional knowledge of Biological Diversity and its Ecosystem Services are distributed in a fair and equitable manner.
- **NBSAP META-5**: By 2022, 15% of biological diversity and its ecosystem services will have been restored, improving their capacities to adapt to climate change and contributing to the reduction of socio-environmental vulnerability.*
- **NBSAP META-8**: By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.*
- **NBSAP META-9**: By 2022, community business development based on the sustainable use of biological diversity and the fair and equitable distribution of the benefits derived from the use of biological resources and collective traditional knowledge will enable the economic and social development of the Guatemalan population.

- **NBSAP META-10**: By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.*
- **NBSAP META-11**: By 2017, mechanisms for transforming the institutional framework for the management of biological diversity will be promoted, including the implementation of the political, legal and regulatory instruments necessary to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services, guaranteeing the fair and equitable distribution of benefits.
- **NBSAP META-12**: By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.
- **NBSAP META-13**: By 2022, the capacities of the actors and sectors will have been strengthened to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services.
- **NBSAP META-14**: By 2022, mechanisms will have been implemented to promote, develop and transfer collective scientific and traditional knowledge associated with biological diversity, and technological development will be promoted to improve its conservation and sustainable use.

AI-generated analysis on synergies and gaps

"The identified targets appear to relate to the cross-cutting theme on capacity building and development, particularly in fostering community engagement and enhancing institutional frameworks. Synergies are evident in targets such as NDC META REA-4, which emphasizes the integration of Ecosystem-based Adaptation into government strategies, and NDC META ZMC-1, which focuses on restoring mangrove ecosystems with local community participation, thereby promoting knowledge sharing and collective action. Additionally, NBSAP META-14 highlights the importance of transferring scientific and traditional knowledge, further reinforcing the capacity building objective. However, there may be opportunities to include specific mechanisms for institutional strengthening and transparent monitoring systems, as some targets do not explicitly mention these elements. "

Commented [LP75]: @Hanna Butsko - thanks for your help with these. I think these descriptions are decent for now - but for the next assessment - it would be helpful to compare for alignment more across the two categories of documents (NBSAPs and NDCs), rather than alignment within those documents or with the overall theme. So for example, the NDC targets do not need to align with the theme, but they do need to align ideally with the NBSAP targets. I'm sorry that wasn't clear.

Commented [LP76R75]: Also, could you ask the AI to be a bit softer in their tone - meaning instead of saying "gaps include", say "Gaps might include"?

Commented [LP77R75]: When talking about gaps, you could also add information on if the timelines for the various targets are different or if the quantitative targets are different.

3.3 Quantitative information

Defining explicit numerical targets, such as safeguarding a specific percentage or number of terrestrial or marine ecosystems, is pivotal for establishing and monitoring progress toward clear conservation and climate benchmarks. Equally, assigning specific timelines for achieving these targets ensures a structured and time-sensitive approach, fostering a sense of urgency and facilitating systematic progress monitoring.

X% percentage of targets are quantitative and X% are time-bound. Of these, X number are NBSAP targets, X number are NDC targets, X number are NAP targets, and X number are LDN targets.

Examples of quantitative targets for X country include:

- X
- X

Annex

I. Learn More

For further reading and deeper insights into the topics covered in this pilot report, explore the following resources:

- Kunming-Montreal Global Biodiversity Framework (CBD)
- Paris Agreement (UNFCCC)
- UNDP Nature Pledge
- IPCC Special Report on Climate Change and Land
- UNEP Nature-Based Solutions for Climate
- Checklist for Synergies in NDCs, NAPs, and NBSAPs
- A Guide for Including Nature in Nationally Determined Contributions (Edition 2)
- Rio Conventions Joint Capacity-building Programme Infobrief: Synergies between Rio conventions: Context and key concepts
- Rio Conventions Joint Capacity-building Programme Infobrief: Integrated planning of strategies and policies
- UNDP Integrated Actions for Accelerated Impact

These resources offer detailed information, case studies, and actionable insights to further support alignment efforts.

II. National targets provided

NDC targets:

- NDC META REA-1: By 2025, 32% of the national territory (3,479,124 ha) will be covered by forests and at least 30% of the forests under management will be tended by indigenous and non-indigenous women.
- NDC MEDIDA UTCUTS-1: Conservation, protection and sustainable management of forests. Reduction of 1.5452 million tons of CO2-eq by 2030.
- NDC MEDIDA UTCUTS-3: Establishment of forest plantations. Increase in absorptions of 0.1773 million tons of CO2-eq by 2030.
- NDC META REA-2.: By 2025, the rate of degradation due to forest fires will be reduced to 36,972 hectares per year, which constitutes a 5% improvement on the baseline rate. Forest fire prevention will be improved by addressing strategies related to cyclical problems from a social perspective. The area affected by forest fires will not exceed the limit of 20,000 hectares on average per year for the period 2021-2025.

- NDC MEDIDA UTCUTS-2.: Reduction of forest degradation through fire prevention and control. Reduction of 0.12933 million tons of CO2-eq by 2030.
- NDC META REA-3.: By 2025, forest restoration and area under management has increased by 30,300 hectares through the modalities of “forest plantations”, “agroforestry systems” and “restoration of degraded forest land” of the forest incentive programs PROBOSQUE (26,900 hectares) and PINPEP (3,400 hectares).
- NDC Sub-meta REA-3.1: Increase the area under the “agroforestry systems” modality of the PROBOSQUE (7,587 hectares) and PINPEP (3,072 hectares) forestry incentive programs by 10,659 hectares.
- NDC UTCUTS-4.: Restoration of degraded areas. Increase in absorptions of 0.9443 million tons of CO2-eq by 2030.
- NDC META REA-4.: By 2025, the Ecosystem-based Adaptation (EbA) approach will be integrated into the strategic institutional instruments of government entities
- NDC MEDIDA ENE-1.: Increase the share of clean energy sources
- NDC MEDIDA ENE-3.: Change in the energy matrix (NO GHG)
- NDC MEDIDA ENE-2.: Sustainable mobility 2.1 Electro-mobility
- NDC MEDIDA ENE-2.: Sustainable mobility 2.2 Biofuels
- NDC META AGS-1.: By 2025, soil conservation measures have been implemented on an additional 19,500 hectares to those existing in the 2020 baseline.
- NDC META AGS-3.: By 2025, a system for accessing climate information that disseminates the data generated by the Agroclimatic Technical Committees has been implemented and strengthened, through bulletins and an application that facilitates the updating of climate information for all users.
- NDC META AGS-4.: By 2025, the irrigated agricultural area will be increased by at least 4,500 hectares.
- NDC META AGS-5.: By 2025, at least 600 producers in the department of Petén implement best sustainable livestock practices on 13,500 hectares. These include silvopastoral systems, soil protection, pasture recovery, conservation of forest remnants, among others.
- NDC META AGS-6.: By 2025, Guatemala will present at least one project proposal addressing the issue of sustainable livestock farming to international climate finance funds
- NDC MEDIDA AGR-1.: National strategy for sustainable low-emission cattle farming. 0.63 million tons of CO2-eq by 2030
- NDC META ZMC-1.: By 2025, at least 1500 hectares of mangrove ecosystems will be restored and reforested, with the full participation of local communities, indigenous and Garifuna peoples, and women's and youth groups.

- NDC META ZMC-2.: By 2025, fisheries management with an ecosystem approach will be achieved in at least one of the country's main fisheries, that of sharks. This goal covers both industrial and artisanal levels, and includes the participation of men, women, young people and local communities.
- NDC META ZMC-3.1: By 2025, CONAP has approved the technical studies of at least two (2) new protected areas in the Pacific marine-coastal zone to be incorporated into the Guatemalan System of Protected Areas (SIGAP). The technical studies will involve the participation and knowledge of women, men and local communities and will have a focus that guarantees their livelihoods.
- NDC META ZMC-3.2: By 2025, at least one (1) new protected area has been incorporated into the SIGAP in the Pacific coastal zone. This process will have been socialized with women, men and local communities.
- NDC META ZMC-4.: By 2025, Guatemala's reef health index (RHI) will remain at the same level as the 2020 baseline.
- NDC META GRH-1.: By 2025, in at least 35% of the country's basins, sub-basins and micro-basins, programs, plans, strategies and technical manuals for the integrated management of water resources at the territorial level have been implemented, respecting their governance, with a gender focus and cultural relevance.
- NDC META GRH-2.: By 2025, 50% of the basins in strategic sites of hydrological importance will have plans for the protection of the area and for sustainable management. These plans will focus on watersheds and land use planning with cultural relevance and a gender focus, according to the social context.
- NDC META GRH-3.: By 2025, the country's 38 river basins will have a guide for measuring quality and flow, and will allow for reporting on their status. Ten percent of the basins will have water quality and flow indices.
- NDC META GRH-4.: By 2025, there will be more than 3,000 hectares of restored riparian forests.
- NDC META GRH-5.: By 2025, work will have begun on the creation of a national early warning system. To this end, all existing systems and those in the process of implementation will be mapped, which will serve as input for their integration at the national level.
- NDC MEDIDA RES-1.: Methane capture at the zone 3 landfill and its use for electricity generation.
- NDC MEDIDA RES-2.: Clean field project (NO GHG)

NBSAP targets:

- NBSAP META-1: By 2022, scientific knowledge and collective traditional knowledge associated with biological diversity, including that linked to genetic resources, are

articulated and protected through the implementation of integrated research and systematization processes and legal or sui generis frameworks for protection.

- NBSAP META-2: By 2015, mechanisms have been implemented that allow for the valuation of biological diversity and its ecosystem services, considering it a national priority for integral intergenerational human development.
- NBSAP META-3: By 2022, it has been consolidated that the benefits derived from the use of collective traditional knowledge of Biological Diversity and its Ecosystem Services are distributed in a fair and equitable manner.
- NBSAP META-4: By 2022, at least 10% of coastal-marine ecosystems will be under some mechanism of sustainable use and/or conservation.
- NBSAP META-5: By 2022, 15% of biological diversity and its ecosystem services will have been restored, improving their capacities to adapt to climate change and contributing to the reduction of socio-environmental vulnerability.
- NBSAP META-6: By 2018, a technical and legal framework will be in place that will enable the implementation of international agreements related to risk management of modern biotechnology and invasive alien species.
- NBSAP META-7: By 2022, 50% of the SIGAP and other forms of conservation have been consolidated since their integration into the National System for the Conservation and Sustainable Use of Biological Diversity (SINADIBIO) and the country's territorial planning.
- NBSAP META-8: By 2022, mechanisms will have been put in place to achieve sustainability in the use of biological diversity and ecosystem services in all sectors and institutions of the State, as well as at the national, regional and municipal-local levels.
- NBSAP META-9: By 2022, community business development based on the sustainable use of biological diversity and the fair and equitable distribution of the benefits derived from the use of biological resources and collective traditional knowledge will enable the economic and social development of the Guatemalan population.
- NBSAP META-10: By 2018, mechanisms will have been developed to adapt to and reduce the socio-environmental vulnerability caused by the effects of climate change, in order to maintain the integrity of biological diversity and the functioning of its ecosystem services, as well as the livelihoods of the population.
- NBSAP META-11: By 2017, mechanisms for transforming the institutional framework for the management of biological diversity will be promoted, including the implementation of the political, legal and regulatory instruments necessary to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services, guaranteeing the fair and equitable distribution of benefits.
- NBSAP META-12: By 2022, the State of Guatemala will provide the human and financial resources necessary to maintain social and environmental viability and sustainable development that allows for the conservation and sustainable use of biological diversity.

- NBSAP META-13: By 2022, the capacities of the actors and sectors will have been strengthened to improve the knowledge, valuation, protection, conservation and sustainable use of biological diversity and its ecosystem services.
- NBSAP META-14: By 2022, mechanisms will have been implemented to promote, develop and transfer collective scientific and traditional knowledge associated with biological diversity, and technological development will be promoted to improve its conservation and sustainable use.

III. Methodology

Overview of the Analytical Approach

This assessment uses Large Language Models, specifically GPT-4o mini, and Natural Language Processing to identify synergies, overlaps, and gaps between a country's chosen targets. Four types of analysis are employed to provide an overview of alignment between relevant targets and understand the existence of quantitative and timebound measures. The pilot approaches were developed and refined based on feedback from a UNDP working group and introductory discussions with countries. Countries are invited to provide additional input to refine the approaches further.

Nature-Based Solutions

The objective of this analysis is to assess the integration of nature-based solutions across nature, climate, and land degradation policies.

Approach:

1. Identification of relevant nature-based solutions through a UNDP working group. These nature-based solutions were identified from the IPCC Special Report on Climate Change and Land and Natural Climate Solutions by Griscom et al.
2. Development of descriptions of each type of nature-based solution, as found below:

Nature-based solution category	Elaboration

Protection, management, and restoration of marine and coastal zones	This includes coastal zone risk retention (soft and hard structures), marine ecosystem service management, tidal salt marshes, sustainable coastal management, marine production promotion, coastal environment monitoring and risk assessment, disease management of marine resources, mangrove protection, coral reef protection, seagrass protection, marine protected areas, avoiding coastal impacts, restoring marine ecosystems, coastal wetland restoration, seagrass restoration, coral reef restoration, and mangrove restoration.
Agriculture and livestock management	This includes climate-resilient crops, climate-resilient livestock management, climate-smart agriculture, regenerative agriculture, crop diversification, integrated water management, grazing land management, agricultural soil management, post-harvest processing, sustainable intensification, agriculture and livestock disease management, agricultural education and consulting, increased food productivity, agroforestry, agricultural diversification, improved grazing land management, and reduced grassland conservation to cropland.
Water management	This includes catchment protection, watershed restoration, freshwater ecosystem restoration, integrated water resource management, maintaining sustainable water supply, securing water quality, water education and consulting, and monitoring of water resources, and service management of water ecosystems.
Forest management and protection	This includes natural forest management, improved plantations, sustainable forestry practices, agro-forestry, avoiding fuelwood harvest, preventing illegal logging, avoiding deforestation and forest degradation, fire management, REDD+, reforestation, afforestation, tree planting on degraded land, temperate and tropical forest restoration, forest carbon sink management, and monitoring forest changes.

Grassland management and protection	This includes avoiding grassland conversion, grassland protection, savanna protection, avoiding shrubland conversion, sustainable grazing, optimal grazing intensity, conservation agriculture, grassland restoration, savanna restoration, degraded land restoration, tree intercropping, land conservation, and avoiding desertification.
Protection and restoration of wetlands and freshwater ecosystems	This includes wetland protection, peatland rewetting, avoiding peat impacts, freshwater ecosystem protection, wetland management, service management of freshwater ecosystems, peatland restoration, dune restoration, freshwater ecosystem restoration, catchment restoration, watershed protection, restoration and reduced conversion of coastal wetlands, restoration and reduced conversion of peatlands.
Ecosystem protection and connectivity	This includes establishing protected areas, community reserves, wildlife corridors, restore pollinator habitats, prevent species extinction, habitat rewilding, restricting invasive species, ecosystem change detection, other effective conservation measures (OECM), and increased connectivity between protected areas.
Soil management	This includes increased soil organic carbon, reduced soil erosion, reduced soil salinization, reduced soil compaction, biochar application, improved cropland soil management, soil restoration, soil improvement, and sustainable intensification.
Risk management and disaster prevention	This includes agricultural disaster management, fire management, reduced landslides and hazards, environmental risk monitoring, resource-based early warnings, reduced pollution, acidification prevention, disaster risk reduction and management in agriculture, risk sharing instruments, livelihood diversification, and management of urban sprawl.
Value chain management	This includes dietary changes, reducing food waste, reducing post-harvest losses, sustainable sourcing, improved food processing and retailing, improved energy use in food systems, reducing food loss, and improved supply chain resilience.

Nature-based carbon sequestration	This includes Bioenergy with Carbon Capture and Storage (BECCS), enhanced weathering of minerals, tree planting for carbon sequestration, afforestation, reforestation, proforestation, tree intercropping, silvopasture, restore forests for carbon sequestration, and improved plantations for carbon storage.

3. Data cleaning by replacing acronyms with their full text and removing country names from the data set.
4. Application of the GPT-4o mini model on UNDP's secure Azure account to assess whether these nature-based solutions are represented in each of the climate and land degradation targets.
5. Review of model output for accuracy and made adjustments where necessary.

Cross-cutting themes

The objective is to identify where seven additional themes are found across targets. These themes represent common elements across both policy types that can stimulate stakeholder conversation towards strong policy alignment.

Approach:

1. Identification of relevant themes pertaining to the Rio Conventions through a UNDP working group and discussions with countries.
2. Developed descriptions of each theme, as found below:

Themes	Elaboration of each theme
Climate change adaptation and mitigation	This includes actions that help reduce vulnerability to the current or expected impacts of climate change and prevent global warming from reaching 1.5º Celsius about pre-industrial levels. This can include building flood defenses, switching to drought-resistant crops, blue carbon, reducing GHG emissions, using renewable energy, reducing carbon footprint, minimizing loss and damage, decarbonization, create carbon sinks, and conduct carbon removal or carbon capture.

Desertification, drought, and land degradation	This includes actions to address desertification and the effects of drought, especially in arid, semi-arid and dry sub-humid areas. It also includes avoiding new degradation of land by maintaining existing healthy land, reducing existing degradation by adopting sustainable land management practices, maintaining soil health, ramping up efforts to restore and return degraded lands to a natural or more productive state.
Species conservation and ecosystems	This includes halting human-induced extinction of species, sharing of genetic resources and their digital sequence information to ensure genetic diversity, and reducing human-wildlife conflict. This also includes ecosystem services and ecosystem-based adaptation across deserts, forests, grasslands, shrublands, tropical rainforests, oceans, coral reefs, lakes, marine coastal ecosystems, rivers, savanna, woodlands, sub-tropical, wetlands, and other biomes.
Agriculture, Forestry, and Other Land Use (AFOLU)	This includes reforestation, afforestation and forest restoration, sustainable forest management, enhancement of forest carbon stocks, reduce deforestation, REDD+, land management, agroforestry, and improved soil carbon sequestration.
Pollution	This includes improved waste management, reduced industrial pollution, reduced nutrient loss, reduced single-use plastics, reduced air pollution, sustainable consumption, and reduced pesticide and chemical risk.
Gender equality	This includes gender mainstreaming, gender-responsive decision-making, ensuring women's rights and participation, reducing gender-based violence, and implementation of the KMGBF Gender Plan of Action, UNCCD Gender Action Plan, and the Lima work programme on gender.
Capacity building and development	This includes technology transfer, education and learning, south-south exchange, knowledge sharing, scientific cooperation, developing communities of practice and task forces, access and benefit sharing (ABS) under the Nagoya Protocol, institutional strengthening, and the development of transparent monitoring and reporting systems.

Commented [LP83]: @Monica Moldovan , do you happen to have any edits to this section? This is the description that the AI uses to tag different targets as relevant to the theme. Thanks!

3. Undertake data cleaning by replacing acronyms with their full text and removing country names from the data set.
4. Apply the GPT-4o mini model on UNDP's secure Azure account to assess whether these themes are represented in each of the targets
5. Review model output for accuracy and make adjustments where necessary.

Commented [HB84]: this is repeated 4 times on the last few pages. Is there a way to remove redundancy?

Commented [LP85R84]: I can't think of any eloquent ways to do so. BTW you may want to add something in about the summaries you produced as well.