

WORKING PAPER 282

Taking stock of Nature-Based Solutions (NBS)

An analysis of global NBS submissions to the United Nations Climate Action Summit in September 2019

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Executive Summary

In recent years, the concept of “nature-based solutions” (NBS) has seen increasing emphasis as a means of realizing transformative change for climate change mitigation and adaptation, environmental conservation, and sustainable development. As defined by the International Union for Conservation of Nature (IUCN), NBS are “actions to protect, sustainably manage and restore natural or modified ecosystems, which address societal challenges...effectively and adaptively, while simultaneously providing human well-being and biodiversity benefits” (Cohen-Shacham et al. 2016: xii). The promise of NBS to achieve wide-ranging natural and societal benefits, as well as their evident cost efficiency in relying on existing ecosystems, has spurred widespread policy uptake by government agencies and non-profit organizations. Despite the potential of NBS, however, the emerging diversity of their modes of operation and sites of application suggests that an assessment of existing and proposed NBS can contribute much to improved understandings of the breadth, nature and potential impact of nature-based solutions.

This report provides such an initial assessment of NBS through an analysis of 187 NBS proposals submitted to the United Nations Climate Action Summit, convened in New York in September 2019. Co-led by China and New Zealand, the Nature-Based Solutions Coalition issued a global call for contributions that would serve as examples of good practice with high potential impact to inform the enhancement and scaling-up of NBS. This present report evaluates eight principal features of the collected NBS submissions, as follows: (1) nature of proposing organization(s); (2) geographic distribution; (3) target ecosystems; (4) target sectors of intervention; (5) nature of proposed activities; (6) incorporation (if any) of safeguards in design and implementation, transparency in communication strategies, and plans for monitoring and stewardship of proposed activities; (7) how contributions define themselves as nature-based solutions; and (8) potential to catalyse transformational change to attain climate change mitigation and adaptation objectives.

Our analysis finds nearly 30% (n= 54) of submissions come from the People’s Republic of China, followed by 6.4% (n=12) of submissions from the United States; all other contributing countries are represented by three or fewer submissions each. Governmental bodies authored more submissions than any other type of organization (39%; n=73) with the majority of these contributions originating from China. Non-governmental organizations, networks (i.e., coalitions of individual organizations), and UN and other multilateral organizations contributed the majority of remaining submissions. Forests, cultivated landscapes, and marine and coastal regions comprise the main ecosystems of interest, and nearly half of all submissions consist of interventions in ecosystem conservation and restoration and promotion of sustainable agriculture and food systems. With regard to the specific nature of interventions, there is significant emphasis on technological change and innovation, followed by more conventional ecosystem conservation and restoration activities.

Our analysis identifies significant concerns for the design and implementation of NBS interventions, while noting that the abbreviated format of the submissions may have led to the exclusion of pertinent information. First, the majority of submissions fail to provide adequate information on intervention safeguards, transparency, and monitoring activities. This oversight raises questions regarding the potential for adverse impacts during implementation, as well as the ability – or lack thereof – to ascertain impacts on baseline or business-as-usual conditions. Second, only four submissions provided comprehensive explanations of how their proposed contribution comprises a nature-based solution for climate change adaptation and mitigation. This lack of conceptual clarity regarding NBS may reflect the novelty of the approach, but also raises questions for its ongoing operationalization as a coherent body of practice. Indeed, many submissions take the form of discrete project proposals, rather than interventions conceived in the holistic manner of ecosystem-based or landscape-scale approaches.

Finally, our analysis identified only 28 contributions as having high transformational potential in their sectors of intervention, with transformational potential assessed on the basis of the scale, speed, sustainability and depth of proposed change. This evaluation is qualified by the observation that high transformational potential does not necessarily correspond to an equivalent degree of feasibility, and may not even correlate with well-defined nature-based solutions. However, our findings do suggest that submissions with both high transformational potential and a high likelihood of success are often smaller-scale contributions adapted to their site of implementation, such that interventions are tailored to the particular features and requirements of target populations and ecosystems. Nonetheless, this raises questions of whether NBS will be able to attain the scale and depth necessary to meet expectations for their sustained and transformational impact.

1 Introduction

In recent years, the concept of “nature-based solutions” (NBS) has seen increasing emphasis as a means of realizing transformative change for climate change mitigation and adaptation objectives (Cohen-Shacham et al. 2016; Griscom et al. 2017; Maes and Jacobs 2017; Seddon et al. 2020b), as well as enhancing the provision of ecosystem services, contributing to biodiversity conservation, and supporting sustainable development more generally (Keesstra et al. 2018; Malhi et al. 2020; Seddon et al. 2020a). While the European Commission broadly defines NBS as solutions to societal challenges “that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience”¹ (European Commission 2020), the International Union for Conservation of Nature (IUCN) defines NBS more narrowly as “actions to protect, sustainably manage and restore natural or modified ecosystems, which address societal challenges...effectively and adaptively, while simultaneously providing human well-being and biodiversity benefits” (Cohen-Shacham et al. 2016: xii). As such, NBS include existing landscape approaches that emphasize the importance of resilient natural ecosystems and their provision of diverse environmental services across multiple scales (Nesshöver et al. 2017; Cohen-Shacham et al. 2019; Seddon et al. 2020b). Indeed, it should be underscored that NBS do not necessarily refer to new interventions, but rather serve as an overarching framework to mobilize actionable commitments for the principles and practices encompassed by the term.

In this manner, Cohen-Shacham et al. (2019: 22) present NBS as an “umbrella concept” for a wide range of ecosystem-based approaches, organized into the following five categories:

Category	Interventions
<i>Restorative</i>	Ecological restoration; Forest landscape restoration; Ecological engineering
<i>Issue-specific</i>	Ecosystem-based adaptation; Ecosystem-based mitigation; Ecosystem-based disaster risk reduction; Climate adaptation services
<i>Infrastructure</i>	Natural infrastructure; Green infrastructure
<i>Management</i>	Integrated coastal zone management; Integrated water resources
<i>Protection</i>	Area-based conservation approaches, including protected area management

As evidenced above, NBS refer to a diversity of interventions that operate across a multitude of scales and targets. In addition to the variation across NBS interventions, Seddon et al. (2020a) further note significant differences in the extent to which individual NBS support biodiversity, and the degree to which they are designed and implemented by local communities; attention to these two latter aspects is argued to be critical for the resilience and sustainability of NBS. Of course, these considerations are also included in a list of NBS principles formulated by IUCN and its Commission on Ecosystem Management (CEM) (adapted from Cohen-Shacham et al. 2019: 23–24):

Principle 1: NBS embrace nature conservation norms (and principles).

Principle 2: NBS can be implemented alone or in an integrated manner with other solutions to societal challenges (e.g., technological and engineering solutions).

¹ Note that an earlier EU definition was more expansive in describing the relationship between NBS and natural ecosystems, where NBS are “actions which are inspired by, supported by or copied from nature” that “aim to help societies address a variety of environmental, social and economic challenges in sustainable ways” (European Commission 2015: 5).

- Principle 3:* NBS are determined by site-specific natural and cultural contexts that include traditional, local and scientific knowledge.
- Principle 4:* NBS produce societal benefits in a fair and equitable way in a manner that promotes transparency and broad participation.
- Principle 5:* NBS maintain biological and cultural diversity and the ability of ecosystems to evolve over time.
- Principle 6:* NBS are applied at a landscape scale.
- Principle 7:* NBS recognize and address the trade-offs between the production of a few immediate economic benefits for development, and future options for the production of the full range of ecosystem services.
- Principle 8:* NBS are an integral part of the overall design of policies, and measures or actions, to address a specific challenge.

The apparent capacity of NBS to achieve multiple and wide-ranging objectives for natural and human well-being, with the additional promise of cost efficiency due to their reliance on existing natural ecosystems, has meant that the concept of NBS has already seen significant policy uptake. The European Union has committed to NBS as a priority area of its Horizon 2020 research and innovation programme with a particular focus on urban sustainability, and is funding large-scale NBS demonstration projects for climate and water resilience and urban regeneration across European cities (European Commission 2016, Raymond et al. 2017). More recently, the occasion of the United Nations Climate Action Summit, convened in New York in September 2019, prompted the creation of a Nature-Based Solutions Coalition to identify transformative propositions to address climate change and sustainable development goals (UNEP 2019a). Co-led by China and New Zealand, the Coalition issued a global call for contributions that would serve as examples of good practices with high potential impact, so as to further inform the enhancement and scaling-up of NBS (UNEP 2019a, UNEP 2019b).

Despite the promise of NBS in promoting integrated approaches to complex societal and environmental challenges, the diversity of their modes of operation and sites of application suggests that an assessment of existing and proposed NBS can contribute much to improved understandings of the breadth, nature and potential impact of nature-based solutions. This present report thus explores the variations and potential convergences in approaches to NBS through an analysis of 187 proposals submitted to the Nature-Based Solutions Coalition², taken here as an illustrative sample of global NBS interventions that primarily address climate change adaptation and mitigation goals (see Annex 1 for a full list of submissions). Eight principal features of these submissions are examined: (1) the nature of proposing organization(s); (2) their geographic distribution; (3) target ecosystems; (4) target sectors of intervention; (5) the nature of proposed activities; (6) incorporation (if any) of safeguards in design and implementation, transparency in communication strategies, and plans for monitoring and stewardship of proposed activities; (7) how contributions define themselves as nature-based solutions; and (8) potential to catalyse transformational change to attain climate change mitigation and adaptation objectives.

By transformational change, we refer to a “movement away from the current status, business-as-usual regime or behaviour, and an opening of new pathways” (Atmadja et al. 2021: vi) that is further

² While a total of 195 submissions were documented on the United Nations Environmental Programme (UNEP) Nature-Based Solutions contributions platform, eight chose not to make their submission materials publicly available (see Annex 1 for a list of unavailable submissions).

characterized by a commitment to sustained change, the targeting of root causes and relationships, and a fundamental reliance on knowledge as a driver and indicator of change (Ibid). Noting the analytical challenges of assessing transformational change across diverse interventions, particularly on the basis of limited information, we nonetheless use the four key parameters of scale, speed, sustainability and depth of proposed change as guidelines in our consideration of the transformational potential of NBS proposals. While depth of change is difficult to ascertain, and even more so on *a priori* basis, we base our evaluations of this parameter upon Atmadja et al.'s (2021) definition to consider the degree to which proposals seek movement away from existing status, target root causes and relationships, and integrate knowledge and learning in proposed activities. Further information on this evaluation process is presented in Section 9.

As the Nature-Based Solutions Coalition requested the submission of summaries rather than full proposals (see Annex 2 for submission guidelines), and with the intended forum being one of communication rather than funding purposes, these submissions provide only a limited overview of the current state of thinking and implementation on nature-based solutions. Nonetheless, the diversity of NBS encompassed in these submissions, ranging in scope, sector and mechanism of action, offers both insights into the potential range of an emerging body of practice, as well as the divergences in conceptualization that may challenge the operationalization of NBS as a coherent and cohesive approach for transformative change. Indeed, our analysis raises key questions regarding the nature of transformative change for climate change mitigation and adaptation, and asks if the achievements of scale and speed may not be quite compatible, or else take secondary precedence, to the realization of far-reaching (i.e., deeply transformational) and sustainable change.

2 Contributing organizations

Submissions were received, in descending order, from government bodies, NGOs, networks (i.e., coalitions and alliances, as defined by the submitting organization), UN or other multilateral organizations, the private sector, academic institutions, and private foundations (Table 1). Jointly authored contributions were also submitted, although where a single organization was clearly the lead partner, only the nature of this organization was recorded. Individual organizations frequently submitted multiple contributions, with the government ministries and agencies of the People’s Republic of China representing the single largest source of submissions with 50 contributions. There is also a notable number of submissions from the Climate Land Ambition and Rights Alliance – CLARA (10), the World Wildlife Fund – WWF (9), and the Food and Agriculture Organization – FAO (7). No other organization submitted more than two contributions each, and these four aforementioned organizations (including the government of the People’s Republic of China) account for 41% of all submissions.

Table 1. Nature of contributing organizations

Type of organization	No. of contributions
Government body	73
NGO	34
Network (coalition, alliance, etc.)	26
UN or other multilateral organization	22
Private sector	12
Academic institution	3
Private foundation	1
Multiple organizations	8
Other	8

3 Geographic distribution

Submissions were categorized according to the location of submitting organization(s), with a total of 34 countries represented across the 187 submissions (Figure 1, Table 2). Seven submissions come from organizations based across multiple countries, while 63 submissions do not specify a country of origin (often in the case of international NGOs and UN and multilateral agencies). The greatest number of submissions comes from the People’s Republic of China (54), distantly followed by the United States (12); all other named countries submitted three or fewer contributions each.

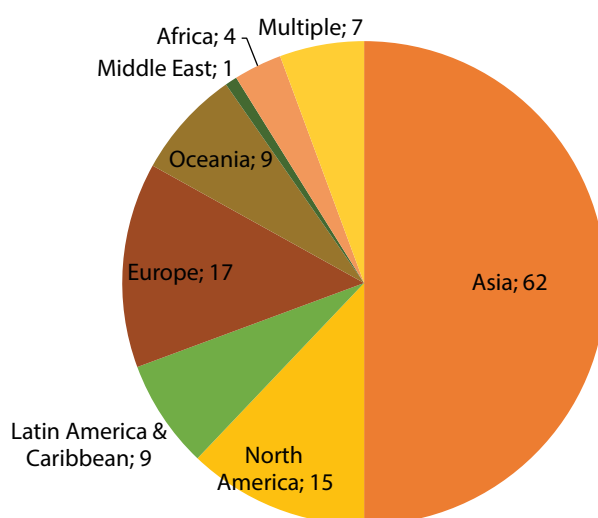


Figure 1. Contributions by region of submission (63 N/As are not included)

Table 2. Contributions by country of submission

Submitting country	No. of contributions (per country named)
China	54
United States	12
Brazil, Canada, Monaco, New Zealand, Papua New Guinea	3
Belgium, Colombia, Fiji, Iceland, India, Indonesia, Poland, Switzerland, United Kingdom	2
Australia, Costa Rica, Ecuador, El Salvador, France, Grenada, Israel, Japan, Liberia, Morocco, Nepal, Netherlands, Nigeria, Norway, Pakistan, Portugal, Singapore, South Africa	1
Multiple submitting countries	7
N/A	63

On the other hand, the distribution of target regions (Figure 2) shows that the majority of contributions are designed to be implemented across multiple countries (84). China remains the single country with the greatest number of target contributions (39), comprising 85% of all contributions targeting Asian countries (Table 3). While there are 46 contributions located in Asia, Latin America and the Caribbean sees 11 contributions, with Brazil being the target of four contributions alone, followed by Oceania

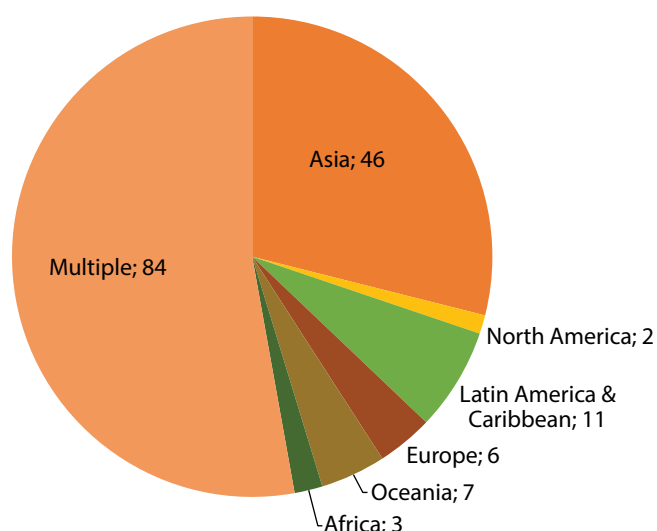


Figure 2. Contributions by target region (28 N/As are not included)

Table 3. Contributions by target countries

Targeted countries	No. of contributions (per country named)
China	39
Brazil	4
Papua New Guinea	3
Colombia, Fiji, India, Monaco, New Zealand	2
Bolivia, Canada, Ecuador, Grenada, Honduras, Indonesia, Japan, Liberia, Malaysia, Morocco, Nepal, Nigeria, Pakistan, Peru, Poland, Portugal, Slovakia, United Kingdom, United States	1
Multiple target countries	84
N/A	28

(7), Europe (6), Africa (3) and North America (2). Papua New Guinea is the site of three contributions, while all other named countries saw two or fewer contributions each. 28 submissions do not specify a location for the implementation of their contribution. In reviewing the distribution of target countries, however, it is also necessary to take into consideration multiple submissions that appear to describe either the same intervention or otherwise different elements of an overarching programme (see Annex 3), which may contribute to an inflated accounting of certain countries. There are also multiple contributions that appear to describe broadly similar interventions (see Annex 4).

The divergences in regional representation that emerge in this comparison of submitting countries and target countries attest to incongruities between the sources of NBS and their eventual destinations. The significant representation of European and North American countries among submitting countries (Table 2) and their minor presence among target countries (Table 3) suggest that a considerable number of NBS are conceived far from their sites of implementation. China is a notable exception to this trend, where projects proposed by China-based organizations either take place in the same country or across multiple countries. At the same time, the underrepresentation of Africa among both submitting and target countries is noteworthy, although there may be African countries included in programmes implemented across multiple countries. Of course, the large number of NBS submissions that are to be enacted across multiple countries raises questions of the scaling up of NBS interventions, and whether approaches are appropriately designed for their specific contexts.

4 Target ecosystems

In order to assess the range and nature of ecosystems targeted by the proposed NBS contributions, a typology of 12 generalized ecosystem types was created based on the Millennium Ecosystem Assessment framework, comprising marine, coastal, inland water, forest, dryland, island, mountain, polar, cultivated and urban regions (see Millenium Ecosystem Assessment 2003). For the purposes of this analysis, watersheds and wetlands were added to reflect the exact ecosystem categories used in constituent submissions.

Forests (33), cultivated landscapes (19), marine (18) and coastal regions (12) comprise the main areas of focus among contributions that specified a target ecosystem for their intervention (Figure 3). Alternately, island, mountain and polar ecosystems see the fewest number of targeted interventions, with only one submission each. It should be noted, however, that there may be categorical overlaps between coastal, marine and island ecosystems, as well as between watersheds, forests and inland water systems.

Of course, a significant number of submissions (57, or 30%) did not specify any target ecosystem for their intervention, and 11 submissions named multiple ecosystems of interest. As nominally nature-based solutions, this omission of those ecosystems that should constitute the foundation of climate change mitigation and adaptation measures raises questions of their qualification as NBS. Indeed, an examination of submissions that do not name a target ecosystem finds a number of proposals for capacity building and/or technical support to aid the design and implementation of future NBS (#27, 97, 98, 103, 113, 161), as well as general declarations of support for NBS by government, civil society and private sector actors (#32, 44, 93, 95, 96, 141, 155). A number of proposals advocate for the widespread establishment and improved management of protected areas (#92, 108, 129, 130, 131, 135, 159) as well as generalized tree planting activities (#85, 94, 112, 170, 188, 189), both with little consideration of the particular environments in which these activities are to be implemented (see Section 6 for further discussion on the specific activities proposed by the 187 submissions).

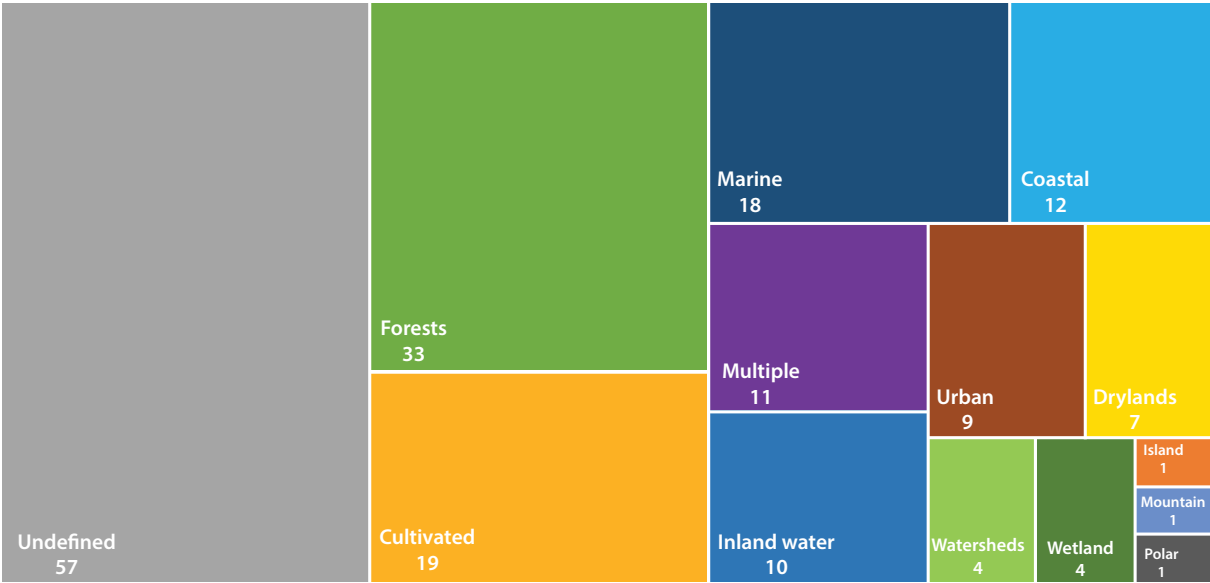


Figure 3. Contributions by target ecosystem

5 Target sectors of intervention

In this analysis, we draw upon Cohen-Shacham et al.’s (2019) organization of NBS under the categories of restorative, issue-specific, infrastructure, management and protection interventions. However, we find that these categories may lead to the conflation of the broad objectives of NBS (i.e., restoration, protection) with the manner of their implementation (i.e., management, infrastructure), as well as with a particular sector of intervention (i.e., infrastructure, protection). The category of “issue-specific approaches” would also seem to provide little thematic guidance as to the nature of constituent activities. Thus, we expand and reinterpret these categories as “target sectors of intervention”, defined as those sectors that NBS contributions seek to change or within which they operate. We also carry out detailed consideration of the particular activities proposed by each submission (see Section 6).

Based on an initial review of 30 randomly selected submissions, we listed nine target sectors of intervention, and included two additional categories for (a) contributions targeting other unnamed sectors, and (b) those contributions for which no specific sector was or could be defined (Figure 4; see Annex 5 for operational definitions for each of these sectors). While these nine target sectors also include the categories of restoration, infrastructure and protection³ proposed by Cohen-Shacham et al. (2019), the addition of agriculture and food systems, energy, forestry, education, industry/private sector and governance reflect the broad range of sectors targeted by the NBS submissions. Indeed, nearly half of all submissions (92, or 49%) fall within the three primary sectors of conservation, ecosystem restoration, and agriculture and food systems.

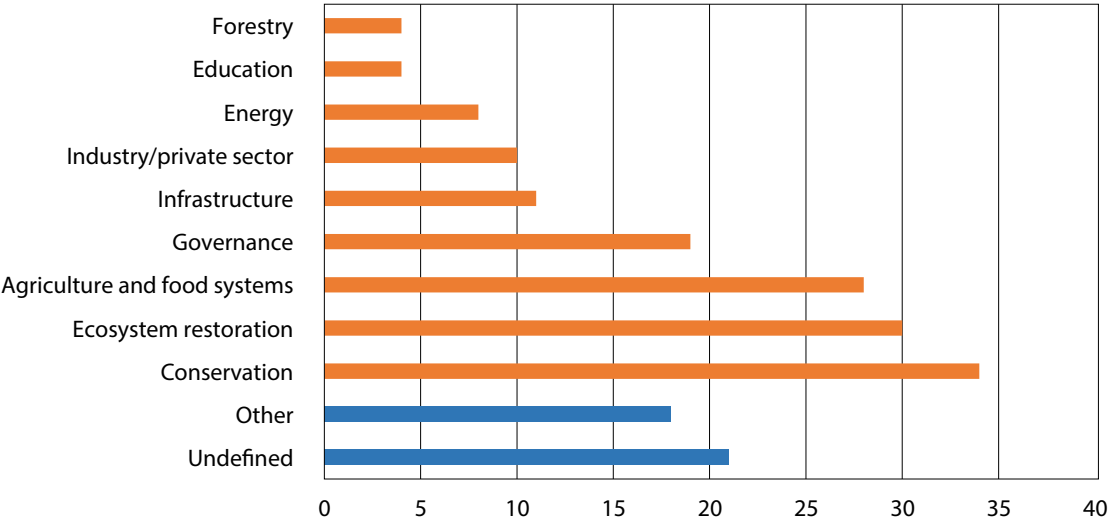


Figure 4. Target sectors of intervention

³ In this analysis, ‘conservation’ is used in place of ‘protection’, but comprises the same activities.

6 Principal activities

In order to further account for the nature of activities proposed by each submission within their target sectors of intervention, a typology of 10 categories of principal activities was developed during the initial review of 30 selected submissions (Table 4).

While there are certain overlaps in category headings between target sectors and specific activities (i.e., ecosystem conservation and ecosystem restoration), this additional analysis shows that technological change/innovation is the most commonly proposed activity (29 submissions), followed closely by ecosystem restoration (26 submissions) and conservation activities (19 submissions) (Figure 5).

However, this emphasis on technological interventions appears to represent quite a different interpretation of nature-based solution from the IUCN definition cited above, which valorises the restoration, management and protection of natural ecosystems. For instance, these submissions include proposals for extracting drinking water from the atmosphere (#78), using “bioenhancing” concrete for coastal infrastructure (#37), creating artificial wetlands for wastewater filtration in industrial settings (#9), carbon capture and storage in geological formations (#70), and promoting microalgae and seaweed production both as alternatives to fossil fuels and as carbon sinks (#24 and 34). There are also a number of more traditional proposals for the installation of alternative solar, wind and hydro-electric energies (#57, 119, 123, 124, 164, 173, 179). In these aforementioned submissions, however, the functioning of natural ecosystems would seem a negligible concern, if considered at all.⁴

Table 4. Nature of proposed activities

Category	Nature of activities
Awareness raising	Publicity campaigns, including online and in-person activities
Financial transfer	Direct loans or grants (i.e., creation of green financing platforms, multi-donor trust funds, etc.)
Knowledge production	Research-based activities
Legal reforms	Campaigns that seek to realize policy or legislative change (i.e., legal recognition of tenure rights)
Declaration/commitments	Agreements made by singular or multiple parties to achieve particular objectives or to recognize particular values or goals (i.e., ‘No deforestation’ commitments)
Knowledge transfer/sharing	Training courses, curriculum development, dialogues, conferences, etc.
Market-based solutions	Certification programmes, carbon credit markets, sustainable supply chains, ‘green’ investments, etc.
Ecosystem conservation	Activities to protect existing natural ecosystems (i.e., establishment of protected areas)
Ecosystem restoration	Activities to rehabilitate degraded natural ecosystems, as well as to introduce new vegetation (i.e., afforestation) to provide ecosystem services
Technological change/innovation	Introduction of new technologies and practices that would reduce carbon emissions from industrial and commercial processes (i.e., improved solid waste treatment); improve carbon capture (i.e., installation of artificial wetlands); or mitigate climate change impacts (i.e., creation of oyster reefs)

⁴ However, see submission 102 (‘Accelerating adaptation by spurring a paradigm shift in water engineering in Indonesia’, Indonesian Ministry of Marine Affairs and Fisheries) for a particularly promising example of technological innovation that is premised on rehabilitating ecosystem functions.

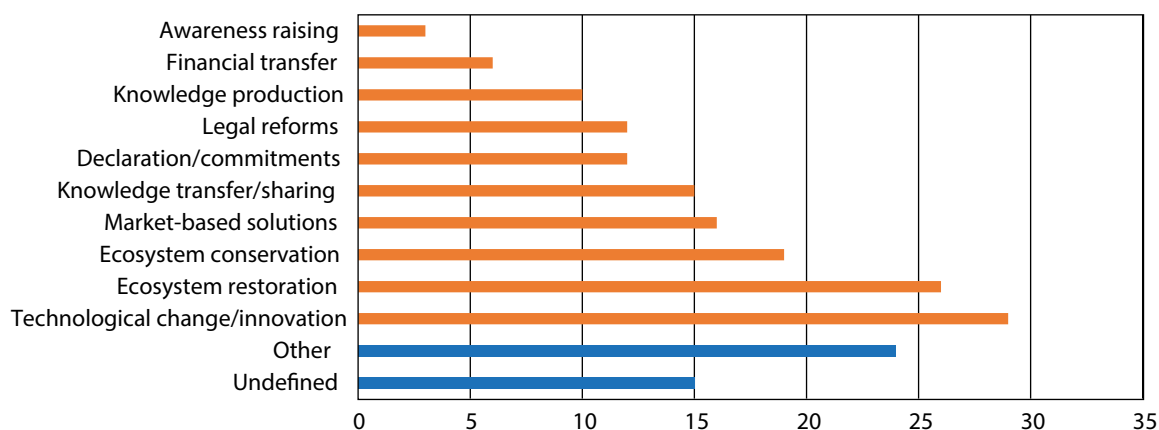


Figure 5. Principal proposed activities

With accelerated industrial production and energy consumption among the principal causes of global warming, it would be difficult to characterize such contributions as having the potential to catalyse transformative change for climate change mitigation and adaptation when they may further entrench, if not accelerate, these very same processes.⁵

On the other hand, there are also a number of submissions proposing technical interventions for improved agricultural practices to reduce greenhouse gas emissions, to improve soil carbon sequestration, and to promote the climate resiliency of cropping systems (#11, 18, 19, 20, 35, 105, 166). While these contributions appear to take into greater consideration the enhancement of natural ecosystem functions (i.e., the decomposition and recycling of nutrients between soil and ground vegetation) than the technological interventions described above, the primary mechanisms of action (i.e., reducing chemical inputs, improving tillage practices, planting a greater diversity of crop species) might be better characterized as ‘nature-supported’ rather than ‘nature-based’ solutions for climate change mitigation and adaptation. Similarly, contributions proposing ‘ecosystem restoration’ activities include a large number of afforestation projects that argue solely for the carbon sequestration function of trees with limited consideration of the existing natural ecosystems into which they are to be planted (#71, 157, 172, 174, 187, 188, 189, 191, 193). Of course, there are also a few instances of carefully designed forest restoration interventions that have clearly considered how to best introduce planted trees to rehabilitate pre-existing ecosystem functions (#45, 77, 132).

There is also a significant number of submissions that seek to leverage market-based solutions (16) and direct financial transfers in the form of loans or grants (6) to effect nature-based solutions. Particular emphasis is placed on the development of carbon offset credits (#16, 86, 136 and 169), as well as the creation of “bankable” nature-based solutions that would provide financial returns for potential investors (#32, 48, 65, 81, 126). On the other hand, the emphasis on leveraging investment returns from NBS appears to share a theoretical and practical hesitancy with those submissions proposing technological innovations to attenuate and capture greenhouse gas emissions, rather than directly addressing the economic and production practices that contribute most to climate change and its felt impacts. Indeed, the World Wildlife Fund (WWF) Freshwater Team makes its strategic shift explicit in its ‘Bankable Water Solutions’ submission (#65):

“Instead of us fighting to halt poorly planned infrastructure projects, we can use our expertise and partners to drive more desirable outcomes. From large infrastructure programmes using our system scale planning approach to the latest cleantech solutions – these can all have a positive impact if we are part of the design and investment process” (1, emphasis added).

⁵ On the other hand, see submission 67 (‘Living European Rivers initiative’, World Wildlife Fund) for a contribution that directly challenges business-as-usual practices; the proposal seeks to demolish dams to revitalize river ecosystems.

If one of the fundamental premises of transformational change is “movement away from the current status, business-as-usual regime or behaviour, and an opening of new pathways” (Atmadja et al. 2021), nature-based solutions that abandon more radical ambitions in favour of incremental adjustments to existing practice would appear to fall far from the desired measures and targets of transformational change (see Section 9 for further discussion on transformational change).

Finally, it should be recognized that a considerable number of submissions presented multiple activities that spanned several categories.⁶ For example, submissions 111, 116, 117 and 145 simultaneously propose ecosystem conservation, improved resource management, and market-based solutions to incentivize investment funding or promote new sustainable industries. Similarly, submissions 68, 122 and 151 propose to undertake conservation and resource management activities alongside improved monitoring and evaluation that would contribute to knowledge production. Often, such multi-faceted submissions describe ongoing programmes: for instance, submission 122 describes a broad range of activities planned under Papua New Guinea’s REDD+ strategy, while submission 151 outlines a regional initiative across Central American countries for climate change mitigation and adaptation activities across the agricultural and forestry sectors. While it is certainly likely that these broad programmes, with activities designed and implemented in complementary fashion, may lead to more effective overall outcomes, it is difficult to compare such multi-faceted submissions alongside contributions that propose a single modality of change.

⁶ Submissions were categorized under ‘Other’ where they presented multiple different activities and for which a principal activity could not be identified, or where activities were proposed that did not belong in any of the existing categories. On the other hand, submissions that failed to present clearly defined activities were categorized under ‘Undefined’.

7 Safeguards, transparency and monitoring

In order to evaluate the nature of NBS implementation, this analysis considered the submissions’ answers to the following questions on three design elements — safeguards, transparency and monitoring — as posed in the submission guidelines (Annex 2), as well as relevant information found elsewhere in their proposals:

Safeguards How have stakeholders (for example local communities, young people and Indigenous Peoples, where applicable) been consulted in developing the contribution?

Transparency What is the communication strategy?

Monitoring What are the means of stewardship, metrics for monitoring?

The great majority of submissions failed to provide adequate (or any) descriptions for these three aspects of intervention design and implementation, although there was somewhat more information provided on safeguards compared to transparency and monitoring (Figure 6, Table 5). Only 14 submissions provided comprehensive explanations for one or more of these three elements, or else alluded to detailed plans found elsewhere on their respective websites, reports or publications (see Annex 6 for a full list). Noting the space limitations imposed by submission guidelines, the lack of information on these important programme design elements nonetheless, casts some doubt on the transformational potential of many submitted proposals. These include aspects considered central to achieving transformational change (Atmadja et al. 2021), such as the need to broadly and meaningfully involve stakeholders, as well as implementing activities with transparency.

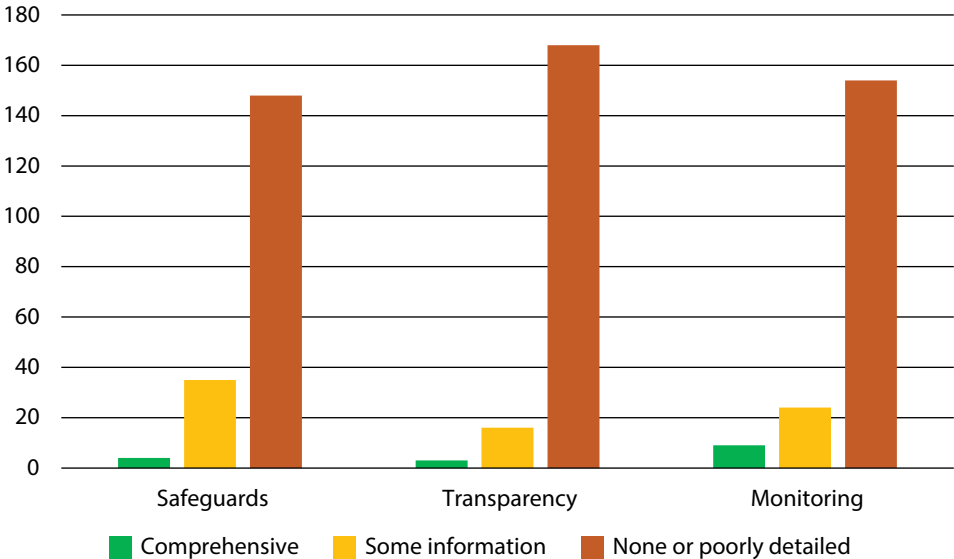


Figure 6. Evaluation of contribution design elements

Table 5. Evaluation of design elements (by number of contributions)^a

	Comprehensive	Some information	None or poorly detailed
Safeguards	4	35	148
Transparency	3	16	168
Monitoring	9	24	154

a Submissions #59 (UN REDD) and #195 (Government of Brazil) provided comprehensive information across two different categories, and so are represented twice in this table.

8 Defining nature-based solutions

Based on the earlier discussion of proposed activities (see Section 6), it is evident that submissions have widely varying interpretations of what constitutes a nature-based solution. Indeed, only four submissions provided comprehensive explanations of how their proposed contribution comprises a nature-based solution for climate change adaptation and mitigation (see Annex 7 for more information on these submissions):

- Submission #6 ‘Carbon Forest Poland’ (State Forests, Government of Poland)
- #18 ‘Low Carbon Livestock Coalition’ (Food and Agriculture Organization)
- #68 ‘Taking Action to Increase Global Mangrove Habitat by 20 percent by 2030: The Global Mangrove Alliance’ (IUCN; World Wildlife Fund, The Nature Conservancy, Conservation International, and Wetlands International)
- #77 ‘AUT Living Laboratories’ (Auckland University of Technology, New Zealand)

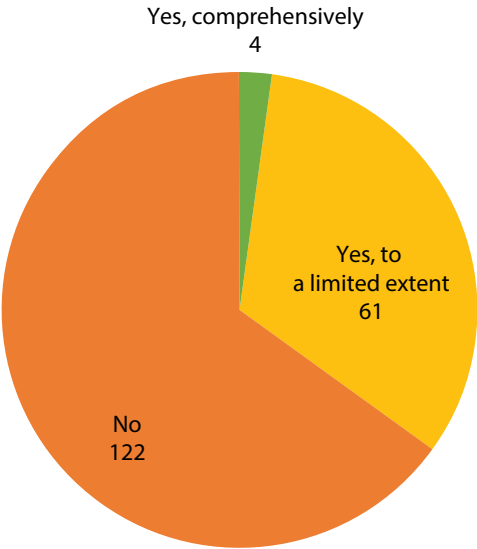


Figure 7. Degree to which contributions explained how they constitute a nature-based solution

61 submissions (33%) provided limited explanations of the pathway(s) by which they leverage natural systems to mitigate or adapt to climate change, often consisting of allusions to the carbon capture and storage function of natural ecosystems (i.e., forests and oceans), their ability to mitigate the impact of extreme weather events (i.e., mangroves acting as a barrier to storm surges), or in terms of avoided carbon emissions through the introduction of alternative technologies or methods (i.e., use of “clean” energies to reduce fossil fuel emissions) (Figure 7). However, the majority of submissions (122, or 65%) failed to provide an adequate or any explanation of how their contribution comprises a nature-based solution.

Indeed, based on the nature of their proposed activities, many of the submissions should not be classified as nature-based solutions at all. Discounting those submissions whose proposed activities are so unclear as to be ineligible for analysis (i.e., #26, 115, 125), or so limited in scope that they consist of solely promotional activities (i.e., #141), there are a number of submissions that aim to provide supporting conditions for the identification and implementation of nature-based solutions, rather than proposing specific contributions of their own. For example, submissions 44, 93, 153, and 155 call upon governments, individual “nature champions,” partner organizations, and private sector stakeholders, respectively, to commit to the adoption or integration of NBS in their ongoing activities. Submissions 65 and 126 promote the creation of “bankable” NBS projects for private sector investment, while submissions 79, 81, 95, and 99 would channel multilateral, state and private funding towards NBS. A number of submissions seek to provide technical expertise in the development of future NBS activities (#27, 28, 53, 60, 103, 152), while submission 69 (Harvey Locke, individual) offers to share a theoretical framework for NBS to ensure that contributions will provide mutual benefits for nature conservation and climate change adaptation and mitigation. Finally, submission 32 (World Business Council for Sustainable Development) seeks to produce a video encouraging private sector actors to invest in NBS, while submission 96 (Youth4Nature) further promotes the involvement of youth in advocating for greater uptake of NBS.

In addition, a number of submissions outline large-scale programmes or multiple existing interventions that they believe would meet the definition of NBS (see submissions from the European Commission (#13), International Bamboo and Rattan Organization (#33), UN-REDD (#59, outlining global REDD activities), and Papua New Guinea (#122, presenting its national REDD programme). With the compilation of such initiatives in summary form, however, there is limited explanation of how each component activity, or the programme as a whole, would comprise a nature-based solution. On the other hand, many other submissions take the form of discrete project proposals, rather than interventions conceived in the holistic manner of ecosystem-based or landscape-scale approaches.

Indeed, the absence of explanation among submissions for large-scale programmes and individual activities alike indicates a general lack of understanding of the theoretical and operational parameters of nature-based solutions, which may well stem from current ambiguity surrounding the concept itself. For example, the Nature-Based Solutions Coalition provides wide-ranging characterizations of what an NBS may be understood to be, describing it as “a holistic, people-centred response to climate change,” which “support[s] vital ecosystem services, biodiversity, access to fresh water, improved livelihoods, healthy diets and food security from sustainable food systems” while also being “effective, long-term, cost-efficient and globally scalable” (UNEP 2019b: 1). While these qualifications may be useful in evaluating whether a proposed intervention could be considered an NBS, the very breadth of these characterizations does not lend themselves to the development of a concrete set of principles or programme of activities.

9 Transformational potential

Evaluations of the transformational potential of contributions for climate change adaptation and mitigation were made based on four key parameters – the scale, speed, sustainability and depth of the proposed change – as presented in submission documents.⁷ As a general guideline, we rated contributions as having high transformational potential should they receive positive evaluations for least three of these four criteria, and low transformational potential if three or more criteria were negatively evaluated. As we proceeded in the analysis, we came to consider intervention sustainability and depth of change (understood as the degree of movement away from ‘business-as-usual’ practices as well as the creation of new pathways) as being more indicative of a proposal’s transformational potential than the measures of scale and speed, which might have otherwise unduly biased our evaluation towards large-scale programmes and those with short implementation timelines. For those contributions that appeared to be borderline cases, we used our best judgment to make a final determination.

For the majority of submissions (109, or 58%), however, there is insufficient information to assess transformational potential. Often, contributions failed to provide information on three or more of the aforementioned parameters, particularly when describing programmes comprising multiple activities. Of the remaining contributions, 28 were considered to be of high transformational potential, with the depth of proposed changes often being the deciding factor (see Annex 8). For instance, multiple submissions explicitly seek to secure tenure and management rights for Indigenous and local communities, while others advocate for the significant expansion of protected areas over terrestrial and marine ecosystems. While we assessed 50 submissions as being of low transformational potential, the frequent absence of information on one or more of the four aforementioned criteria lends only a low level of confidence in these classifications.

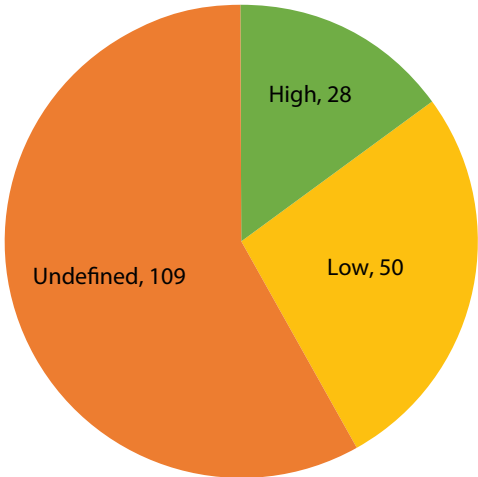


Figure 8. Transformational potential of NBS submissions

⁷ These parameters were selected on the basis of Atmadja et al.’s (2021) literature review on transformational change.

Indeed, these assessments of transformational potential must be qualified as only preliminary evaluations, based on the information available in the brief and often incomplete contributions.⁸ Frequently, there was insufficient information to determine the speed of change of the proposed contributions other than stated timelines to completion; indeed, this may well be an element that can only be evaluated following implementation. Sustainability of the proposed change proved difficult to determine in the majority of cases, as such would require further information on the duration of funding/component activities, the degree of uptake among target populations, and the presence of other external factors that may limit or contribute to intervention effectiveness. Finally, evaluations of the depth of change were challenged by the limited information on those existing conditions and/or baselines into which these interventions would be introduced, thus to be able to determine the degree of proposed movement away from business-as-usual scenarios. Indeed, only two contributions (#98 and 99, submitted by IFAD) included counterfactual projections of environmental change with and without interventions.

The high transformational potential of these 28 contributions does not necessarily correspond to an equivalent degree of intervention feasibility, and may not even be indicative of well-defined nature-based solutions. For instance, there are a number of contributions with global-scale ambitions for ecosystem conservation and broad changes in agricultural production. Submissions 1, 54 and 92 aim to conserve 30% of Earth in protected areas by 2030, with the two latter submissions calling for an additional 20% of Earth to be designated as “Climate Stabilization Areas” to mitigate the impacts of climate change. Similarly, submission 25 (IUCN) calls for the restoration of 350 million hectares of forest landscapes by 2030, while submissions 11, 18, 23 and 35 seek to transform global agricultural systems through fundamental changes in crop cultivation and livestock rearing practices. While the proposed scale, speed and depth of change of these interventions have contributed to their characterization as possessing high transformational potential, the realization of these overarching targets on the ground may prove challenging, particularly in the absence of concrete plans for site-specific actions.

Similarly, high transformational potential contributions that seek to leverage far-ranging legal reforms often fail to define concrete steps to accomplish their proposed objectives. For instance, submissions 4, 49, 50, 100, 137 and 139 seek to secure forest or land management rights for local and Indigenous Peoples, arguing that tenure security will result in sustainable resource management. However, the political mechanisms and capacity to realize such targets are undefined, an omission that is particularly glaring in submissions that would seek global-scale transformations in land use and land tenure. For instance, submission 100 (Indigenous Peoples Forum on Climate Change; Indigenous Peoples Major Group) aims to secure land rights for Indigenous Peoples over 50% of the global land mass that they are said to currently manage on a customary basis. In a similar manner, submission 51 (Climate Land Ambition and Rights Alliance) advocates for the cessation of financial incentives given to large agribusinesses operating across South American landscapes. While the transformative potential of such initiatives, if successful, would be particularly high, the feasibility of coordinating such broad-scale changes in political and economic policy would appear to be equally challenging.

On the other hand, those submissions that would appear to have both high transformational potential and a high likelihood of success are smaller-scale contributions narrowly adapted for their particular site of implementation. In particular, submissions 76 (Wageningen University), 77 (Auckland University of Technology), and 105 (Rythu Sadhikara Samstha and the state government of Andhra Pradesh, India)⁹ document stakeholder engagement throughout the respective interventions’ design and implementation process, as well as the careful tailoring of interventions to the needs, considerations and features of target populations and ecosystems alike. Even if all three submissions are small-scale,

⁸ UNEP guidelines requested that these contributions be 1,000 words or less; many contributions also failed to meet UNEP guidelines for required sections.

⁹ These three submissions are highlighted in green in Annex 8.

subnational (and indeed site-specific) projects, their likelihood of success and sustainability may well render them far more effective than global-scale programmes that seek to apply a one-size-fits-all solution across diverse peoples and landscapes. Indeed, these observations reflect the conclusions of a recent study arguing for the prioritization of such tailored interventions as being better positioned to deliver “continuous transformational change” (Termeer et al. 2017), despite their divergence from traditional measures of transformational potential that emphasize the simultaneous achievement of speed, scale and depth of change. In these submissions, deep and sustainable change may be achieved even as the scale and rapidity of change are less emphasized.

While the majority of submissions assessed as having high transformational potential provided some explanation of how their contributions constitute nature-based solutions (17 out of 28 submissions, or 61%), only two submissions (#18 and 77) provided comprehensive explanations detailing how proposed activities would contribute to climate change adaptation or mitigation. Indeed, the failure of even high transformational potential submissions to provide detailed explanations for how they constitute a nature-based solution may well attest to the novelty of the terminology, as well as a general lack of understanding for how this new concept may represent a shift from existing approaches for climate change adaptation and mitigation that valorise ecosystem services provided by natural landscapes (i.e., #1, 4, 15, 49, 54, 76, 80, 100), seek alternative sources of clean energy (i.e., #34, 57, 173), or promote climate-smart agriculture (i.e., #11, 18, 23, 35, 195).

10 Conclusion

This review of diverse contributions to the 2019 UN Climate Action Summit, while limited by the abbreviated character of submissions, nonetheless allows us to draw certain conclusions on the current state of thinking and practice on nature-based solutions. Without a clear and shared definition of what constitutes a nature-based solution, proposals have shown tremendous variation in their consideration of the role of natural ecosystems. In particular, the emphasis on technological solutions sees interventions that would operate independently of natural processes, or else seek to mimic or replicate ecosystem functions without regard to existing ecosystems.¹⁰ At the same time, there are evident continuities between NBS and existing landscape and ecosystem-based approaches. Proposals for payment for ecosystem service schemes and ecosystem restoration interventions, for example, could well be classified under either of these former categories. However, what particular, unifying features would render NBS an unique and transformative approach (or body of practice) require further definition.

Indeed, the transformative potential of NBS to achieve climate change adaptation and mitigation objectives requires further consideration of both the means by which such interventions are implemented, as well as the metrics by which transformational change is itself measured. The frequent absence of information on the incorporation of safeguards in intervention design and implementation, transparency in communication strategies, and plans for monitoring and stewardship of activities, raises questions for the potential negative impacts of NBS interventions, even should they realize gains for climate change mitigation and adaptation. Measuring transformational change by the scale, speed, sustainability and depth of change has demonstrated a certain incompatibility between criteria, where large-scale and rapid changes may not necessarily reflect deep and sustainable shifts in practice. Indeed, these two latter criteria may well serve as more accurate measures of transformative potential. If sustainability can be predicted (if not assured) by the level of stakeholder engagement and the careful tailoring of interventions to target populations and ecosystems, and depth of change assessed through the degree of departure from business-as-usual practices, which would address the root causes of climate change as well as mitigating its final impacts, then these evaluation criteria can also be repurposed as fundamental parameters for the ongoing design of transformative nature-based solutions.

10 Of course, Osaka et al. (2021) argue concepts of “nature” and the “natural” are used to artificially distinguish and privilege certain NBS above others rendered “unnatural”, despite the potential and real efficacy of the latter.

Annexes

Annex 1. Full list of submissions

No.	Title	Contributing organization(s)
1	Global Campaign for Nature	Costa Rica, Wyss Foundation, National Geographic Foundation, Conservation International, The Nature Conservancy
2	Declaration of Tlaxcala	International Indian Treaty Council-IITC
3	Declaration of Takahiwai	Indigenous Peoples of Aotearoa, the Americas and the world
4	Secure Indigenous Peoples and Community Land Rights as a Nature-Based Solution to Climate Change	Rights and Resources Initiative
5	The Ministerial Katowice Declaration on ‘Forest for the Climate’	Poland
6	Carbon Forest	Poland (State Forests)
7	Re-activation on Biodiversity, Forestry, Ecosystem Services & Carbon Sequestration	University of Liberia
9	Zone Libellule®: A nature-based wastewater treatment technique leveraging the self-purification capacity of wetlands	SUEZ
10	Building a global soil movement through philanthropic investment	Global Alliance for the Future of Food
11	Agroecology: A Nature-based Food System	AgroEcology Fund
12	Green Supply Chain to halt the global Green House Gas Emission due to deforestation and degradation	WWF China
13	Factual contribution from EC services to NBS consultation for UN Climate Summit	European Commission
15	Large Scale Forest Conservation with Indigenous Peoples in the Threatened Brazilian Amazon	ICFC, EDF, CLARA
16	The International Platform for Insetting	The International Platform for Insetting
17	Ecosystem Restoration as a nature-based solution for climate action	Food and Agriculture Organization (FAO)
18	Low Carbon Livestock Coalition	Food and Agriculture Organization (FAO)
19	Recarbonization of Global Soils	Food and Agriculture Organization (FAO)
20	Climate Change and the Ocean – Adaptation strategies for fisheries and aquaculture	Food and Agriculture Organization (FAO)
21	Food Loss and Waste Reduction for Climate Action	Food and Agriculture Organization (FAO)
22	Forests and trees: A nature-based solution to global urban challenges (FAO)	Food and Agriculture Organization (FAO)
23	Climate Change and Plant Health: Biodiversity to the Rescue	Food and Agriculture Organization (FAO)
24	Macroalgae Farming: An Ocean-Based Solution to Reduce Climate Change	Fearless Fund
25	Restoring forests and lands as a crucial response to climate change and sustainable development	IUCN
26	Osi Joe Touching Lives Initiative	Osi Joe Touching Lives Medical Clinic

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Annex 1. Continued

No.	Title	Contributing organization(s)
27	Mainstreaming Natural Capital Accounting for Climate Change Policy	United Nations Committee of Experts on Environmental-Economic Accounting
28	Accelerating action within the food system: Investing in capability and research for measurement and mitigation of agricultural greenhouse gases	New Zealand
29	Fishing for Climate Resilience: Empowering vulnerable, fisheries dependent communities adopt ecosystem-based-adaptation measures to secure food and livelihoods	Rare
30	Sustainable Rice Landscapes Initiative	World Business Council for Sustainable Development, UN Environment, the UN Food and Agriculture Organization (FAO), the Sustainable Rice Platform (SRP), the German Agency for International Cooperation (GIZ) and the International Rice Research Institute (IRRI)
32	Scaling up Natural Climate Solutions to achieve the Paris Agreement objectives	World Business Council for Sustainable Development
33	Bamboo for Climate Change	International Bamboo and Rattan Organization
34	Large scale seaweed aquaculture for CO ₂ remediation	SINTEF Ocean
35	Agroecology: Making agriculture fit for purpose in an era of climate change	CLARA – Climate Land Ambition and Rights Alliance
36	Sustainable Solutions: Ocean Opportunities & Small Island States (SOS-IS)	World Team Project
37	Bringing Concrete to Life – Enhancing Natural Processes on Concrete Based Coastal and Marine Infrastructure (CMI)	ECONcrete Tech
38	Developing a scalable business model to support large-scale global coral reef restoration	Cora Vita
39	Circulating and Ecological Economy	Japan
40	Ecology Positive Cities Framework	John Lieber (Individual)
41	Sustainable management of Morocco’s marine resources	Association de Gestion Intégrée des Ressources (AGIR)
42	Leaders for Ocean-Climate Action	Climate Advisors
43	Ocean Risk and Resilience Action Alliance	Canada, AXA XL, Ocean Unite, Willis Towers Watson and The Nature Conservancy
44	Natural Climate Solutions Alliance of Governments	Nature4Climate
45	From native seed to new rainforest	Rainforest Foundation Norway, Xingu Seed Network, Brazilian Instituto Socioambiental
46	The African Forest Landscape Restoration Initiative	The African Forest Landscape Restoration Initiative (AFR 100)
47	A Carbon Removal Commitment for Companies	UN Global Compact, WRI, Volans
48	Building the business case for nature-based solutions for watersheds	UN Global Compact CEO Water Mandate
49	Community Forestry Campaign for Restoring Degraded Lands in Nepal	CLARA - Climate Land Ambition and Rights Alliance
50	Conservation through Land Titling of Indigenous Peoples Lands and Sustainable Management of their Natural Resources.	Forests of the World

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Annex 1. Continued

No.	Title	Contributing organization(s)
51	Perverse incentives for agri-business and deforestation: A love affair that must end	CLARA - Climate Land Ambition and Rights Alliance; Global Forest Coalition (Netherlands) and Heñoi (Paraguay)
52	Protecting Primary Forests is Essential for a Safe Climate	CLARA - Climate Land Ambition and Rights Alliance; Wild Heritage, Government of Costa Rica, Australian Rainforest Conservation Society
53	Municipal natural asset management as a means to ensure the viability of natural systems	Municipal Natural Assets Initiative (MNAI)
54	Protecting Half the Earth through a Global Deal for Nature serves as key to Nature-Based Climate Solutions	Wild Foundation; NNH Network, RESOLVE
55	Sustainable financing mechanism for Mediterranean Marine Protected Areas	Principality of Monaco
56	Marine educational area	Principality of Monaco
57	Develop, promote and scale-up Ocean Thermal Energy Conversion (OTEC)	Principality of Monaco
58	Restore coastal wetland to mitigate and adapt climate change	WWF China
59	UN-REDD: Supporting countries with complex policy and institutional reforms to scale up climate actions and ambitions on sustainable land and forest management, conservation and restoration	UN REDD
60	Perspectives on opportunities for collaboration with the Food Agriculture Biodiversity Land and Energy (FABLE) Consortium	Food Agriculture Biodiversity Land and Energy (FABLE) Consortium
61	Eco-technological approach to erosion and mass wasting assessment and management	GeoArb Ltd; New Zealand Transport Agency
62	A global initiative for the protection of forest carbon sinks and reservoirs	Wildlife Conservation Society; Rainforest Foundation Norway
63	Rumen Gateway – mitigation through the microbiome	Global Research Alliance on Agricultural Greenhouse Gases
64	Putting No Deforestation into Practice	The High Carbon Stock Approach
65	Bankable Water Solutions	WWF Freshwater
66	Resilient Asian Deltas (RAD) Initiative	WWF Freshwater
67	Living European Rivers initiative	WWF Freshwater
68	Taking Action to Increase Global Mangrove Habitat by 20 percent by 2030: The Global Mangrove Alliance	IUCN; World Wildlife Fund, The Nature Conservancy, Conservation International, and Wetlands International
69	The Nature of the Climate and the Three Global Conditions Framework for Nature-Based Solutions	Harvey Locke, Chair, IUCN World Commission on Protected Areas, Beyond the Aichi Targets Task Force (Individual)
70	Back to Earth – Using Natural Processes to Turn CO ₂ Permanently into Rock	Reykjavik Energy
71	The Great Green Wall: Growing A World Wonder	UNCCD; African Union Commission
72	Faiths for Forests	Interfaith Rainforest Initiative, UNEP
73	Facing climate change in the field: Models of forest and territorial governance working in a positive way in Mesoamerica	Mesoamerican Alliance of People and Forests
74	Coral reef rescue – Building climate change resilient reefs and communities	Coalition for Climate Resilient Reef Communities (WWF, University of Queensland, Blue Ventures)

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Annex 1. Continued

No.	Title	Contributing organization(s)
75	Blue Lifelines for a Secure Sahel (BLiSS)	Wetlands International
76	Building with Nature	Wageningen University
77	AUT Living Laboratories	AUT - Auckland University of Technology
78	Watergen: Bringing drinking water to the world	Watergen
79	Leveraging NBS for Water Security and Climate Action	Forest Trends
80	Amazon Sacred Headwaters Initiative	CONFENIAE – The Confederation of Indigenous Nationalities of the Ecuadorian Amazon, AIDSEP – The Interethnic Association for the Development of the Peruvian Rainforest, Fundación Pachamama
81	Launching the Nature-Based Solutions Project Preparation Financing Facility	World Resources Institute
82	Global coordination for carbon storage in collective territories of Indigenous Peoples and local communities in the equatorial region	Aliansi Masyarakat Adat Nusantara (AMA); Le Réseau des Populations Autochtones et Locales pour la Gestion Durable des Ecosystèmes Forestiers de la RDC (REPALEF RDC); Coordinadora Indígena de la Cuenca Amazónica (COICA); Articulação dos Povos Indígenas do Brasil (APIB); Alianza Mesoamericana de Pueblos y Bosques (AMPB)
83	Water Reserves as Ecosystem-based Adaptation Instruments for Latin America Countries	WWF Freshwater
84	The Sustainable Open Ocean Farming Imperative for the Future	Manna Fish Farms, Inc.
85	The Global Forest Project	Forests Ontario
86	The REDD+ Acceleration Facility (RAF): Scaling Finance for Tropical Forest Protection	Environmental Defense Fund; Norway's International Climate and Forest Initiative (NICFI); the Rockefeller Foundation
87	Produce, Conserve, Include Strategy: Providing Proof of Concept of the Jurisdictional Approach in Mato Grosso, Brazil	Government of Mato Grosso
88	Great Sea Reef Conservation and Climate Resiliency Programme	Ministry of Economy, Fiji; partnership with WWF
90	The Savusavu Blue Town Model	Fiji, Savusavu Chamber of Commerce
91	Agroforestry: A nature-based solution for sustainability	Maria Rosa Mosquera Losada, AFINET (AgroForestry Innovation NETWORKS)
92	50/50 - The Plan to Save Life on Earth	Avaaz, the Leonardo DiCaprio Foundation, National Geographic
93	Nature Champions Summit	N/A
94	Year of the Tree: Seeding the Age of Restoration	Tree Sisters; International Tree Foundation
95	Global Coalition of Nature-Based Solutions (NBS) for the implementation of the Nationally Determined Contributions (NDCs)	Green Climate Fund
96	Mobilizing and Empowering Youth on Nature and Climate	Youth4Nature
97	United Nations University Land Restoration Training Programme	United Nations University; Agricultural University of Iceland, the Soil Conservation Service of Iceland

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Annex 1. Continued

No.	Title	Contributing organization(s)
98	Constructing a culture of resilience against climate change for rural families in Bolivia	IFAD; The Global Environment Facility (GEF), Helvetas
99	Building on the success of the Adaptation for Smallholder Agriculture Programme (ASAP)	IFAD
100	Securing Rights to Secure Nature-Based Solutions to Climate Change	Indigenous Peoples Forum on Climate Change (IIPFCC); Indigenous Peoples Major Group
101	Legal and Sustainable Supply Chains (LSSC) for Tropical Wood and Forest Products	International Tropical Timber Organization
102	Accelerating adaptation by spurring a paradigm shift in water engineering in Indonesia, with replication in Asia and globally	Indonesian Ministry of Marine Affairs and Fisheries (MMAF)
103	Land-based transformative projects and programmes to achieve both climate change adaptation and mitigation	UNCCD
104	Peatlands rewetting, restoration and conservation offers a low-cost, low-tech, high impact nature-based solution for climate action	UN Environment Programme; Global Peatlands Initiative
105	Zero Budget Natural Farming as a nature-based solution for climate action	Rythu Sadhikara Samstha (RySS), State government of Andhra Pradesh
106	PROAmazonia – Utilizing forest conservation and sustainable production practices to address climate change and strengthen local livelihoods in Ecuador	PROAmazonia
107	Nature-based solutions for water security	Boticário Group Foundation
108	Drawing a ‘Red Line’ for Ecological Protection to Mitigate and Adapt to Climate Change	Ministry of Ecology and Environment, the People’s Republic of China
109	BRI International Green Development Coalition (BRIGC)	Ministry of Ecology and Environment of China
110	Sea Level Rise and Integrated Coastal Risk Assessment in the Context of Climate Change	Ministry of Natural Resources (MNR), the People’s Republic of China
111	Bringing into full play the function of marine carbon sequestration and developing marine carbon sequestration economy	Ministry of Natural Resources (MNR), the People’s Republic of China
112	Advocating all sectors of society to achieve carbon neutrality through afforestation	China Green Carbon Exchange Foundation; National Forestry and Grassland Administration (NFGA), the People’s Republic of China
113	Science & Technology Actions on Nature-Based Solutions for Climate Change	Ministry of Science and Technology (MOST), the People’s Republic of China
114	Initiative of the International Big Science Research Plan: Three Poles Environment and Climate Change	Ministry of Science and Technology (MOST), the People’s Republic of China
115	Global network for planting and breeding combination and recycling	Ministry of Agriculture and Rural Affairs, the People’s Republic of China
116	Persisting in Water Conservation and Strengthening Water Resources Management	Ministry of Water Resources (MWR), People’s Republic of China
117	Global Blue Carbon 10-Year Initiative	Ministry of Natural Resources, China
118	Strengthening protection of river and lakes, maintaining healthiness in river and lakes	Ministry of Water Resources (MWR), the People’s Republic of China
119	Constructing green small hydropower of eco-friendly environment, social harmony, standardized management, social harmony, standardized management and economic rationality	Ministry of Water Resources (MWR), the People’s Republic of China

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Annex 1. Continued

No.	Title	Contributing organization(s)
120	Urban and rural water supply “the same source, the same quality, the same network, the same service”	Ministry of Water Resources (MWR), the People’s Republic of China
121	Global Action on Desert Vegetation Restoration for Carbon Sinking to Tackle and Mitigate Climate Change	Elion Group; Ministry of Ecology and Environment
122	Sustainable Forest Management – Sustainable Land Use Planning, Forest Management and Improved Agriculture Practice	Papua New Guinea
123	Fossil fuel abatement for Diesel-based Power Systems: An Action to meeting SDG 13 through Sustainable Electricity	Papua New Guinea
124	The scaling up of hydropower/solar energy in Papua New Guinea	Papua New Guinea
125	Climate Change, Inclusive Development and Quantum Neural Networks	Ashwini Sathnur
126	Supporting bankable deals for climate mitigation and adaptation through investments in nature	IUCN
127	Food System Transformation: A sustainable and healthy nature-based solution	EAT Foundation
128	Food and Land Use Systems Transformation	The Food and Land Use Coalition (FOLU)
129	Protected Areas and Resilient Landscapes – Project Finance for Permanence in Colombia, Perú and Bhutan	WWF (World Wide Fund for Nature)
130	Conservation Opportunities under Climate Change Considerations: The experience from the Amazon biome	WWF (World Wide Fund for Nature)
131	Heritage Colombia (HECO): Resilient landscapes that maximizes contribution to Colombia’s mitigation and adaptation goals	WWF (World Wide Fund for Nature)
132	Andes Action: Restoring [<i>sic</i>] one million hectares of High Andean Forest Ecosystems	UN Environment
134	Integrating green and gray infrastructure planning for water	The Nature Conservancy (TNC)
135	‘Achieving multiple global objectives in a synergistic and pragmatic manner through scaling up public-private partnerships for managing protected areas’	African Parks
136	The Architecture for REDD+ Transactions (ART): Attracting New Investment to Protect and Restore Forests	The Architecture for REDD+ Transactions (ART); Climate and Land Use Alliance (CLUA), Environmental Defense Fund (EDF), Norway’s International Climate and Forest Initiative (NICFI), the Rockefeller Foundation and Winrock International
137	Climate Solution: Social Forestry Helps Adapt to Climate Change	WARSI; Climate Land Ambition and Rights Alliance (CLARA)
138	Climate Solution: Rewilding Europe to invigorate local economies	FERN and Climate Land Ambition and Rights Alliance (CLARA)
139	Climate Solution: Healthy forests and resilient communities in the Congo	FERN, Observatoire Congolais des Droits de l’Homme (OCDH), Centre pour l’Information Environnementale et le Développement Durable (CIEDD) in Central African Republic and (Centre pour l’Environnement et de Développement) (CED) and Climate Land Ambition and Rights Alliance (CLARA)

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Annex 1. Continued

No.	Title	Contributing organization(s)
140	Climate Solution: Cultural and Local Climate Perspectives in Colombia	Asociación Ambiente y Sociedad and the Investigation Group Cultura y Ambiente of the Universidad Nacional de Colombia; Climate Land Ambition and Rights Alliance (CLARA)
141	Biodiversity and Climate Change	The United Nations Educational, Scientific and Cultural Organization (UNESCO)
142	Rally for Rivers – a movement to revitalize India’s dying rivers (adaptable for tropical regions globally)	Isha Foundation
143	Seaforesteering the world’s seas	Government of Portugal
145	Sustainable Growth, livelihoods and Eco-system Restoration Initiative	Government of Pakistan
148	The contribution of Central African forests to the global fight against climate change	Central African Forest Initiative (CAFI)
149	Preventing Forest Harvesting for Biomass Fuel to Protect Forest Carbon Stocks	Forest Protection Movement (WOLF) and Partnership for Policy Integrity (PFPI); Climate Land Ambition and Rights Alliance (CLARA)
150	Conserving Biodiversity and Enhancing Ecosystems: The Case for Protected Areas for Climate Change Resilience in Caribbean SIDS	Government of Grenada
151	Building Resilience in the Central American Region under a Synergistic Approach between Mitigation and Adaptation – Focusing on Agriculture, Forestry and Other Land Uses (AFOLU) sector	Government of El Salvador
152	Making Cities Resilient by Integrating Nature-Based Solutions into Urban Planning	UN Office for Disaster Risk Reduction
153	The International Alliance to Combat Ocean Acidification: Mobilizing Global Leadership to Advance Ocean Acidification Action Plans that Address Root Causes and Protect Coastal Communities and Livelihoods from a Changing Ocean	International Alliance to Combat Ocean Acidification (OA Alliance)
154	Dairy Sustainability Framework and Indicator Metrics	Dairy Sustainability Framework
155	Natural Climate Solutions Alliance: Our Vision	Natural Climate Solutions Alliance
156	NBS Good Practices from Chinese government. China Integrated Waste Management of the National Appropriate Mitigation Actions	People’s Republic of China
157	NBS Good Practices from Chinese government. Ecological restoration in Xuzhou City, Jiangsu Province	People’s Republic of China
158	NBS Good Practices from Chinese government. Conserving Biodiversity for a Beautiful China	People’s Republic of China
159	NBS Good Practices from Chinese government. Social Participation in Nature Reserve Management	People’s Republic of China
160	NBS Good Practices from Chinese government. Marine Disaster Assessment and Adaptation in Coastal Areas under Sea Level Rise	People’s Republic of China
161	NBS Good Practices from Chinese government. Marine Atmospheric Greenhouse Gas Monitoring in Offshore	People’s Republic of China
162	NBS Good Practices from Chinese government. Comprehensive Monitoring and Prediction of Marine Ecological Disasters	People’s Republic of China

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Annex 1. Continued

No.	Title	Contributing organization(s)
163	NBS Good Practices from Chinese government. Monitoring and conservation of mangrove forest in coastal zones of South China Sea	People's Republic of China
164	NBS Good Practices from Chinese government. China Renewable Energy Scale-up Program Phase II	People's Republic of China
165	NBS Good Practices from Chinese government. ADB Loan 'Air Quality Improvement in the Greater Beijing-Tianjin-Hebei Region – China National Investment & Guaranty Corporation's Green Financing Platform Project'	People's Republic of China
166	NBS Good Practices from Chinese government. Global Environment Facility (GEF) Climate Smart Staple Crop Production Project	People's Republic of China
167	NBS Good Practices from Chinese government. Phase I of East-Middle Route of South-to-North Water Diversion Project	People's Republic of China
168	NBS Good Practices from Chinese government. River (Lake) Chief System	People's Republic of China
169	NBS Good Practices from Chinese government. Pilot Case of Carbon-neutral Tea Production in China	People's Republic of China
170	NBS Good Practices from Chinese government. Innovation of Environmental Protection via Financial Technology: Carbon Reduction Actions by 350 Million Users of 'Ant Forest'	People's Republic of China
171	NBS Good Practices from Chinese government. Establishing a robust regime for marine ecological protection in Rizhao, Shandong Province	People's Republic of China
172	NBS Good Practices from Chinese government. Afforestation efforts in Saihanba Forest Farm	People's Republic of China
173	NBS Good Practices from Chinese government. Wind power development through institutional innovation and scientific and technological breakthroughs	People's Republic of China
174	NBS Good Practices from Chinese government. Three-North Shelterbelt Program	People's Republic of China
175	NBS Good Practices from Chinese government. Ecological Preservation and Poverty Relief in Kezuo Houqi, Inner Mongolia	People's Republic of China
176	NBS Good Practices from Chinese government. Comprehensive Management Project of Mulan River Watershed	People's Republic of China
177	NBS Good Practices from Chinese government. Flood Control Dispatch of Changjiang Reservoir Group in Response to Climate Change	People's Republic of China
178	NBS Good Practices from Chinese government. Water Dispatching in the Pearl River during Low Water Period	People's Republic of China
179	NBS Good Practices from Chinese government. Green small hydropower construction in Zhejiang Province	People's Republic of China
180	NBS Good Practices from Chinese government. The Integration Project of Sihong County Urban and Rural Water Supply	People's Republic of China
181	NBS Good Practices from Chinese government. Abandoned shrimp pond reforestation and sustainable development	People's Republic of China
182	NBS Good Practices from Chinese government. Carbon Neutral Project for BRICS Leaders Xiamen Meeting	People's Republic of China

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Annex 1. Continued

No.	Title	Contributing organization(s)
183	NBS Good Practices from Chinese government. Seagrasses Restoration and Fishery Recovery	People's Republic of China
184	NBS Good Practices: Integral Ecosystems in City Planning and Landscape Architecture	BURR (Bureau for Urbanism)
185	'Greening the motherland, low-carbon action' tree planting activity initiative	China Green Carbon Foundation
186	China Business Climate Action initiative	People's Republic of China
187	Comprehensive treatment project of rocky desertification in karst area	People's Republic of China
188	Desertification control in Youyu County, Shanxi Province	People's Republic of China
189	Ecological poverty alleviation project: Happy Homeland e-Tree Planting	China Green Foundation
190	Foreign Aid Training for China's Desertification Control	National Forestry and Grassland Administration
191	Forest Management and Afforestation for Sand Prevention and Desertification Control in Saihanba Forest Farm in Hebei Province	People's Republic of China
192	Key Techniques in the Management of Moso Bamboo Carbon Sink Forests	People's Republic of China
193	Phase II of Beijing-Tianjin Sandstorm Source Control Project	People's Republic of China
194	Scientific Forest Management in Chongyi County of Jiangxi Province to Promote Ecological Protection and Restoration	People's Republic of China
195	Sustainable technologies to promote transformational agriculture with positive and long-term results	Brazil

The following submissions did not make their proposals publicly available (listed by submission number, title and contributing organization):

- 8** Drastic reduction in meat and dairy consumption critical for land-sparing (CLARA)
- 14** The contribution of Central African forests to the global fight against climate change (Gabon)
- 31** One Planet Business for Biodiversity (OP2B) (Danone and WBCSD)
- 89** 4 Million Trees in 4 years Initiative (4MT4Y) (Fiji)
- 133** Virtuous Agriculture: A proposal for a soil to soil carbon cycle for coffee and beyond (Illy)
- 144** AdaptForChange (Portugal)
- 146** Restoring Forest Ecosystems as a solution to benefit climate, biodiversity, and people (Germany)
- 147** Nature Based Solutions on Land and in the Ocean for Climate and Sustainable Development (Germany)

The following two submissions removed their documentation from the UNEP website during the course of the analysis, but were nonetheless included in this synthesis:

- 148** The Contribution of Central African Forests to the global fight against Climate Change (Central African Forest Initiative)

[This appears to be the same contribution as #14, listed above]

- 151** Building Resilience in the Central American Region under a Synergistic Approach between Mitigation and Adaptation – Focusing on Agriculture, Forestry and Other Land Uses (AFOLU) Sector (El Salvador)

Annex 2. Nature-Based Solutions submission guidelines

In its call for proposals, UNEP requested that all submissions to the Nature-Based Solutions (NBS) contributions platform provide the following information in summary form (not to exceed 1,000 words):

1. Title/heading
2. Context and rationale
3. An overview of the contribution
4. How the contribution leverages living natural systems as a solution to avert climate change?
5. How might the contribution support both climate mitigation and adaptation as well as other important co-benefits and social, economic and environmental outcomes in coming years. They may include:
 - Reduction in carbon emission and carbon capture (GTonnes)
 - Increasing climate resilience
 - Social impact (job increase; poverty reduction; Just transition, etc.)
 - Net economic impact (total in USD; how was it achieved?)
 - Impact on realization of the 2030 Agenda for Sustainable Development (in particular SDGs 1,2,6,12,13,14,15,16)
 - Food security
 - Minimising species extinction and ecological losses and fostering an increase of biodiversity.
6. Which countries and organisations are involved in the contribution?
7. How have stakeholders (for example local communities, young people and Indigenous Peoples, where applicable) been consulted in developing the contribution?
8. Where can the contribution be put into action?
9. How the contribution will be delivered? How will different stakeholders be engaged in its implementation? What are the potential transformational impacts?
10. Is this initiative contributing to other Climate Action Summit workstreams (industry transition; energy transition; climate finance and carbon pricing; infrastructure, cities and local action; resilience and adaptation; youth and citizen mobilization; social and political drivers; mitigation strategy)?
11. How does this contribution build upon examples of experience to date? How does the contribution link with different ongoing initiatives?
12. What are the mechanisms for funding (with specific emphasis on potential for partnerships)?
13. What are the means of stewardship, and metrics for monitoring?
14. What is the communication strategy?
15. What are the details of proponents (indicating the degree of commitment among the countries and organizations that are named)?

Annex 3. Duplicate submissions

A number of submissions appear to describe the same intervention, or different elements of a broader programme:

Global creation of conservation areas (30% of Earth as protected areas, 20% as Climate Stabilization Areas):

- 1 Global Campaign for Nature (Costa Rica, Wyss Foundation, National Geographic Foundation, Conservation International, The Nature Conservancy)
- 54 Protecting Half the Earth through a Global Deal for Nature serves as key to Nature-Based Climate Solutions (Wild Foundation; NNH Network, RESOLVE)
- 92 50/50 - The Plan to Save Life on Earth (Avaaz, the Leonardo DiCaprio Foundation, National Geographic)

Conservation of ‘low vulnerability’ or ‘most resilient’ coral reefs

- 74 Coral Reef Rescue – Building Climate Change Resilient Reefs and Communities (Coalition for Climate Resilient Reef Communities: WWF, University of Queensland, Blue Ventures)
- 88 Great Sea Reef Conservation and Climate Resiliency Program (Ministry of Economy, Fiji; partnership with WWF)

Renewable energy in Papua New Guinea

- 123 Fossil fuel abatement for Diesel-based Power Systems: An Action to meeting SDG 13 through Sustainable Electricity (Government of Papua New Guinea)
- 124 The scaling up of hydropower/solar energy in Papua New Guinea (Government of Papua New Guinea)

Landscape approaches to conservation across the Amazon

- 129 Protected Areas and Resilient Landscapes – Project Finance for Permanence in Colombia, Perú and Bhutan (WWF)
- 130 Conservation Opportunities under Climate Change Considerations: The experience from the Amazon biome (WWF)
- 131 Heritage Colombia (HECO): Resilient landscapes that maximizes contribution to Colombia’s mitigation and adaptation goals (WWF)

New market platforms for REDD+

- 86 The REDD+ Acceleration Facility (RAF): Scaling Finance for Tropical Forest Protection (Environmental Defense Fund, Norway's International Climate and Forest Initiative (NICFI), the Rockefeller Foundation)
- 136 The Architecture for REDD+ Transactions (ART): Attracting New Investment to Protect and Restore Forests (The Architecture for REDD+ Transactions (ART); Climate and Land Use Alliance (CLUA), Environmental Defense Fund (EDF), Norway's International Climate and Forest Initiative (NICFI), the Rockefeller Foundation and Winrock International)

Great Green Wall across Africa

- 22 Forests and trees: A nature-based solution to global urban challenges (FAO)
- 71 The Great Green Wall: Growing A World Wonder (UNCCD, African Union)

Afforestation/tree planting across China¹¹

- 112 Advocating all sectors of society to achieve carbon neutrality through afforestation (China Green Carbon Exchange Foundation; National Forestry and Grassland Administration (NFGA), the People's Republic of China)
- 182 Carbon Neutral Project for BRICS Leaders Xiamen Meeting (People's Republic of China)
- 121 Global Action on Desert Vegetation Restoration for Carbon Sinking to Tackle and Mitigate Climate Change (Elion Group; Ministry of Ecology and Environment)
- 172 Afforestation efforts in Saihanba Forest Farm (People's Republic of China)
- 191 Forest Management and Afforestation for Sand Prevention and Desertification Control in Saihanba Forest Farm in Hebei Province (People's Republic of China)
- [This appears to describe the same project as no. 172]*
- 174 Three-North Shelterbelt Program (People's Republic of China)
- 185 Greening the motherland, low-carbon action tree planting activity initiative (China Green Carbon Foundation)
- 187 Comprehensive treatment project of rocky desertification in karst area (People's Republic of China)
- 188 Desertification control in Youyu County, Shanxi Province (People's Republic of China)

¹¹ Many of these may also be activities related to the Conversion of Cropland to Forest Programme (CCFP), otherwise known as the Grain for Green Programme.

- 189 Ecological poverty alleviation project: Happy Homeland e-Tree Planting (China Green Foundation)
- 193 Phase II of Beijing-Tianjin Sandstorm Source Control Project (People's Republic of China)

Annex 4. Thematically similar contributions

In addition to those submissions that appear to describe the same intervention, a number of submissions describe contributions with broadly similar activities across different target locations:

Large-scale afforestation/forest restoration

- 17 Ecosystem Restoration as a nature-based solution for climate action (FAO)
- 25 Restoring forests and lands as a crucial response to climate change and sustainable development (IUCN)
- 46 The African Forest Landscape Restoration Initiative (The African Forest Landscape Restoration Initiative AFR 100)
- 85 The Global Forest Project (Forests Ontario)
- 94 Year of the Tree: Seeding the Age of Restoration (Tree Sisters; International Tree Foundation)
- 132 Andes Action: Restoring [*sic*] one million hectares of High Andean Forest Ecosystems (UNEP)

Restoration of wetland ecosystems

- 58 Restore coastal wetland to mitigate and adapt climate change (WWF China)
- 181 Abandoned shrimp pond reforestation and sustainable development (People's Republic of China)
- 183 Seagrasses Restoration and Fishery Recovery (People's Republic of China)

Securing land tenure rights

- 4 Secure Indigenous Peoples and Community Land Rights as a Nature-Based Solution to Climate Change (Rights and Resources Initiative)
- 73 Facing climate change in the field: Models of forest and territorial governance working in a positive way in Mesoamerica (Mesoamerican Alliance of People and Forests)
- 80 Amazon Sacred Headwaters Initiative (CONFENIAE – The Confederation of Indigenous Nationalities of the Ecuadorian Amazon, AIDSESEP – The Interethnic Association for the Development of the Peruvian Rainforest, Fundación Pachamama)

- 82 Global Coordination for carbon storage in collective territories of Indigenous Peoples and local communities in the equatorial region (Aliansi Masyarakat Adat Nusantara (AMA); Le Réseau des Populations Autochtones et Locales pour la Gestion Durable des Ecosystèmes Forestiers de la RDC (REPALÉF RDC); Coordinadora Indígena de la Cuenca Amazónica (COICA); Articulação dos Povos Indígenas do Brasil (APIB); Alianza Mesoamericana de Pueblos y Bosques (AMPB))
- 100 Securing Rights to Secure Nature-Based Solutions to Climate Change (Indigenous Peoples Forum on Climate Change (IIPFCC); Indigenous Peoples Major Group)

Community forestry

- 49 Community Forestry Campaign for Restoring Degraded Lands in Nepal (CLARA – Climate Land Ambition and Rights Alliance)
- 137 Climate Solution: Social Forestry Helps Adapt to Climate Change (WARSI; CLARA – Climate Land Ambition and Rights Alliance)
- 139 Climate Solution: Healthy forests and resilient communities in the Congo (FERN, Observatoire Congolais des Droits de l’Homme, Centre pour l’Information Environnementale et le Développement Durable in Central African Republic, Centre pour l’Environnement et de Développement, and CLARA – Climate Land Ambition and Rights Alliance)

Annex 5. Target sectors of intervention

Sector	Description
Agriculture and food systems	Production of food crops, livestock rearing, aquaculture/pisciculture, or other forms of small or large-scale food production
Energy	Production/extraction of electricity, wind, hydropower, fossil fuels, biofuels, etc.
Infrastructure	Construction, maintenance, or retrofitting of buildings, roads, water systems, etc.; green infrastructure is also included in this category
Forestry (exploitation)	Management of production forests (i.e., sustainable forest management); extraction of timber and/or wood products for market sale; regulating wood supply chains, etc.
Restoration	Activities undertaken to prevent soil degradation and/or desertification where no forests existed before, or to replenish degraded forests through enrichment planting; activities for the restoration of non-forest ecosystems are also included in this category
Conservation ¹²	Activities that aim to rehabilitate or protect natural environments and ecosystems; these may include creation of protected areas/national parks as well as related policies/practices etc.
Education	Curriculum development for institutions of higher education, creation of new schools or targeted courses
Industry/private sector	Manufacturing of consumer products or private sector/business interests in general
Governance	Legal reforms (changing tenure systems, creation of new laws, etc.), as well as the adoption of new policies and/or practices by governing bodies

¹² This category is different from ‘restoration’, as conservation activities are aimed only at preserving already existing environments, rather than creating new biomes.

Annex 6. Best examples of safeguards, transparency and monitoring practices

SAFEGUARDS

No.	Title	Organization	Target country	Target sector	Principal activities	How have stakeholders (for example local communities, young people and Indigenous Peoples, where applicable) been consulted in developing the contribution? [Page number listed where direct quotation has been used]
10	Building a global soil movement through philanthropic investment	Global Alliance for the Future of Food	Multiple	Agriculture and food systems	Knowledge transfer/sharing	Consultation through direct dialogues, via member foundations, collaborations with global institutions, and establishment of advisory committees for commissioned research projects.
49	Community Forestry Campaign for Restoring Degraded Lands in Nepal	CLARA – Climate Land Ambition and Rights Alliance	Nepal	Conservation	Legal reforms	Each CFUG formulates its own management plan; “a large number of people are involved in the CFUGs and associated decision-making bodies such as general assemblies, executive committees, monitoring committees and sub-committees focusing on gender equity and social inclusion.” (1) - see other sections on how projects are selected based on community context, etc.
135	Achieving multiple global objectives in a synergistic and pragmatic manner through scaling up public-private partnerships for managing protected areas	African Parks	Multiple	Conservation	Ecosystem conservation	African Parks creates a legal entity and local board for each park under relevant national laws. The local boards are comprised of representatives of African Parks, wildlife authorities and local community representatives. Core of the model is community development, tourism and enterprise that is locally based. Through this model African Parks develops a local constituency that supports each park.
195	Sustainable technologies to promote transformational agriculture with positive and long-term results	Government of Brazil	Brazil	Agriculture and food systems	Knowledge transfer/sharing	Consultation with stakeholders described, as well as considerations of regional circumstances in the development of subnational plans to support the identification of local priorities (1).

TRANSPARENCY

No.	Title	Organization	Target country	Target sector	Principal Activities	What is the communication strategy?
27	Mainstreaming Natural Capital Accounting for Climate Change Policy	UN Committee of Experts on Environmental-Economic Accounting	Multiple	Undefined	Knowledge transfer/sharing	See link to project website.
59	UN-REDD: Supporting countries with complex policy and institutional reforms to scale up climate actions and ambitions on sustainable land and forest management, conservation and restoration	UN REDD	Multiple	Conservation	Undefined	Comprehensive communications/knowledge-sharing strategy online.
80	Amazon Sacred Headwaters Initiative	CONFENIAE – The Confederation of Indigenous Nationalities of the Ecuadorian Amazon, AIDSEAP – The Interethnic Association for the Development of the Peruvian Rainforest, Fundación Pachamama	Multiple	Governance	Declaration/commitment	Multiple forms of communication described, ranging from interactive maps, storytelling campaigns, mobilization of key individuals in media, academia and government, with further training of Indigenous leaders to tell their own stories.

MONITORING

No.	Title	Organization	Target country	Target sector	Principal Activities	What are the means of stewardship, metrics for monitoring?
19	Recarbonization of Global Soils	Food and Agriculture Organization (FAO)	Multiple	Agriculture and food systems	Technological change/innovation	Country driven Global Soil Organic Carbon Monitoring System measuring short- and medium-term changes in SOC, among other variables.
59	UN-REDD: Supporting countries with complex policy and institutional reforms to scale up climate actions and ambitions on sustainable land and forest management, conservation and restoration.	UN REDD	Multiple	Conservation	Undefined	Integrated Results and Monitoring Framework available.
64	Putting No Deforestation into Practice	The High Carbon Stock Approach	Multiple	Industry/Private Sector	Ecosystem conservation	Carbon storage, forest conservation, land and community use impact are measured in HCSA assessments; monitoring platform and alert systems are under development.
105	Zero Budget Natural Farming as a nature-based solution for climate action	Rythu Sadhikara Samstha (RySS), State government of Andhra Pradesh	India	Agriculture and food systems	Technological change/innovation	The government of Andhra Pradesh conducts extensive field data collection to assess ZBNF impacts through crop cutting experiments. Comprehensive studies on health, biodiversity, carbon sequestration and food security are ongoing by ICRAF, TEEB-Agriculture Food study and FAO. A detailed monitoring and evaluation strategy is being developed taking into account environmental, social and governance standards of UN Environment and IFC Performance Standards.
106	PROAmazonia - Utilizing forest conservation and sustainable production practices to address climate change and strengthen local livelihoods in Ecuador	PROAmazonia	Ecuador	Conservation	Ecosystem conservation	Indigenous communities involved in monitoring; emissions reductions monitored nationally via the National Forest Monitoring System; 100 indicators used to monitor and evaluate project interventions and results on a regular basis.

MONITORING

No.	Title	Organization	Target country	Target sector	Principal Activities	What are the means of stewardship, metrics for monitoring?
122	Sustainable Forest Management – Sustainable Land Use Planning, Forest Management and Improved Agriculture Practice	Papua New Guinea	Papua New Guinea	Other	Other	The initiative will be monitored through the National Forest Monitoring System which includes TerraPNG (a system for wall-to-wall land use mapping used with PNG's GHG reporting) and time series assessment of forest carbon stock through the Collect Earth. The performance will be reported to the National Climate Change Board which will function as a central coordinating point for all action on climate change and through its membership of key sector agencies will support and guide cross sector coordination.
148	The contribution of Central African forests to the global fight against climate change	Central African Forest Initiative (CAFI)	Multiple	Conservation	Declaration/commitment	A detailed regional action plan will be developed by the parties concerned by COP25/26. At the country level, Letters of Intent with timebound targets are and will be used. This is monitored by the signatory government entity (Finance, Economy Ministry or PM) of the LOI domestically and through various exchanges and policy dialogue between the country and the CAFI Executive Board including a milestone monitoring matrix.
154	Dairy Sustainability Framework and Indicator Metrics	Dairy Sustainability Framework	Multiple	Agriculture and food systems	Market-based solutions	This report indicates metrics and measurement for each of 11 fields: Waste; Market Development; Rural Economies, Product Safety & Quality; GHG Emissions; Soil Nutrients; Soil Quality & Retention; Water; Biodiversity; Working Conditions; Animal Care.
195	Sustainable technologies to promote transformational agriculture with positive and long-term results	Brazil	Brazil	Agriculture and food systems	Knowledge transfer/sharing	Detailed MRV procedures in place for evaluating technology adoption and monitoring greenhouse gas emissions reductions.

Annex 7. Well-defined nature-based solutions

No.	Title	Organization	Target country	Target ecosystem	Activities (general)	Activities (specific)	How does this contribution define itself as a nature-based solution?
6	Carbon Forest	Poland (State Forests)	Poland	Forests	Knowledge production	Research conducted in 23 forest districts of Poland to determine the absorption potential of Polish forests.	Calculates the carbon absorption potential of existing forests, and the potential for increased absorption following afforestation actions.
18	Low Carbon Livestock Coalition	Food and Agriculture Organization (FAO)	Multiple	Undefined	Technological change	Reduce GHG emissions from livestock systems by improving the use of nutrients, building carbon and nitrogen stocks in soils, and improving the use of livestock products in healthy human diets.	Improved efficiency in livestock production will reduce emissions; regenerative forms of grazing will allow for grassland recovery and thereby increased rates of carbon capture.
68	Taking Action to Increase Global Mangrove Habitat by 20 percent by 2030: The Global Mangrove Alliance	IUCN; World Wildlife Fund, The Nature Conservancy, Conservation International and Wetlands International	Multiple	Coastal	Other]	Novel valuation and financing mechanisms, improving policy and governance, building capacity and increasing the evidence base through developing knowledge and tools to integrate mangroves and ecosystem services into national level mitigation, adaptation and disaster risk reduction strategies.	Mangrove ecosystems provide a variety of adaptation benefits to society, serving as important natural defences against the impacts of natural disasters and climate change, including coastal erosion, extreme weather events and sea level rise.
77	AUT Living Laboratories	AUT – Auckland University of Technology	New Zealand	Forests	Knowledge production	(a) Optimal planting regimes for native restoration objectives as ‘nature-based solutions’ to climate change; and (b) Effective engagement models for landowners, especially Māori landowners, who have aspirations to establish old-growth native forest.	Currently, there are major knowledge gaps relating to sequestration rates for species that are native to Aotearoa New Zealand. The Living Laboratories project seeks to overcome these knowledge gaps, thereby helping landowners to better understand the risks and opportunities for choosing native forest over exotic. In designing the Living Laboratories, a particular focus will be using novel planting regimes to speed up the establishment of old-growth forest trees (tōtara, rimu, matai, tawa, tarairae, hinau, maire, kohekohe, etc.) to provide maximum value for carbon sequestration as well as other environmental values, such as biodiversity conservation and cultural value.

Annex 8. Contributions with high transformational potential

No.	Title	Organization	Target country	Ecosystem	Activities (general)	Activities (specific)	How does this contribution define itself as a nature-based solution?
1	Global Campaign for Nature	Costa Rica, Wyss Foundation, National Geographic Foundation, Conservation International, The Nature Conservancy	Multiple	Multiple	Ecosystem conservation	<p>The campaign's goal is to help conserve 30% of the Earth's lands and oceans by 2030 and contribute to Paris goals through nature-based solutions by:</p> <ul style="list-style-type: none"> - Creating and expanding protected areas, - Restoring degraded ecosystems - Establishing more ambitious international conservation targets in the post 2020 CDB framework - Significantly increasing funding for nature-based solutions and the amount to support the protection and management of key high ecological value ecosystems. - Reinforcing the interlinkages between CBD and the UNFCCC Conventions, particularly on ambitious targets and financial flows and mechanisms - Contributing to enhance NDC processes by including more specific and ambitious targets related to nature-based solutions - Investing in science - Inspiring conservation and climate action around the world 	<p>The contribution is centred on helping to conserve 30% of the Earth's lands and oceans by 2030. It considers forest, land and oceans as critical ecosystems that function as carbon sinks but at the same time play critical role providing ecosystem services.</p>
4	Secure Indigenous Peoples and Community Land Rights as a Nature-Based Solution to Climate Change	Rights and Resources Initiative	Multiple	Undefined	Legal reforms	<p>Scaling-up existing efforts to secure community land rights as legal land titles for Indigenous and local peoples living on forest and other natural lands.</p>	<p>Argues that clear and secure tenure rights are essential for sustainable management and conservation of carbon-rich ecosystems.</p>

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Annex 8. Continued

No.	Title	Organization	Target country	Ecosystem	Activities (general)	Activities (specific)	How does this contribution define itself as a nature-based solution?
11	Agroecology: A Nature-based Food System	AgroEcology Fund	Multiple	Cultivated	Technological change	Promotion of agroecological practices worldwide that would reduce environmental impact of existing agricultural impacts from chemical pesticides/fertilizers, as well as improve farmer livelihoods.	An example of sustainable forestry is given, wherein nitrogen fixation and leaf decomposition lead to improved environmental impacts in the Sahel. However, the NBS nature of the contribution as a whole is not detailed.
12	Green Supply Chain to halt the global Green House Gas Emission due to deforestation and degradation	WWF China	Multiple	Forests	Market-based solutions	Building up a 'Deforestation / Conversion Free Commodity Supply Chain' linking producer countries to market countries.	"By establishing deforestation and conversion-free commodity supply chains, we will enable better land use planning, forest management and robust economic model as well, contributing to emissions reductions." (2)
15	Large Scale Forest Conservation with Indigenous Peoples in the Threatened Brazilian Amazon	Associação Floresta Protegida, Instituto Raoni and Instituto Kabu; Conservation International, Environmental Defense Fund and International Conservation Fund of Canada	Brazil	Forests	Ecosystem conservation	"Building Kayapo capacity to protect their lands, constitutional rights and the primary forest ecosystems on which their culture and livelihoods are based" (1)	Only in broad terms; Kayapo territories protect carbon stocks of mostly primary forest.
18	Low Carbon Livestock Coalition	Food and Agriculture Organization (FAO)	Multiple	Undefined	Technological change	Reduce GHG emissions from livestock systems by improving the use of nutrients, building carbon and nitrogen stocks in soils, and improving the use of livestock products in healthy human diets	Improved efficiency in livestock production will reduce emissions; regenerative forms of grazing will allow for grassland recovery (and thereby carbon capture).

No.	Title	Organization	Target country	Ecosystem	Activities (general)	Activities (specific)	How does this contribution define itself as a nature-based solution?
23	Climate Change and Plant Health: Biodiversity to the Rescue	Food and Agriculture Organization (FAO)	Multiple	Cultivated	Knowledge transfer/sharing	<ul style="list-style-type: none"> Development of global guidelines and a roadmap for tackling plant health in a changing climate and establish mechanism(s) for global and regional collaboration. Surveillance of presence and impact of pests and diseases and introduce appropriate diagnostic methods and services plus reporting mechanisms. Support increased network of agrometeorological stations and increase national and global capacities to produce and dissemination agromet information and early warning systems. Genetic resources with increased pest and disease resistance and abiotic stress resilience, including deployment of available seeds and propagation material of species and varieties of crops with resistance to predominant and emerging pests and adapted to changing, harsher conditions. Unlock the potential to utilize crop wild relatives as well as neglected or underutilised species which are a rich reservoir of novel traits and genes. Diversify production systems - FAO's policy guidance on sustainable crop production intensification, Save and Grow, enunciates means towards intensive but sustainable crop production. Many of the crop pest and disease problems are caused or exacerbated by biodiverse-poor cropping systems. 	<p>Biodiverse systems have greater probability of being resilient in the face of more frequent and intense climate shocks to crop-based production systems. The promotion of biodiverse cropping systems, including agro-silvo-pastoral systems, is one of the keys to mitigating climate change impacts on cropping systems.</p>

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Annex 8. Continued

No.	Title	Organization	Target country	Ecosystem	Activities (general)	Activities (specific)	How does this contribution define itself as a nature-based solution?
25	Restoring forests and lands as a crucial response to climate change and sustainable development	IUCN	Multiple	Forests	Ecosystem restoration	<p>· Best crop management practices and utilization of FAO's farmer field school networks for information dissemination.</p> <p>Employ practices such as agroforestry, crop rotation and inter-cropping to reduce pest and disease build up; minimal tillage and permanent soil cover through living and organic mulches; deploy biological based solutions to pests and diseases such as use of trap crops, pheromones and biological control agents.</p>	<p>In very generalized fashion: "The restoration of forest landscapes is recognized as a critical nature-based solution to climate change. The dynamic interconnections between the Earth's land systems, climate and human societies mean that efforts to restore degraded and deforested landscapes have multiplicative positive benefits."</p>
28	Accelerating action within the food system: investing in capability and research for measurement and mitigation of agricultural greenhouse gases	New Zealand	Multiple	Cultivated	Knowledge production	<p>New Zealand will make targeted investments to strengthen developing countries' ability to monitor agricultural greenhouse gases to accelerate the development of mitigation strategies, improve transparency, gain greater access to climate finance, and improve the climate benefits resulting from development and other investment.</p> <p>In addition, New Zealand will work with partners to mobilise further investment in agricultural mitigation research in key areas, e.g., livestock methane.</p>	<p>Not exactly framed as a NBS solution: "Credible measurement, reporting and verification (MRV) of emissions and emissions reductions is critical to help national policymakers understand sources of GHGs, develop mitigation strategies, improve transparency, and access climate finance." (2)</p>

No.	Title	Organization	Target country	Ecosystem	Activities (general)	Activities (specific)	How does this contribution define itself as a nature-based solution?
34	Large scale seaweed aquaculture for CO ₂ remediation	SINTEF Ocean	N/A	Marine	Technological change	Promotion of large-scale commercial seaweed mariculture.	Biofuel production from seaweed will reduce the need for fossil fuels; seaweed production as an agricultural product will also reduce greenhouse gas emissions from agriculture.
35	Agroecology: Making agriculture fit for purpose in an era of climate change	CLARA – Climate Land Ambition and Rights Alliance	Multiple	Cultivated	Technological change	Promotion of agroecological practices worldwide that would reduce environmental impact of existing agricultural practices; Techniques include: using compost, manure and mulching instead of chemical fertilisers; diversifying seed and crop varieties; and using botanical herbs for treating pests and storing seeds.	There are production system emission reductions associated with limiting fertiliser use and reversing soil degradation and loss.
41	Sustainable management of Morocco's marine resources	Association de Gestion Intégrée des Ressources (AGIR)	Morocco	Marine	Ecosystem conservation	Participatory resource use planning with the involvement of artisanal fishermen, with the aim of improving environmental management and conservation.	N/A
49	Community Forestry Campaign for Restoring Degraded Lands in Nepal	CLARA – Climate Land Ambition and Rights Alliance	Nepal	Forests	Legal reforms	Transfer of forest ownership rights to local communities after government sponsors development of forest management plans.	“The main goal and objective of the community forestry campaign in Nepal is to reduce deforestation and forest degradation, to increase ground covered by native forests, and so contribute to increased carbon capture. Each CFUG [Community Forest User Group] has made a specific provision in their forest management plan for this purpose.” (2)

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Annex 8. Continued

No.	Title	Organization	Target country	Ecosystem	Activities (general)	Activities (specific)	How does this contribution define itself as a nature-based solution?
50	Conservation through Land Titling of Indigenous Peoples Lands and Sustainable Management of their Natural Resources	Forests of the World	Honduras	Forests	Legal reforms	Forests of the World and MOPAWI are working with two Indigenous Peoples in Honduras, the Miskitu and Tolupan peoples, to conserve forest ecosystems through a combined focus on land rights, institutional strengthening and sustainable management of natural resources.	N/A
51	Perverse incentives for agribusiness and deforestation: A love affair that must end	CLARA – Climate Land Ambition and Rights Alliance; Global Forest Coalition (Netherlands) and Heñoi (Paraguay)	Multiple	Forests	Legal reforms	Aim to remove incentives provided to agribusinesses in the EU and Mercosur countries (Paraguay, Brazil and Argentina), which encourage deforestation and biodiversity loss.	N/A
54	Protecting Half the Earth through a Global Deal for Nature serves as key to Nature-Based Climate Solutions	Wild Foundation; NNH Network, RESOLVE	Multiple	Multiple	Ecosystem conservation	Target to protect half of the Earth by 2030 (30% formally protected areas and additional 20% as Climate Stabilization Areas) in order to mitigate climate change.	Within its goal to expand global protected areas, special attention will be given to areas with low anthropogenic disturbance containing vast “carbon repositories”.
57	Develop, promote and scale-up Ocean Thermal Energy Conversion (OTEC)	Principality of Monaco	Monaco	Undefined	Technological change	Use of Ocean Thermal Energy Conversion (OTEC) to generate unlimited energy without the use of fossil fuels; it can also be used to desalinate ocean water.	Supply of clean energy for heating buildings will reduce carbon emissions from oil and gas.

No.	Title	Organization	Target country	Ecosystem	Activities (general)	Activities (specific)	How does this contribution define itself as a nature-based solution?
76	Building with Nature	Wageningen University	Multiple	Coastal	Technological change	In Bangladesh, the creation of an oyster reef to protect the coast from waves, followed by later planting of mangrove forest; in Indonesia, an improved method of planting mangroves for restoration.	“Uses ecosystem services to meet society’s need for infrastructure and encourages the development of nature.” (2)
77	AUT Living Laboratories	AUT - Auckland University of Technology	New Zealand	Forests	Knowledge production	(a) Optimal planting regimes for native restoration objectives as ‘nature-based solutions’ to climate change; and (b) effective engagement models for landowners, especially Māori landowners, who have aspirations to establish old-growth native forest.	Currently, there are major knowledge gaps relating to sequestration rates for species that are native to Aotearoa New Zealand. The Living Laboratories project seeks to overcome these knowledge gaps, thereby helping landowners to better understand the risks and opportunities for choosing native forest over exotic. In designing the Living Laboratories, a particular focus will be using novel planting regimes to speed up the establishment of old-growth forest trees (īōtara, rimu, matai, tawa, tarairae, hinau, maire, kohekohe etc.) to provide maximum value for carbon sequestration as well as other environmental values, such as biodiversity conservation and cultural value.

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Annex 8. Continued

No.	Title	Organization	Target country	Ecosystem	Activities (general)	Activities (specific)	How does this contribution define itself as a nature-based solution?
80	Amazon Sacred Headwaters Initiative	CONFENIAE – The Confederation of Indigenous Nationalities of the Ecuadorian Amazon, AIDSESP – The Interethnic Association for the Development of the Peruvian Rainforest, Fundación Pachamama	Multiple	Forests	Declaration/commitment	Commitment to protect and defend around 30 million hectares of tropical forests in Indigenous territories, and call to: 1) complete the land-titling process and fulfil the FPIC process requirements; 2) call on governments to promote sustainable ecological land-use practices around these IP territories; 3) call on the international community and donors to channel financing in alignment with life plans of Indigenous territories.	The conservation of Indigenous territories and protected areas and their protection from conversion “directly leverages the Amazon living natural systems as a climate change solution” (2). Theory of Change: “Backing Indigenous Peoples’ collective stewardship of their biodiverse ancestral lands delivers the greatest level of protection for the Amazon rainforest”. (2)
92	50/50 - The Plan to Save Life on Earth	Avaaz, the Leonardo DiCaprio Foundation, National Geographic	Multiple	Undefined	Ecosystem conservation	Advocates for 30% of lands protected by 2030 and an additional 20% of ecosystems in key climate stabilization areas either restored, protected or under sustainable management.	Cites different papers as saying that nature provides climate mitigation benefits and that forest restoration will also contribute to this end, but the linkage between these citations and the proposed solution is not explicitly made.
100	Securing Rights to Secure Nature-Based Solutions to Climate Change	Indigenous Peoples Forum on Climate Change (IPFCC); Indigenous Peoples Major Group	Multiple	Undefined	Legal reforms	Campaign to secure land rights for Indigenous Peoples over the 50% of global land mass that they customarily manage, up from the current 10% they legally own.	“Securing the rights of Indigenous Peoples to their lands, territories and resources can conserve and restore our most vulnerable ecosystems, increase the storage of carbon, scale-out agroecosystems for sustainable food production, and restore harmony with nature and all life forms in partnership with states, donors, civil society organizations, and others, using a human-rights-based approach.” (1)

No.	Title	Organization	Target country	Ecosystem	Activities (general)	Activities (specific)	How does this contribution define itself as a nature-based solution?
105	Zero Budget Natural Farming as a nature-based solution for climate action	Rythu Sadhikara Samstha (RySS), State government of Andhra Pradesh	India	Cultivated	Technological change	Eliminates the use of synthetic external inputs by utilizing local farm-based inputs and regenerates soil health across Andhra Pradesh.	“Improvements in soil fertility through bio-inoculants, continuous vegetation cover on the farms and reduced tillage result in decreased carbon loss and increased sequestration of carbon in ZBNF soils.” (1)
137	Climate Solution: Social Forestry Helps Adapt to Climate Change	WARSI; Climate Land Ambition and Rights Alliance (CLARA)	Indonesia	Forests	Legal reforms	Social forestry – granting local communities forest management rights for poverty alleviation and improvements in food security, as well as resolving forest conflicts while improving the ecological function of the forest.	Adapting to Climate Change: Land right entitlements allow them to manage their environment in order to adapt to climate change, and agroforestry is used as one of the adaptation strategies. In Sinar Wajo, villagers are rewetting peatlands to mitigate fire danger and restore the land by planting endemic tree species.
139	Climate Solution: Healthy forests and resilient communities in the Congo	FERN, Observatoire Congolais des Droits de l’Homme (OCDH), Centre pour l’Information Environnementale et le Développement Durable (CIEDD), Centre pour l’Environnement et de Développement, and Climate Land Ambition and Rights Alliance (CLARA)	Multiple	Forests	Other	Type of action: Community forestry and policy advocacy. This project aims to raise awareness, to trial pilot projects, and to create a favourable environment for community forestry. Enabling local and Indigenous communities in the Congo Basin to take over forest management has the potential to restore natural forests, conserve biodiversity, combat illegal logging, address climate change and secure sustainable livelihoods.	Carbon emissions: Community forest management prioritizes local-level economies to produce fewer emissions. Carbon capture: Sustainable management of community forests increases natural carbon sink. Climate resilience: Protecting forests goes hand in hand with increased climate resilience.

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Annex 8. Continued

No.	Title	Organization	Target country	Ecosystem	Activities (general)	Activities (specific)	How does this contribution define itself as a nature-based solution?
140	Climate Solution: Cultural and Local Climate Perspectives in Colombia	Asociación Ambiente y Sociedad and the Investigation Group Cultura y Ambiente of the Universidad Nacional de Colombia; Climate Land Ambition and Rights Alliance (CLARA)	Colombia	Undefined	Knowledge transfer/sharing	Making visible the importance of the diverse local and traditional knowledge for the creation of a dialogue with expert knowledge that sustains the national adaptation policies.	Only in relation to climate adaptation; the contribution is described as “Recognize and disseminate local response to climate change impacts”.
173	Wind power development through institutional innovation and scientific and technological breakthroughs	People’s Republic of China	China	Undefined	Technological change	Develop sustainable wind power renewable energy, and introduce green license regime, initiate policies that support wind power, and encourage technological innovation.	N/A
195	Sustainable technologies to promote transformational agriculture with positive and long-term results	Brazil	Brazil	Cultivated	Knowledge transfer/sharing	“The Brazilian National Plan for Low Carbon Emission in Agriculture (ABC Plan) aims to foster shift the perception of farmers and other stakeholders fostering the opportunity to promote key technologies, practices and processes that increase the resilience of agricultural systems, strengthening their capacity to adapt to the adverse impacts of climate change, increase the yield of crops, while also supporting sophisticated abilities to control emissions of greenhouse gasses in agriculture.” (1)	Not detailed and perhaps does not apply; the contribution seeks to change agricultural practice to reduce CO ₂ emissions.

Note: The three exemplary contributions are highlighted in green

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Nature-based solutions have seen increasing emphasis as a means of realizing transformative change for climate change mitigation and adaptation, environmental conservation, and sustainable development. This report examines 187 proposals of nature-based solutions (NBS) submitted to the United Nations Climate Action Summit in September 2019 to assess the breadth, nature, and potential impact of this emerging paradigm for climate change mitigation and adaptation, environmental conservation, and sustainable development. Noting the self-selected nature of the sample and the public nature of its intended forum, this analysis nonetheless considers these contributions in aggregate as illustrative of the variety of current conceptions and practices of NBS. The analysis finds that forests, cultivated landscapes, and marine and coastal regions comprise the main ecosystems of interest, with NBS most often taking the form of technological change and innovation. The analysis identifies certain concerns for NBS design and implementation, with the majority of submissions failing to provide adequate information on safeguards, transparency, and monitoring. Furthermore, only four submissions provide comprehensive explanations of how their proposed contribution comprises a nature-based solution, raising questions for the ongoing operationalization of NBS as a coherent body of practice. Finally, only 28 contributions are identified as possessing high transformational potential in their sectors of intervention, assessed on the basis of the scale, speed, sustainability and depth of proposed changes. While these findings suggest that submissions with both high transformational potential and a high likelihood of success are often smaller-scale interventions adapted to their sites of implementation, this raises questions of whether NBS will be able to attain the scale and depth necessary to meet expectations for their sustained and transformational impact.



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