Agenda item 5
**Biodiversity and climate change**

# Biodiversity and climate change

# Non-paper

*The Subsidiary Body on Scientific, Technical and Technological Advice,*

*Recalling* decisions VII/15 of 20 February 2004, IX/5 and IX/16 of 30 May 2008, X/33 of 29 October 2010, XI/19 and XI/21 of 5 December 2012, XIII/4 of 13 December 2016, 14/5 of 29 November 2018, 15/30 of 19 December 2022 and 16/22 of 1 November 2024 of the Conference of the Parties to the Convention on Biological Diversity,[1] as well as the critical role of biodiversity, ecosystem integrity and ecosystem functions and services in climate change mitigation, adaptation and disaster risk reduction,

1. *Takes note of* the work undertaken towards the draft supplement to the Voluntary Guidelines for the Design and Effective Implementation of Ecosystem-based Approaches to Climate Change Adaptation and Disaster Risk Reduction,[2] as contained in the annex to the draft decision below and the expanded version contained in CBD/SBSTTA/27/INF/11, and stresses the need to include strengthened social and environmental safeguards, including for indigenous peoples and local communities, women and youth;

[1 bis *Requests* the Executive Secretary to invite Parties, other Governments, relevant organizations, indigenous peoples and local communities, women, youth, civil society, and other observers, to participate in a peer review of the supplement to the Voluntary Guidelines for the Design and Effective Implementation of Ecosystem-based Approaches to Climate Change Adaptation and Disaster Risk Reduction, for consideration by the Conference of the Parties at its seventeenth meeting;]

2. *Takes note* of the synthesis of submissions, the statement of the Joint Liaison Group of the Rio Conventions and the report of the technical information exchange on enhancing policy coherence and cooperation across the Rio conventions contained in document CBD/SBSTTA/27/INF/8, noting that the views summarized in these subsections are not intended to represent any consensus, and some of the views may not be implementable at current stage or contradict with national legislation, policies and common practice;

2.bis *Requests* the Executive Secretary to invite the Executive Secretaries of the United Nations Framework Convention on Climate Change and United Nations Convention to Combat Desertification to collaborate on strengthening the role and function of the Joint Liaison Group, including increasing engagement, transparency and reporting from the Joint Liaison Group to Parties;

2.ter *Requests* the Chair of the Subsidiary Body on Scientific, Technical and Technological Advice to exchange with the Chair of the Subsidiary Body on Scientific and Technological Advice of the United Nations Framework Convention on Climate Change and Chair of the Committee for the Review of the Implementation of the Convention of the United Nations Convention to Combat Desertification, with a view of bringing relevant decisions of the Conference of the Parties and recommendations of the Subsidiary Body on Scientific, Technical and Technological Advice to enhance policy coherence to the attention of the Subsidiary Body on Scientific and Technological Advice at its 63rd session, in November 2025 and the Committee for the Review of the Implementation of the Convention at its 23rd session, in December 2025 in order that they may take

[1] United Nations, *Treaty Series*, vol. 1760, No. 30619.
[2] Decision 14/5, annex; see also CBD Technical Series No. 93 for complementary information.

it into account during their deliberations and consider its contents, and to report back on this exchange to the COP at its next session;

3. *Notes* the relevance of work conducted under the United Arab Emirates-Belém work programme on indicators for measuring progress achieved towards the targets referred to in paragraphs 9–10 of decision 2/CMA.5 of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement to the monitoring framework for the Kunming-Montreal Global Biodiversity Framework;[3]

4. *Notes* that coherency between approaches to monitoring and reporting frameworks for the implementation of the Convention and the Kunming-Montreal Global Biodiversity Framework[4] and the United Nations Framework Convention on Climate Change and the Paris Agreement[5] and voluntary Land Degradation Neutrality targets under United Nations Convention to Combat Desertification, where appropriate, would reduce reporting burdens and improve synergies;

5.bis *Requests* the Executive Secretary to invite the executive secretaries of the other Rio conventions, and the current and incoming presidencies of the Conferences of the Parties of the three Rio conventions, to collaborate on the organization of technical information exchanges to further discuss options to enhance cooperation and policy coherence and synergies across the Rio conventions, and to develop a multilevel roadmap with short, medium and long-term actions, including a mapping study to help identify concrete actions, on the headline options to enhance policy coherence referenced in SBSTTA/27/4, as well as possible gaps and overlaps in existing national and international policies and existing coordination bodies that address implementation of the Rio Conventions, and to report its finding to Parties at the seventeenth meeting of the Conference of the Parties of the Convention;

5.ter *Requests* the Joint Liaison Group of the Rio Conventions in accordance with its mandate and renewed engagement to develop, with involvement of experts and bodies of the Rio Conventions, a potential joint work plan and a multi-level roadmap as referenced in CBD/SBSTTA/27/4 as a mechanism to support Parties in enhancing synergies and policy coherence at national and international levels and to present it to the Parties for their further consideration by the Conference of the Parties to the Convention at its seventeenth meeting, the Conference of the Parties to the United Nations Convention to Combat Desertification at its seventeenth meeting and the Conference of the Parties to the United Nations Framework Convention on Climate Change at its thirty-first meeting;

6. *Recommends* that, at its seventeenth meeting, the Conference of the Parties adopt a decision along the following lines:

*The Conference of the Parties*,

*Reaffirming* paragraph 8 of decision X/33 of 29 October 2010 and paragraph 3 and 6 of decision 16/22 of 1 November 2024,

*Recognizing* that biodiversity loss, climate change, desertification, land and ocean degradation and sea-level change are interconnected and interdependent [crises][challenges], requiring coherent action under the respective frameworks, agreements, and mandates, in full respect of their distinct principles, processes, and decision-making authorities,

Bis. *Recognizing* that biodiversity loss, climate change, ocean acidification, desertification, land degradation, invasive alien species and pollution, among others, are interdependent and need to be addressed urgently and in a coherent and balanced manner of the Kunming-Montreal Global Biodiversity Framework,

[3] Decision 15/5, annex I.
[4] Decision 15/4, annex.
[5] [United Nations, *Treaty Series*, vol. 3156, No. 54113. Adopted under the United Nations Framework Convention on Climate Change (see FCCC/CP/2015/10/Add.1, decision 1/CP.21, annex).]

Ter. *Recalling* decision 16/22 of 1 November 2024 which recognizes the crucial role and capacity of the ocean in regulating the climate, and the need to address the ocean-climate-biodiversity nexus in an integrated manner in order to achieve the goals and targets of the Kunming-Montreal Global Biodiversity Framework,

Quarter. *Recognizing further* that coherent action must be gender-responsive and human rights-based, including the right to a clean, healthy and sustainable environment in line with Section C of the Kunming–Montreal Global Biodiversity Framework and relevant decisions of the Conference of the Parties,

1. *Takes note The Thematic Assessment Report on Interlinkages among Biodiversity, Water, Food and Health* ("nexus assessment") and The Thematic Assessment Report on the Underlying Causes of Biodiversity Loss and the Determinants of Transformative Change and Options for Achieving the 2050 Vision for Biodiversity ("transformative change assessment") of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services and its relevance to the work undertaken under the Convention and to the implementation of the Framework;

2. *Encourages* Parties, other Governments at all levels, indigenous peoples and local communities, women, youth, relevant organizations and stakeholders to identify an integrated, synergistic and holistic approach to address biodiversity and the other nexus elements including climate change, as appropriate, to strengthen policy coherence and interjurisdictional coordination in the implementation of the Rio Conventions, including national and subnational planning, monitoring, reporting and review processes, in accordance with national priorities and circumstances;

3. *Takes note of* the Advisory Opinion 31 of 2024, of 21 May 2024, of the International Tribunal on the Law of the Sea and the advisory opinion of 23 July 2025 of the International Court of Justice concerning the obligations of States in respect of climate change, in both of which the inextricable links between climate change and biodiversity loss are highlighted, and acknowledges that urgent action including under the Convention on Biological Diversity[6] is recognized for the long-term well-being and resilience of people in the face of a changing climate;

4. *Stresses* that the achievement of the mission, goals and targets of the Kunming-Montreal Global Biodiversity Framework is not possible without urgent and effective action on a nexus approach to climate change mitigation and adaptation in line with the goals of the Paris Agreement and that for achieving them it is highly critical to avoid further biodiversity loss and ecosystem degradation;

4. bis *Urges* Parties and encourages other Governments to take into account CBD decisions on climate-related geoengineering, as reaffirmed in decision 16/22 of 1 November 2024;

5. [*Adopts*] the supplement to the Voluntary Guidelines for the Design and Effective Implementation of Ecosystem-based Approaches to Climate Change Adaptation and Disaster Risk Reduction contained in the annex to the present decision, to be applied by the Parties in their territories, in accordance with current national law and applicable international law;

6. *Encourages* Parties, and other governments at all levels, when undertaking actions to ensure the achievement of Targets 8 and 11 of the Framework, as well as Target 2, with the full and effective participation of indigenous peoples and local communities, women and girls, children and youth, persons with disabilities, people in vulnerable situations and those most dependent on biodiversity:

[6] Ibid., vol. 1760, No. 30619.

(a) To identify and operationalize potential biodiversity and climate synergies through their national biodiversity strategies and action plans and relevant national targets including by prioritizing the conservation and restoration of ecological integrity, ensure synergies with other national planning processes, including nationally determined contributions, national adaptation plans, land degradation neutrality targets and gender plans of action, and promote positive impacts and avoid negative impacts of climate action on biodiversity and for communities that directly depend on biodiversity, including the recognition of customary rights and the respect for free, prior, and informed consent at all stages, and ensuring that the development and implementation of these integrated plans are supported by adequate, predictable, and easily accessible means of implementation;

(a)bis To prioritize the protection, conservation, restoration, sustainable management and enhancement of carbon-rich terrestrial, freshwater, marine and coastal, managed and unmanaged ecosystems and of ecosystems with high ecological integrity and adaptive capacities, strengthening carbon sinks and limiting the risk of crossing tipping points;

(b)bis To promote and support the use of the 71 response options assessed in the Thematic Assessment Report on Interlinkages among Biodiversity, Water, Food and Health of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services;

7. *Encourages* Parties, other Governments at all levels and relevant organizations, in accordance with domestic priorities, circumstances and capabilities, to make use of the Voluntary Guidelines and its supplement including the essential social and environmental safeguards to avoid or minimize social and environmental risks, when designing and implementing nature-based solutions and/or ecosystem-based approaches for climate change mitigation, adaptation and disaster risk reduction, recognizing the co-benefits for biodiversity and livelihoods;

8. *Urges* developed country Parties and *encourages* other Parties in a position to do so, other Governments at all levels, financial institutions, multilateral development banks, and other relevant organizations, including the private sector, consistent with Article 20 of the Convention and Target 19 of the Framework, to collectively scale up investments for the conservation and sustainable use of biodiversity, ecosystem restoration and sustainable infrastructure including through supporting climate change mitigation, adaptation and disaster risk reduction, through the conservation, restoration and sustainable use of biodiversity and leveraging the potential of nature-based solutions[7] and/or ecosystem-based approaches and their multiple benefits with environmental and social safeguards;

9. *Invites* the Coalition of Finance Ministers for Climate Action and its institutional partners to further integrate biodiversity and climate change interlinkages into its work programme, including through the development of tools and guidance to support the implementation of the Framework;

10. *Invites* the United Nations Environment Programme to include, as appropriate, the indicators used under the United Arab Emirates Framework for Global Climate Resilience and the monitoring framework for the Kunming-Montreal Global Biodiversity Framework as the basis for monitoring the contribution of biodiversity, and ecosystem functions and services to climate change adaptation, ensuring that data and tracking systems are accessible and usable by developing countries, with provision of technical, technological, and financial support for their effective implementation;

11. *Requests* the Executive Secretary, subject to the availability of resources, to develop dissemination tools for Parties, other governments, observers, relevant organisations, indigenous peoples and local communities, children and youth on the use of the Voluntary Guidelines and its supplement, which could include, *inter alia*, possible development of

[7] As of UNEA 5/Resolution 5

harmonised joint reporting elements, joint indicators, examples of nature-based solutions and/or ecosystem-based approaches activity-based reporting templates, metrics for demonstrating multiple benefits, or other practical tools or toolkits, and share them, as appropriate, through the Technical and Scientific Cooperation Mechanism and the network of regional and/or subregional support centres, with a view to promoting both enhanced capacities and effective uptake of scientific and technical guidance by Parties;

11.bis *Invites* the respective bodies of the UNFCCC and its parties to consider using the Voluntary Guidelines and its supplement for Parties to integrate biodiversity, nature-based solutions and/or ecosystem-based approaches, and social and environmental safeguards in mitigation and adaptation measures;

11.ter *Encourages* the technical and scientific cooperation support centres to make use of the Voluntary Guidelines and its supplement in supporting parties in the implementation of targets 8 and 11 of the KMGBF;

12. *Also requests* the Executive Secretary, subject to the availability of resources and avoiding the duplication of efforts, in collaboration with the Joint Liaison Group of the Rio Conventions and the Joint Capacity-building Programme, rights holders including indigenous peoples and local communities and stakeholders, other multilateral environmental agreements, organizations, partnerships, initiatives and coalitions[8] and their respective members, to further pursue enhancing policy coherence in cooperation with the United Nations Framework Convention on Climate Change and the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa;

12.bis. *Also requests* the Executive Secretary to collaborate with the Executive Secretaries of the UNFCCC and UNCCD on assessing and strengthening the mandate of the Joint Liaison Group (JLG) of the Rio Conventions, and increase transparency and engagement between the JLG and Parties;

12.ter. *Further requests* the Executive Secretary to invite Parties, other governments and other relevant organizations to submit information on carbon and biodiversity credits and offsets, other market-based approaches and their effects on biodiversity, ecosystem integrity and indigenous peoples and local communities, and to make them available for the consideration of the Subsidiary Body on Scientific, Technical and Technological Advice, prior to the eighteenth meeting of the Conference of the Parties.

[8] Organizations, partnerships, initiatives and coalitions include, but are not limited, to the following: NBSAP Accelerator Partnership, the NDC Partnership, the NAP Global Network, the ENACT Partnership, the FEBA network and the Partnership for Environment and Disaster Risk Reduction.

**Annex**

**Supplement to the Voluntary Guidelines for the Design and Effective Implementation of Ecosystem-based Approaches to Climate Change Adaptation and Disaster Risk Reduction: Primer for Policy Makers**

# I. Introduction

1. Nature-based solutions and/or ecosystem-based approaches, as defined by UNEA 5/5, form part of effective and coherent responses to interdependent crises, including biodiversity loss, climate change and disaster risk.[1] They are recognized as actions that can be taken to tackle societal, economic and environmental challenges under, *inter alia*, the Convention on Biological Diversity, the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, the United Nations Framework Convention on Climate Change, the United Nations Environment Assembly, the United Nations Office for Disaster Risk Reduction, the Intergovernmental Panel on Climate Change, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, the United Nations Convention on the Law of the Sea, the UN-Oceans platform, the UN-Energy platform, the UN-Water platform and the Group of Experts of the Regular Process for Reporting and Assessment of the State of the Marine Environment at the Global Level, including Socio-Economic Aspects. When well designed, they can support resilience and restore ecological integrity while advancing efforts towards sustainable development.

2. The Voluntary Guidelines were adopted at the fourteenth meeting of the Conference of the Parties, in 2018. A more detailed version was published in 2019 as CBD Technical Series No. 93. They provide clear guidance on how to integrate ecosystem-based approaches into climate change adaptation and disaster risk reduction effectively. Much of the guidance, including the principles and safeguards, may also be applicable to climate change mitigation and other [social, economic and environmental challenges. Since 2019, there have been substantial developments in international policy and scientific understanding, notably the adoption of the Kunming-Montreal Global Biodiversity Framework in 2022. The present supplement is aimed at complementing the Voluntary Guidelines and relevant decisions,[2] responding to the new developments and paying particular attention implementing safeguards to climate change mitigation in line with Target 8 of the KMGBF, which is not covered in the Voluntary Guidelines.

3. In its resolution 5/5 of 2 March 2022, the United Nations Environment Assembly defined nature-based solutions as actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems that address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits.

4. Ecosystem-based mitigation can be understood as actions which protect, conserve, restore or sustainably use and manage natural or modified ecosystems for their carbon storage and sequestration service to aid climate change mitigation through reducing greenhouse gas emissions and enhance carbon removals from the atmosphere, and to deliver benefits for

[1] Decision X/33 on biodiversity and climate change contains guidance for Parties on the implementation of ecosystem-based approaches for climate change mitigation and adaptation.
[2] Decisions XII/20, 14/5, 15/4 and 16/22.

biodiversity. In decision X/33, Parties and other actors were invited to follow specific guidance for different ecosystems.

## II. Key messages

5. Nature-based solutions and/or ecosystem-based approaches provide many tangible benefits that directly support the achievement of global environmental, climate and development goals and targets, including Targets 8 (on minimizing the impacts of climate change and climate action on biodiversity and building resilience) and 11 (on restoring, maintaining and enhancing nature's contributions to people) of the Kunming-Montreal Global Biodiversity Framework.[3] The effective implementation of those approaches can enhance synergies across the Rio conventions, as well as other environmental and social priorities, including those of the biodiversity-related multilateral environmental agreements and the Sustainable Development Goals.

6. Embedding nature-based solutions and/or ecosystem-based approaches into climate action policies, strategies and budgets, where relevant, can enhance policy coherence. Strategies that are ambitious, rights-based, gender-responsive and long-term in vision can help to ensure the continued central contribution of ecosystem health and integrity to resilience, low carbon economies and just transition while increasing equity.

7. Fit-for-purpose social and environmental safeguards, including frameworks for implementing and monitoring them, would promote the multiple benefits for biodiversity, ecosystem services, resilience and human well-being offered by nature-based solutions and/or ecosystem-based approaches, while avoiding or minimizing social and environmental risks. Safeguards for climate change mitigation actions should be consistent with decisions taken by the United Nations Framework Convention on Climate Change and the Paris Agreement.

8. Nature-based solutions and/or ecosystem-based approaches are most effective when they deliver across multiple objectives, and there is whole-of-government and whole-of-society participation, including broad and sustained engagement and support from indigenous peoples and local communities, scientists and stakeholders. Such planning, design, implementation, governance and monitoring efforts will help to ensure success in delivering benefits for both biodiversity and climate. This is most effective when the multiple different benefits and services across different timescales and for different actors or sectors is properly identified and quantified. It is also important to ensure benefits for biodiversity take into account natural ecosystem integrity and functions. In addition, they need to be grounded in evidence-based decision making, including scientific knowledge and in respect for diverse world views and knowledge systems. Inclusive, rights-based design and governance are built on key principles, such as free, prior and informed consent,[4] gender equality and respect for traditional knowledge, cultures and practices. Adaptive monitoring frameworks will support ownership, transparency and long-term impact.

9. The Voluntary Guidelines for the Design and Effective Implementation of Ecosystem-based Approaches to Climate Change Adaptation and Disaster Risk Reduction[5] and the present supplement could be usefully complemented by regionally and culturally tailored toolkits, which may be ecosystem- or sector-specific. User-friendly, actionable toolkits could offer guidance on various topics, such as safeguards, design standards, co-benefit evaluation and institutional readiness.

[3] Decision 15/4, annex.
[4] "Free, prior and informed consent" refers to the tripartite terminology of "prior and informed consent", "free, prior and informed consent" and "approval and involvement".
[5] Decision 14/5, annex; see also CBD Technical Series No. 93 for complementary information.

# III. Principles and safeguards

10. The Voluntary Guidelines are underpinned by a set of 10 principles and nine safeguards. The principles serve as high-level standards to guide planning and implementation. They are framed as actions that promote: (a) resilience and adaptive capacity; (b) inclusivity and equity; (c) success at multiple scales; and (d) effectiveness and efficiency. The safeguards are aimed at preventing harm to people and to nature, facilitating transparency and promoting multiple benefits. The existing principles and safeguards, designed primarily for ecosystem-based adaptation and disaster risk reduction, are also broadly applicable to nature-based solutions and/or ecosystem-based approaches that can provide climate change mitigation co-benefits.

11. The present supplement updates the guidance on fit-for-purpose social and environmental safeguards by integrating some additional principles and safeguards for ensuring benefits for biodiversity from climate change mitigation-focused nature-based solutions and/or ecosystem-based approaches, in particular to deliver biodiversity benefits and to strengthen the safeguards for indigenous peoples and local communities, women and youth.

12. Together, the principles and safeguards are an essential part of the inclusive, participative approaches to design and implementation described throughout the present text. These existing biodiversity principles and safeguards[6] apply to all stages of project design; applying environmental impact assessments at the earliest stages of project design and robust monitoring and evaluation systems; preventing the transfer of risks and impacts; avoiding degradation of natural habitats, loss of biodiversity, the introduction of invasive species, and the creation or exacerbation of vulnerabilities to future disasters; promoting and enhancing biodiversity and ecosystem functions and services; and aiming for sustainable resource use while not enhancing the drivers of climate change and disaster risks.

13. The principles and safeguards outlined in this section provide a facilitative and flexible approach to the implementation of nature-based solutions and/or ecosystem-based approaches while acknowledging that countries may wish to adapt those standards in accordance with their levels of development, priorities and circumstances. Nothing in these Voluntary Guidelines should be understood as modifying the rights and obligations of Parties under the Convention or any other international agreement.

## 1. Additional principles and safeguards for ensuring benefits for biodiversity from climate change mitigation

14. When climate change mitigation is a key objective, additional principles and safeguards are necessary to ensure that the actions to be undertaken meet both adaptation and nature goals and avoid contradictions. Where countries follow these voluntary principles and safeguards, they should ensure alignment with their commitments under the UNFCCC and the Paris Agreement, including agreement relating to the implementation of Article 6 of the Paris Agreement. While noting that international carbon market rules are set under Article 6 of the Paris Agreement, the additions are focused on multiple benefits with emphasis on biodiversity and ecological integrity. The additional principles and safeguards for climate change mitigation to be undertaken meet both climate and nature goals are focused on multiple benefits, urgency, mitigation hierarchy, additionality, permanence and leakage. The table below includes descriptions of each of these principles as well as optional safeguards.

[6] Applying environmental impact assessments at the earliest stages of project design and robust monitoring and evaluation systems; preventing the transfer of risks and impacts; avoiding degradation of natural habitats, loss of biodiversity, the introduction of invasive species, and the creation or exacerbation of vulnerabilities to future disasters; promoting and enhancing biodiversity and ecosystem functions and services; and aiming for sustainable resource use while not enhancing the drivers of climate change and disaster risks.

### 2. Strengthening safeguards for indigenous peoples and local communities, women and youth

15. Building on the principles and safeguards laid out in the Voluntary Guidelines, and consistent with section C of the Framework, the following areas deserve further attention:

(a) *Respect for different value systems.* Nature embodies different concepts for different people, including biodiversity, ecosystems, Mother Earth, and systems of life. nature's contributions to people also embody different concepts, such as ecosystem goods and services and nature's gifts. The KMGBF recognizes and considers diverse value systems and concepts that nature embodies, including biodiversity, ecosystems, Mother Earth, and systems of life. For example, nature itself is assigned an intrinsic value and rights, including within legal frameworks, including, but not limited to, for those countries which take a Mother Earth-centric world view.[7,8] This understanding is rooted in a common indigenous perspective that sees humans as part of nature and does not privilege them above other parts of an ecosystem. While existing safeguards, frameworks and standards often address the rights and traditional knowledge of indigenous peoples and local communities, they do not directly address all value systems, such as Mother Earth-centric world views. This aspect could be further developed, as appropriate, in diverse national contexts and in ways that are supportive of human rights and consistent with different national legislation and international obligations and principles of International Law;

(b) *Respect for human rights.* Human rights-based approaches are essential to the legitimacy, integrity and effectiveness of nature-based solutions and/or ecosystem-based approaches. This is already embedded in the existing safeguards, but further strengthening in line with the Framework is recommended. Safeguarding the right of indigenous peoples to participate in governance structures and decision-making pertaining to nature-based solutions and ecosystem-based approaches that affect them is essential. Ensuring transparency, building trust and supporting flexible, inclusive implementation are also critical to successful scaling up. To address concerns around the recognition of the multiple values of nature and the distribution of benefits and burdens, the rights of indigenous peoples and local communities should be fully integrated into project design, implementation and governance. This will involve giving attention to free, prior and informed consent. It will also include attention to customary rights, cultural protection, participatory decision-making, participatory implementation, transparent communication and equitable benefit-sharing. Wherever solutions are proposed that would affect existing rights-holders, the guidance outlined in the present supplement is relevant. Furthermore, advancing gender equality and the fulfilment of women's rights are fundamental for the effective and equitable implementation of nature-based solutions and/or ecosystem-based approaches.

## IV. Overarching considerations

16. The considerations below are intended to complement those presented in the Voluntary Guidelines in relation to the stepwise approach to design and implementation.

[7] Cristina Espinosa, "The advocacy of the previously inconceivable: a discourse analysis of the Universal Declaration of the Rights of Mother Earth at Rio+20", *The Journal of Environment and Development*, vol. 23, No. 4 (December 2014).
[8] Haydn Washington and others, "Why ecocentrism is the key pathway to sustainability", *The Ecological Citizen*, vol. 1, No. 1 (2017).

## 1. Scaling up

17. Good practices for the scaling-up of nature-based solutions and/or ecosystem-based approaches to climate change mitigation, adaptation and disaster risk reduction include:[9,10]

(a) Identifying the costs and benefits (social, environmental and economic) of different approaches in different contexts, including over different timescales or for different actors;

(b) Addressing factors that enable success and the barriers to scaling, through systematic monitoring, evaluation and reporting on effectiveness and efficiency;

(c) Adopting integrated approaches for scaling up, aligning policies, incentives, finance and safeguard measures, and including regional planning;

(d) Applying fit-for-purpose safeguards, standards and guidelines;

(e) Enabling effective locally-led actions, scaling up and coordinating existing local initiatives, with safeguards tailored to risks and settings, in the application of the precautionary approach.

(f) Applying evidence-based decision making and recognizing science as a driver of nature-based solutions and/or ecosystem-based approaches.

(g) Integrating traditional knowledge and the efforts of indigenous peoples and local communities.

### (a) Recognizing and respecting traditional knowledge and the efforts of indigenous peoples and local communities

15. Recognizing and respecting traditional knowledge, innovations and practices and valuing the efforts of indigenous peoples and local communities are crucial for the successful design, implementation and scaling up of nature-based solutions and/or ecosystem-based approaches. Key actions include:

(a) The full, equitable, inclusive, effective and gender-responsive representation and participation of indigenous peoples and local communities, women and youth at the design stage and throughout project implementation, ensuring the co-creation of actions to be taken and enabling ownership at the local level. This may be facilitated by developing or amending policy and legislative frameworks that enable the full and effective participation of indigenous peoples and local communities, as well as facilitating their efforts to address climate change and biodiversity loss. This consideration builds upon principle 4 of the Voluntary Guidelines;

(b) Addressing land tenure rights and access to natural resources and recognizing the role of indigenous peoples and local communities in managing biodiversity and ecosystem services. Many indigenous peoples and local communities face unclear and unrecognized tenure despite having customary land- or sea-use rights, which undermines their ability to implement actions that address biodiversity and climate concerns and build resilience within their traditional territories. If the issue is left unaddressed, outside interventions can exacerbate land dispossession[11] or create uncertainty about land ownership. These considerations build upon safeguard 9 of the Voluntary Guidelines;

[9] United Nations Environment Programme, *Nature-based Solutions: Opportunities and Challenges for Scaling Up* (Nairobi, 2022).
[10] European Environment Agency, *Scaling Nature-based Solutions for Climate Resilience and Nature Restoration* (Publications Office of the European Union, 2023).
[11] Laura Notess and others, *The Scramble for Land Rights: Reducing Inequity between Communities and Companies* (Washington, D.C, World Resources Institute, 2018).

(c) Building bridges between different science and knowledge systems based on best practices in existing forums such as IPBES. Much traditional knowledge is passed on orally and is context-specific. For this reason, inclusion of such knowledge alongside with scientific findings needs care and attention to data sovereignty.[12] Data sovereignty policies can provide frameworks that Parties should use for the ethical use of data to advance collective indigenous well-being, and to prevent the unlawful use of traditional knowledge associated with genetic resources.[13]

### (b) Mainstreaming nature-based solutions and/or ecosystem-based approaches

16. Nature-based solutions and/or ecosystem-based approaches can only deliver their full transformative potential when mainstreamed into appropriate governance and policy frameworks and underpinned by inclusive planning, monitoring and transparency systems. When operationalizing the Framework, Governments at all levels can ensure that the approaches are embedded through coherent land- and sea-use planning, as appropriate, climate-biodiversity budget alignment and spatial strategies. Many Governments have implemented programmes and frameworks to deliver nature-based solutions and/or ecosystem-based approaches with climate change mitigation benefits, such as REDD+, from which lessons can be learned. Governments can, and increasingly do, integrate these approaches into national biodiversity strategies and action plans, voluntary land degradation neutrality targets, national adaptation plans and nationally determined contributions, also with a view to fostering collaboration and integrated policy and planning approaches across the Rio conventions in a manner consistent with national circumstance and priorities. Enhanced collaboration among the responsible ministries will help to leverage synergies, ensure alignment across different programmes or frameworks, and avoid the duplication of efforts.

### (c) Raising awareness and building capacity

17. Communicating the multiple benefits of nature-based solutions and/or ecosystem-based approaches to a wide audience is crucial to uptake and sustainability. It is also essential to opening avenues for funding. Understanding the information and communication needs of diverse stakeholder groups will help to ensure effective outreach, build a common knowledge base, raise awareness and strengthen capacities in accordance with the long-term strategic framework for capacity-building and development.[14] Many organizations, partnerships, initiatives and coalitions are working on awareness-raising and capacity-building or on offering platforms for knowledge exchange.[15]

## 2. Stepwise approach to design and implementation

18. The Voluntary Guidelines present a stepwise approach designed for adaptation and disaster risk reduction objectives. Some additional considerations for each step, including for initiatives towards climate change mitigation, are highlighted below.

[12] See www.gida-global.org/care.
[13] Stephanie Russo Caroll, Tahu Kukutai and Maggie Walter, "Indigenous data sovereignty" in *The Indigenous World 2021*, 35th edition, Dwayne Mamo and others, eds., (International Work Group for Indigenous Affairs, 2021).
[14] Decision 15/8, annex I.
[15] Initiatives such as the NBSAP Accelerator Partnership, the Nationally Determined Contributions Partnership, the National Adaptation Plan Global Network, the Enhancing Nature-based Solutions for an Accelerated Climate Transformation Partnership, the Friends of Ecosystem-based Adaptation network and the Partnership for Environment and Disaster Risk Reduction, as well as their respective members, facilitate capacity-building, in particular for developing countries, and help to increase awareness and understanding of the impacts of climate change on biodiversity, including by sharing lessons learned from the implementation of nature-based solutions and/or ecosystem-based approaches.

**Step A: understanding the social-ecological system**

19. It is important to explore several issues when defining the challenge to be tackled and setting objectives for a new initiative:

(a) The history of the target social-ecological system, the drivers of ecosystem change and the rate of greenhouse gas emissions from ecosystem loss or degradation must be identified. Furthermore, the impact of future climate scenarios on the rate of ecosystem change and subsequent greenhouse gas emission should also be considered. Such an assessment will feed into an estimate of emission reductions and removals from possible activities that will be undertaken in step D;

(b) With regard to the social context, the dependence of local jobs, industries, livelihoods and cultures on natural and managed ecosystems, the destruction of ecosystems, barriers to ecosystem restoration and the aspirations of the local population must all be considered;

(c) Identify how and with whom the benefits would need to be shared, including any use of domestic or international market or non-market approaches. In addition, the carbon rights and land and sea tenure must be recognized and respected, as appropriate, as well as the local attitudes towards payments for ecosystem services.

**Step B: assessing vulnerabilities and risks**

20. Step B is focused on the vulnerability of nature and people to climate change and risk to hazardous events. Engaging early with traditional knowledge holders and including their knowledge into climate vulnerability and risk assessments, with full respect for knowledge and data sovereignty, are essential.

21. Social and environmental safeguards are crucial tools to supporting the understanding and reduction of risks. Environmental safeguards include addressing the risk of negative impacts of climate change mitigation measures on biodiversity including ecosystem integrity, the risk of reversals of emission reductions and removals that may result from extreme events or slower onset climate impacts.

**Step C: identifying options for nature-based solutions and/or ecosystem-based approaches**

22. To reflect the Framework, step C will need to accommodate effective, equitable and scalable nature-based solutions and/or ecosystem-based approaches. The potential barriers to effectiveness, multiple benefits derived, and wider impacts from each envisaged option should be identified. Key actions for identifying climate change mitigation options specifically could involve: (a) identifying broad options for action, based on step A; (b) exploring specific options selected in similar geographical areas (e.g. through case studies); (c) working with the multi-stakeholder group concerned to identify favoured options; and (d) identifying elements addressed in the IPBES Nexus Assessment including positive and negative feedbacks, trade-offs and benefits of an approach that considers all elements in achieving sustainable outcomes.

**Step D: prioritizing, appraising and selecting options**

23. Some additional criteria should be considered when prioritizing and appraising options for action with a climate change mitigation objective (key action (a) of the Voluntary Guidelines). The criteria may include: the position in the mitigation hierarchy; mitigation

potential; resilience to climate change; and capacity to implement over the long term.[16,17] Relatively simple methods can be used to derive a first estimate of mitigation potential for many options. Although countries should seek to improve their transparency reporting over time, including through the increased use of higher tier data and methods. The Intergovernmental Panel on Climate Change distinguishes tier 1 data and methods (default global values), tier 2 (country-specific) and tier 3 (more detailed models, more local data). Current understanding of ecosystem resilience to climate change (step B) is a factor in assessing the long-term viability of each option in delivering mitigation benefits. The capacity to implement will depend on existing skills and knowledge, training opportunities and access to the financial and other resources needed to enable implementation through time.

**Step E: project design, implementation and scaling up**

24. Alongside the key actions specified in the Voluntary Guidelines, nature-based solutions and/or ecosystem-based approaches will also be more successful when diverse knowledge systems are acknowledged and incorporated. It may be especially helpful to integrate traditional knowledge into design and implementation.[18] When climate change mitigation co-benefits are intended, attention to the carbon-focused safeguards detailed in the table below is needed at the design and implementation stages.

25. One clear pathway to scaling up is the inclusion of nature-based solutions and/or ecosystem-based approaches in nationally determined contributions, national adaptation plans, voluntary land degradation neutrality targets and other national plans. A first step is to quantify the potential for multiple benefits, including for biodiversity, ecosystem integrity, climate change mitigation, adaptation and disaster risk reduction, often through spatial analysis and planning. Scaling up also represents a unique opportunity to promote private sector and multilateral investment for implementation as well as an incentive for technology development related to adaptation, nature conservation and sustainable use as well as risk reduction.

**Step F: holistic and transparent monitoring and evaluation mechanisms**

26. Nature-based solutions and/or ecosystem-based approaches aim to result in multiple benefits that help to address several social, economic and environmental challenges. Monitoring and evaluation frameworks should therefore encompass the entire suite of interventions, including the multiple intended benefits, as well as track any negative impacts. Emission reductions should be measured in line with methodologies under the UNFCCC and the Paris Agreement, including in line with REDD+, the enhanced transparency framework and the requirements of Article 6 mechanisms, as appropriate. Multiple carbon standards and protocols are available, though they do not cover all types of nature-based solutions and/or ecosystem-based approaches.[19] Governments that deploy actions to reduce emissions from deforestation and forest degradation in developing countries (REDD-plus) are expected to develop safeguard information systems to provide transparent and consistent information on how safeguards are being addressed and respected and summaries of information that update the status of each country's approach to safeguards under the United Nations Framework

[16] Sara M. Leavitt and others, *Natural Climate Solutions Handbook: A Technical Guide for Assessing Nature-Based Mitigation Opportunities in Countries*, 2nd ed. (Arlington, The Nature Conservancy, 2021).
[17] United Nations Environment Programme, *Nature-based Solutions for Climate Change Mitigation* (Nairobi and Gland, 2021).
[18] Nathalie Seddon and others, "Understanding the value and limits of nature-based solutions to climate change and other global challenges", *Philosophical Transactions Royal Society B*, vol. 375, No. 1794 (March 2020).
[19] World Business Council for Sustainable Development, "Carbon standards for natural climate solutions (NCS) credits", associated technical paper for the report *Nature-based Solutions in strategies for Net Zero, Nature Positive and addressing Inequality* (November 2022).

Convention on Climate Change, financial support of developed countries that use these measures in this context.

**Additional principles and safeguards focused on nature-based solutions and ecosystem-based approaches that provide climate change mitigation co-benefits**

| *Theme* | *Principle* | *Potential safeguard* |
|---|---|---|
| Multiple benefits | Prioritize approaches that address multiple social, economic and environmental challenges, seeking benefits for biodiversity, ecosystem services, resilience and human well-being, without undermining the environmental quality of the ecosystems where they are implemented (see also principle 10 of the Voluntary Guidelines). Prioritize the protection, restoration and management of ecosystems and species important for the full carbon cycle and contributing to climate change adaptation. while also placing strong emphasis on safeguarding biodiversity by focusing on vulnerable and climate-sensitive species and ecosystems. Ensure a balanced mix of approaches across communities and diverse ecosystems. | **Planning for multiple benefits**<br>Design of nature-based solutions and/or ecosystem-based approaches that provide climate change mitigation benefits should take their ability to deliver multiple benefits into account. This may involve:<br>(a) Assessing the benefits, risks and trade-offs of selected actions across multiple social, economic and environmental challenges, considering the vulnerability of ecosystems;<br>(b) Undertaking spatial prioritization that incorporates an analysis of the social and environmental risks and benefits of the proposed actions;<br>(c) Over larger areas, aiming to balance among actions that prioritize several benefits, communities and ecosystems, so that all efforts are not directed to high-carbon ecosystems;<br>(d) Communicating to stakeholders the trade-offs among various benefits and the recognized risks when comparing proposed actions, as part of participative decision-making processes. |
| Urgency | Consider the pressing urgency of the biodiversity and climate crises, together with the longevity of greenhouse gases in the atmosphere. Actions that reduce emissions or enhance removals in the short term are more valuable than those with results that materialize over a longer time frame. Avoid the trap of prioritizing speed over resilience (see "permanence" below). | **Projection of carbon and biodiversity outcomes through time**<br>Nature-based solutions and/or ecosystem-based approaches that provide climate change mitigation benefits should be selected using an assessment of the expected results, where such information is available. Benefits to biodiversity should be considered and estimated. Consideration of cost per ton of carbon dioxide equivalent should be considered and, together with resilience considerations, may, for example, help countries identify the types of restoration intervention most suitable for a given area. |
| Mitigation hierarchy | Prioritize tackling any ongoing loss of carbon stocks in natural habitats followed by action to restore historical damage (through noting both may be pursued as local circumstances allow). This principle is closely connected with the urgency principle and multiple benefits principles above. Emissions from the destruction of a natural ecosystem are near-instantaneous, while the carbon removals resulting from the full restoration of an equivalent area of the same ecosystem will typically take many years. | **Following the mitigation hierarchy**<br>Nature-based solutions and/or ecosystem-based approaches that provide climate change mitigation benefits should consider the mitigation hierarchy. Where there is a choice between reducing both negative impacts on biodiversity and emissions through preventing the loss or degradation of natural ecosystems (e.g. deforestation) and emissions removals through restoring natural ecosystems, and each option has similar mitigation benefits, to follow the mitigation hierarchy is to avoid further negative impacts before restoring degraded ecosystems. |

| *Theme* | *Principle* | *Potential safeguard* |
|---|---|---|
| Additionality | Account only for biodiversity and ecosystem integrity benefits or carbon emission reductions or removals that would not have otherwise occurred (i.e. new climate benefits resulting from the activity). | **Ensuring additionality**<br>Nature-based solutions and/or ecosystem-based approaches that provide climate change mitigation should be designed on the basis of a stringent assessment of additionality, following accepted carbon standards, including those agreed under the Paris Agreement. The net reduction of carbon stocks in all organic carbon pools (above ground and below ground in the case of terrestrial ecosystems) should be prevented. |
| Permanence and long-term impacts | Prioritize activities where the emission reductions or removals and the biodiversity benefits are likely to be long-lasting, taking social and ecological factors into account. | **Promoting permanence**<br>Nature-based solutions and/or ecosystem-based approaches that provide climate change mitigation should have long-lasting results. They should protect, maintain and restore biodiversity and ecological integrity (ecosystem condition, composition, structure and function).<br>Actions should be designed to reduce the risk of reversals (i.e. Cancun safeguard f),[20] which typically means tackling the underlying drivers of ecosystem degradation and barriers to ecosystem restoration or sustainable management.<br>Actions should be designed for climate and ecosystem resilience, prioritizing the use of local, climate-resilient native species in planting and restoration.<br>Monitoring systems should be able to assess any reversals, and carbon accounting or crediting systems should include buffers to cater for the remaining risk of reversals. |
| Leakage | Avoid displacement ("leakage") of emissions and negative impacts on biodiversity to another location. Leakage can include local, national and international leakage. | **Avoiding leakage**<br>Nature-based solutions and/or ecosystem-based approaches that provide climate change mitigation should be designed to avoid leakage. Where international carbon markets are used, proponents should follow current and future guidance developed under the Paris Agreement. Solutions include:<br>(a) Locating mitigation activities in well-governed landscapes and as part of an integrated spatial plan (see Target 1 of the Kunming-Montreal Global Biodiversity Framework);<br>(b) Working collaboratively with actors dependent on land-use change to develop alternative livelihoods and economic pathways that do not lead to leakage or to rebound effects;<br>(c) Undertaking biodiversity and carbon accounting at a jurisdictional scale or within a nested scheme, to integrate local and domestic leakage into overall results;<br>(d) Estimating the remaining risk of leakage on the local, domestic and international scales; |

[20] Decision 1/CP.16, appendix I, of the Conference of the Parties to the United Nations Framework Convention on Climate Change.

| *Theme* | *Principle* | *Potential safeguard* |
|---|---|---|
| | | (e) Deducting projected remaining leakage from the biodiversity and carbon results in accounting or crediting schemes. |
| Equity, gender equality and human rights | Take a Human Rights-Based Approach, including respecting and protecting the rights and roles of indigenous peoples and local communities, women and youth, who are key actors in both protecting and restoring biodiversity, and in implementing climate action. Their traditional knowledge, priorities and needs should be taken into account for biodiversity and climate actions to be equitable, inclusive, effective and rights-based. | Ensure consistent application of rights-based and gender-responsive approaches to climate change mitigation actions should be designed and implemented with the full, effective, inclusive and gender-responsive participation and representation of indigenous peoples and local communities, women and youth. Actions which present risks or imply potential risks of dispossession, undermining rights, failing to ensure free, prior and informed consent or benefit-sharing, amongst others, should be avoided. |