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COMMITTEE ON FORESTRY

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Forest Solutions for Combatting Climate Change

Executive Summary

The Paris Agreement goal of limiting global warming to 1.5 – 2°C above pre-industrial levels will be out of reach without the world's forests. Protected, restored and sustainably managed forests store and sequester carbon, stabilize local and regional climate through biophysical processes, and provide a host of biodiversity benefits and other ecosystem services that help enhance the adaptive capacity and resilience of people and ecosystems[1].

To reinforce forest solutions to climate change, there is a need to address several key issues. These include: understanding and tackling drivers of deforestation and forest degradation; enhancing the role of forests in national climate policies; mobilizing finance for mitigation and adaptation; recognizing, supporting and rewarding Indigenous Peoples and local communities who protect and sustainably manage forests; and promoting transformational adaptation.

FAO's work on forests and climate change is embedded in the FAO Strategic Framework (2022-31) Better Environment Programme Priority Area on 'Climate change mitigating and adapted agrifood systems', along with the FAO Strategy on Climate Change 2022-2031. Through strengthening the role of forests in global climate policy, developing countries' capacities for forest-based climate action, and scaling up action on the ground, FAO plays a key role in supporting Members in their efforts to advance forest solutions for the climate crisis.

[1] https://ukcop26.org/glasgow-leaders-declaration-on-forests-and-land-use/

Suggested action by the Committee

The Committee is invited to:

- strengthen their efforts to unlock the vast mitigation and adaptation potential of forests by halting deforestation, restoring degraded forests and landscapes, and implementing sustainable forest management, by:

  - taking advantage of REDD+[2] frameworks to reduce emissions from deforestation and forest degradation and to facilitate access to growing results-based finance, including through carbon markets;

  - enhancing forest-related ambition in Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs), as appropriate;

  - creating enabling conditions to mobilize climate finance for mitigation and adaptation, including through robust forest monitoring and strong social and environmental safeguards;

  - supporting the role of local communities and Indigenous Peoples in climate action.

The Committee is invited to recommend FAO to:

- enhance the forest-related components of NDCs and NAPs, including through estimating the biophysical effects of forests on climate (beyond carbon) and highlighting forest-based adaptation options;

- facilitate access to climate finance for mitigation and adaptation through the Green Climate Fund (GCF), the Global Environment Facility (GEF), the Adaptation Fund and other multilateral and bilateral sources, along with emerging market opportunities;

- explore and assess the contribution of wood products to carbon storage and carbon substitution, and how the mitigation benefits of wood products can be better integrated into NDCs;

- bolster technical assistance and access to finance for forest and farm producer organizations, local communities and Indigenous Peoples;

- implement integrated risk management approaches for healthier and more resilient forests, including through a focus on wildfires, pests and diseases, and severe weather events.

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[2] Reducing emissions from deforestation and forest degradation, as well as the sustainable management of forests and the conservation and enhancement of forest carbon stocks in developing countries (UNFCCC decision 1/CP.16, paragraph 70).

I. Introduction

1. This document presents the role of forests in climate action, key issues to address to reinforce the role of forests in mitigation and adaptation, and a summary of FAO's work on forests and climate change. It complements documents: COFO/2022/5.1 Action Plan for the implementation of the FAO Strategy on Climate Change 2022-2031, COFO/2022/5.2. Forests Fires and the Global Fire Platform and COFO/2022/INF/9 Update on the FAO Strategy on Climate Change.

II. Role of forests in climate action

2. The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Cycle paints a dire picture of the state of global climate change and emphasizes the urgency of mitigation and adaptation action. Climate change – due to the burning of fossil fuels, unsustainable land use and other sources – has already contributed to observed changes in weather and climate extremes globally[3]. The globally agreed climate targets of 1.5 °C and 2 °C warming will be exceeded during the 21st century unless deep reductions in greenhouse gas emissions occur soon. Every fraction of a degree of global warming makes adaptation more challenging[4].

3. Forests play a key role in climate action. Halting deforestation and increasing forest cover are cost-effective solutions to mitigate climate change, cutting emissions by over 5 gigatonnes (Gt) of CO_2 equivalent each year – about 11 percent of total annual emissions[5]. Ecosystems at risk of deforestation and degradation, such as peatlands, mangroves, old-growth forests and marshes, contain at least 260 Gt of 'irrecoverable carbon'[6]. Unless additional measures are taken, an estimated 289 million ha of tropical forests will be lost between 2016 and 2050, resulting in 169 $GtCO_2e$ released into the atmosphere[7], or four times current annual global CO_2 emissions[8].

4. While protecting these ecosystems, forest and landscape restoration can build long-term carbon sinks to remove CO_2 from the atmosphere. The global mitigation potential of reforestation and afforestation by 2050 is 3.9 gigatonnes of CO_2 per year[9].

5. Sustainable forest use and management, including through sustainable wood products and more efficient, cleaner and greener forest-based bioenergy, can also help support a transition to carbon neutrality[10]. An estimate of the International Energy Agency indicates that modern use of bioenergy would have to increase by around 60 percent between 2020 and 2050 alongside a shift away from the traditional use of biomass to help achieve net zero emissions. A major part of the feedstock for bioenergy would come from dedicated plantations, restoration of degraded forests, agroforestry, and more effective use of wood residues[11] through sustainable production practices that avoid economic, social and environmental harm.

6. Forests do more for the climate than store and sequester carbon. New science illustrates the dramatic global cooling effect of forests through evapotranspiration and via their physical structure and chemistry. When taking these biophysical effects into account, it is estimated that tropical forest conservation could provide 50 percent greater global cooling than previously thought. This extra global climate change mitigation is complemented by the ability of forests to regulate rainfall and stabilize local climate, helping minimize extreme weather and making forests essential for climate

[3] https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/
[4] https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/
[5] https://www.ipcc.ch/report/sixth-assessment-report-working-group-3/
[6] https://www.nature.com/articles/s41893-021-00803-6
[7] https://iopscience.iop.org/article/10.1088/1748-9326/aa907c
[8] https://www.globalcarbonproject.org/
[9] https://www.ipcc.ch/report/sixth-assessment-report-working-group-3/
[10] https://www.fao.org/documents/card/en/c/cb9360en/
[11] IEA. 2021. Net Zero by 2050. A roadmap for the global energy sector. IEA. (available at https://www.iea.org/reports/net-zero-by-2050)

change adaptation and resilience[12]. Future agricultural productivity in the tropics, and beyond, depends on the climate regulatory functions that forests provide[13]. Trees in cities make them more liveable by keeping temperatures in check[14]. Protected, restored and sustainably managed forests also provide a host of biodiversity benefits and other ecosystem services that help enhance the adaptive capacity and resilience of people and ecosystems[15].

7. At the 26th Session of the Conference of Parties (COP26) to the UNFCCC in November 2021, 141 governments committed to halt and reverse forest loss and land degradation by 2030 through the Glasgow Leaders' Declaration on Forests and Land Use[16]. More than USD 20 billion was pledged to achieve this goal, including USD 1.7 billion from 2021 to 2025 to advance the forest tenure rights of local communities and Indigenous Peoples. Twenty-eight Members, representing 75 percent of global trade in key commodities that could threaten forests, signed the Forest, Agriculture and Commodity Trade (FACT) Statement[17]. Parties also committed to doubling finance for adaptation by 2025 and launched the Glasgow – Sharm-el-Sheikh work programme for the Global Goal on Adaptation. The first Global Stocktake in 2023 will assess progress towards the goals of the Paris Agreement, including mitigation, adaptation, and means of implementation. FAO's work on forests and climate change contributes to achieving these goals through addressing key issues described in the next section.

III. Key issues to reinforce the role of forests in mitigation and adaptation

8. **Understanding and tackling direct and underlying drivers of deforestation and forest degradation.** Agricultural expansion drives almost 90 percent of deforestation[18]. The transformation of unsustainable commodity production is essential for meeting climate goals, which makes it imperative to further enhance collaboration and synergies between forestry and agriculture[19]. Furthermore, degradation of forests – including through climate and land use change-fuelled wildfires[20], pest and disease outbreaks, severe drought, storm damage, flooding and landslides – reduces their ability to store carbon, adapt to climate change and support the most vulnerable. Integrated risk management is needed to promote healthy and resilient forests, including under worsening climate conditions.

9. **Enhancing the role of forests in national climate policies.** Many countries highlight the potential of forests in their Nationally Determined Contributions (NDCs) to the Paris Agreement. As of 31 July 2021, 79 percent of new/updated NDCs reference the role of forest solutions for mitigation, and 68 percent recognize the role of trees in adaptation[21]. Better integration of forests and trees into NDCs for adaptation can be supported by the long-term National Adaptation Plan (NAP) process[22]. However, a significant number of country targets are conditional on international climate finance, highlighting the need for continued support to countries for forest-based climate action[23].

10. **Mobilizing finance for forest-based climate change mitigation and adaptation**. Climate finance for forests has been chronically low, and more investment is needed[24]. In recent years, results-based payments (RBPs) have been made by the Forest Carbon Partnership Facility (FCPF) Carbon

[12] Frontiers | The Unseen Effects of Deforestation: Biophysical Effects on Climate | Forests and Global Change (frontiersin.org)
[13] https://www.nature.com/articles/nclimate2430
[14] https://www.nature.com/articles/s41467-021-26768-w
[15] https://wires.onlinelibrary.wiley.com/doi/full/10.1002/wcc.195
[16] https://ukcop26.org/glasgow-leaders-declaration-on-forests-and-land-use/
[17] Forest, Agriculture and Commodity Trade (FACT) Statement
[18] https://www.fao.org/forest-resources-assessment/remote-sensing/fra-2020-remote-sensing-survey/en/
[19] COFO/2022/4
[20] COFO/2022/5.2
[21] https://www.fao.org/documents/card/en/c/cb7442en
[22] https://www.fao.org/documents/card/en/c/cb1203en
[23] https://wwf.panda.org/wwf_news/?4238891/NDCS-nature
[24] https://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1470455/

Fund and the Green Climate Fund (GCF) to multiple countries that reported REDD+ results. The Global Environment Facility (GEF) supports the enhanced transparency framework of the Paris Agreement through the Capacity-building Initiative for Transparency (CBIT), and the GEF-7 cycle was designed to complement GCF support to countries. Voluntary carbon markets have grown remarkably[25], and although currently project focused, there is an increasing demand for credits from jurisdictional REDD+ programmes. Notably, the Lowering Emissions by Accelerating Forest finance (LEAF) Coalition mobilized USD 1 billion of public and private funding to incentivize large-scale tropical forest protection to be used for a combination of RBPs and carbon credit purchases. In coming years, additional demand for forest carbon credits is expected for compliance purposes. Finance for adaptation has lagged far behind that for mitigation, but new pledges are helping to resolve this imbalance.

11. **Recognizing, supporting and rewarding Indigenous Peoples and local communities as key allies in forest-based climate action.** Indigenous Peoples and local communities provide critical global environmental services through their stewardship of the world's forests. Globally, 36 percent of high integrity forests are in Indigenous territories, providing climate stability[26]. In Latin America, deforestation rates in these areas are significantly lower where governments have formally recognized collective land rights[27]. Despite this, local communities and Indigenous Peoples receive less than 1 percent of climate finance[28]. Respect for local rights and livelihoods are integral to successful forest-based climate action. This includes strengthening collective territorial rights and governance; facilitating community forest management; revitalizing traditional cultures and knowledge; and ensuring that finance gets to the ground[29].

12. **Promoting transformational adaptation.** Adaptation is critical for reducing exposure and vulnerability to climate change. Forest-based adaptation options include conservation, protection and restoration measures, along with sustainable forest management and agroforestry systems, making them highly synergistic with mitigation[30]. The IPCC emphasizes that transitioning from incremental to transformational adaptation, which changes the fundamental attributes of socio-ecological systems in anticipation of climate change impacts, can help make new adaptation options available[31].

IV. FAO's work on forest solutions to climate change

13. FAO's work on forests and climate change is embedded in the FAO Strategic Framework 2022-31 Better Environment Programme Priority Area on 'Climate change mitigating and adapted agrifood systems', along with the FAO Strategy on Climate Change 2022-2031. The next two sub-sections present highlights of FAO's forests and climate work, while the draft Action Plan for the implementation of the FAO strategy on Climate Change 2022-2031 is provided in document COFO/2022/5.1.

A. Strengthened global and regional climate policy and governance

14. FAO and the United Nations Environment Programme (UNEP) are leading the UN system-wide response to the UN Secretary General's 2019 call for 'Turning the Tide on Deforestation,' which

[25] https://www.forest-trends.org/publications/state-of-the-voluntary-carbon-markets-2021/
[26] https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/fee.2148
[27] https://www.fao.org/documents/card/en/c/cb2953en
[28] https://www.regnskog.no/en/news/falling-short
[29] https://www.fao.org/documents/card/en/c/cb2953en
[30] https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/
[31] AR6 Climate Change 2022: Impacts, Adaptation and Vulnerability — IPCC

includes keeping forests high on the global climate agenda through high-level dialogues in the context of the UNFCCC[32,33].

15. FAO has launched several studies on underlying and direct drivers of land use change and forest loss. To support efforts to decouple agricultural supply chains from deforestation, FAO and the Organisation for Economic Co-operation and Development (OECD) are working on a business handbook to complement the 2016 joint '*Guidance for responsible agricultural supply chains'* with more information on how to better integrate the risk of deforestation when undertaking due diligence[34].

16. In the context of growing interest in high integrity of emission reductions from forests, FAO has played a leading role in providing technical advice on carbon accounting. This has included provision of technical support, methodological guidance and forest monitoring data for partner countries, as well as support for the development of carbon standards, such as the Architecture for REDD+ Transactions' The REDD+ Environmental Excellence Standard (ART-TREES) and Verra's Jurisdictional and Nested REDD+ (JNR) framework.

17. FAO is also providing leadership on how to enhance the use of sustainable forest products to mitigate climate change. Launched in March 2022, the report '*Forest products in the global bioeconomy-Enabling substitution by wood-based products and contributing to the SDGs'* brings together the most up-to-date knowledge on the role of forest products in the global bioeconomy, providing a wide range of practical actions to increase the contribution of forest products to climate change mitigation and to sustainable development.[35]

18. Regarding adaptation, FAO has engaged global ecosystem-based adaptation experts and practitioners to draw attention to the key role of forests and trees in adaptation policies and practices. This work includes the development of principles for transformational adaptation in the forestry sector to help guide adaptation action at multiple levels and support the Global Goal on Adaptation.

19. In 2021, FAO, the International Union of Forest Research Organizations and the United States Forest Service published '*A guide to forest–water management'*, which highlights how forests and trees are integral to the global water cycle and recommends that forest and water relationships are considered in the development of national climate change mitigation and adaptation strategies[36].

B. Supporting scaling up action for climate change mitigation, adaptation and resilience

20. The flagship UN-REDD Programme[37], led by FAO, the United Nations Development Programme (UNDP) and UNEP, intends to achieve by 2025: one gigaton of high-quality emission reductions per year; USD five billion in results-based financing; more than 15 countries with enhanced forest ambitions in NDCs; and a transformative nature-based solutions movement catalyzed by forests.

21. Substantial progress has been made on establishing National Forest Monitoring Systems (NFMS) and measurement, reporting and verification (MRV) procedures, which provides the foundation for monitoring NDCs and REDD+ results. This expertise has enabled UN-REDD to support Costa Rica, the Democratic Republic of the Congo (DRC), Ecuador, Ghana, Mexico, Nepal, Papua New Guinea, Uganda and Viet Nam in submitting proposals to the LEAF Coalition for the supply of Emission Reductions.

[32] https://unfccc.int/news/at-cop25-a-call-to-turn-the-tide-on-deforestation
[33] https://www.un.org/esa/forests/events/high-level-dialogue-of-the-collaborative-partnership-on-forests-upscaling-actions-to-turn-the-tide-on-deforestation/index.html
[34] Guidance for responsible agricultural supply chains
[35] https://www.fao.org/3/cb7274en/cb7274en.pdf
[36] https://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1439629/
[37] https://www.un-redd.org/

22. FAO through the GEF-funded global project 'Building global capacity to increase transparency in the forest sector, CBIT-Forest[38] has helped countries improve the reliability, transparency and sharing of forest data towards implementation of the transparency framework of the Paris Agreement.[39] The project provided benefits to 49 countries.

23. FAO's GCF portfolio reached USD 942.80 million in 2021. Promoting sustainable forestry practices and reducing deforestation to lower emissions, along with increasing the resilience of farming systems, is at the core of many FAO-led GCF projects. In particular, FAO has helped to access finance for REDD+ implementation in Argentina, Chile, Colombia, Congo, Côte d'Ivoire, DRC and Nepal.

24. Together with 46 members of the Global Peatlands Initiative[40], FAO works to advance sustainable peatland management, in particular through conservation, restoration and improved management approaches of peatlands and their monitoring, and supporting integration of peatlands into national climate plans and strategies.

25. FAO's Forest and Landscape Restoration Mechanism (FLRM)[41] helped Lebanon and Morocco revise their NDCs to integrate restoration-aligned targets, and is assisting Fiji, Niger and the Philippines to expand their forest stocks and improve ecosystem services to support national climate change goals. In Vanuatu, with finance from the Adaptation Fund, FAO will support national climate change adaptation efforts through restoration.

26. The Action Against Desertification Programme (AAD)[42] helps implement Africa's Great Green Wall (GGW). AAD has developed capacities of the 11 GGW national coordinating agencies and the Pan-African Agency of the GGW on the use of digital monitoring tools (e.g. Collect Earth) and restored over 60,000 ha so far. To scale-up finance and implementation on the ground, FAO is developing the 10-year, USD 226.5 million 'Scaling-Up Resilience in Africa's Great Green Wall' (SURAGGWA) GCF programme to restore 2 million ha in 8 GGW countries in collaboration with the GGW national and Pan-African Agencies, and other partners.

27. Two recently-launched GEF-7 Global Flagship Impact Programmes on Dryland Sustainable Landscapes – DSL (led by FAO) and Food Systems, Land Use and Restoration – FOLUR (led by the World Bank), implemented across a combined 36 countries with a total budget of USD 450 million, seek to achieve transformative results within the food systems and climate change interface.

28. The recently-launched 'Assuring the Future of Forests through Integrated Risk Management (AFFIRM) Mechanism' will help strengthen countries' capacities to anticipate and manage wildfires and other risks to forests[43]. Through the Regional Forest Invasive species networks, FAO supports over 90 countries to build capacities to manage the risk to world forests by pests, diseases and invasive plants.

29. Through the 'Sustainable Wood for a Sustainable World' joint CPF initiative, FAO and partners have worked to raise awareness about the contributions of sustainable wood products to climate change mitigation and adaptation (see COFO/2022/7.4).

30. Through UN-REDD, the Central African Forest Initiative (CAFI), the GCF and Canada and Sida-funded projects, FAO is supporting community-based climate action in Argentina, Ecuador, Chile, Colombia, Congo, Côte d'Ivoire, DRC, Honduras, the Lower Mekong region of Myanmar, and West Africa. FAO's support to local communities and Indigenous Peoples includes community forest

[38] https://www.fao.org/in-action/boosting-transparency-forest-data/en/
[39] https://www.fao.org/documents/card/en/c/cb8908en
[40] https://www.globalpeatlands.org/
[41] https://www.fao.org/in-action/forest-landscape-restoration-mechanism/en/
[42] https://www.fao.org/in-action/action-against-desertification/en/
[43] https://www.fao.org/forestry/news/99890/en/

monitoring; climate-friendly local livelihoods; forest, land and peatland management and restoration; the recognition of legitimate tenure; and enhanced access to finance.

31. Through South-South Cooperation, FAO helps capture local knowledge on the risks of climate change, along with adaptation options, in dryland areas[44]. This innovative approach aims to empower communities, while allowing for broad information sharing that benefits communities and decision-makers facing similar challenges.

32. The Forest and Farm Facility provides direct financial support and technical assistance to strengthen forest and farm producer organizations. This includes support for implementation of practical climate-resilience options[45].

33. FAO's forests and climate change work addresses aspects of mitigation, adaptation and resilience at multiple levels. FAO plays a key role in advancing forest solutions for the climate crisis through strengthening the role of forests in global climate policy, developing countries' capacities for forest-based climate action, and scaling up action on the ground.

[44] https://www.fao.org/dryland-forestry/making-every-voice-count/en/
[45] https://pubs.iied.org/20311iied