

3 May 2019

FAO is engaging in the Climate Action Summit at many levels, and has been an active participant in the discussion since the first inception workshop in early 2018. We are well aware of the critical moment we are facing and the need to stimulate significantly increased ambition at a time when so many climate indicators are not pointing in the right direction. While FAO is also closely engaging with other coalitions, such as Resilience and Infrastructure & Cities, the bulk of FAO's expertise and mandate lies within the NBS area. FAO estimates that 24% of all greenhouse gases are caused by the AFOLU sector, however at the same time 44% of the existing, scalable and operationally feasible solutions to bend the curve and stay within the agreed climate goals come from the same sector.

Virtually every sector FAO works on contains important elements that are helping countries to mitigate and adapt to the impacts of climate change. For this first round of discussions and prioritization, FAO has opted to highlight seven major technical areas that do not yet receive sufficient attention, despite the fact that they provide some of the quickest impact solutions available. FAO is also working closely with a wide range of partners, contributing to other joint proposals on a wide range of topics, and looks forward to backing up the NBS coalition with its full technical experience, its strong in-country linkages, and its normative and convening role.

The seven priority areas of FAO's contribution are:

- Ecosystem Restoration as a nature-based solution for climate action
- Low Carbon Livestock Coalition
- Recarbonization of Global Soils
- Climate Change and the Ocean - adaptation strategies for fisheries and aquaculture
- Food Loss and Waste Reduction for Climate Action
- Forests and trees: a nature-based solution to global urban challenges
- Climate Change and Plant Health: Biodiversity to the Rescue

Several of these areas are relatively new for the entire climate community, and FAO is working hard to collect examples of scalability, potential impact prediction and costs. This is especially true for the areas of plant health and of food loss & waste. FAO is also working on detailed concepts to FAO's work on "Spatial observation and monitoring tools for cooperative climate action", and to "Global cooperation for combating wildfires as climate change mitigation policy". Given the short timeline for proposals, it has not yet been possible to fully develop the concepts along the required format, but these will be available in the future as useful cross cutting tools.

FAO contribution to the Nature Based Solutions workstream for the Climate Action Summit

Ecosystem Restoration as a nature-based solution for climate action

1. Context and rationale

Land degradation is negatively impacting at least 3.2 billion people and costing over 10 per cent of the annual global gross product in loss of biodiversity and ecosystem services. Between 2000 and 2009, it was responsible for annual global emissions of 3.6–4.4 Gt of CO₂ (IPBES, 2018).

Reversing degradation of land and marine ecosystems can provide more than one-third of the mitigation required by 2030 to remain below a 2°C increase in average global temperatures and at the same time conserve biodiversity, increase food and water security, augment the overall well-being of human societies and help achieve the sustainable development goals.

2. An overview of the contribution

More than two billion hectares of the world's degraded landscapes and seascapes offer potential for restoration. An initial target is the restoration of 500 000 ha of degraded ecosystems by 2030.

3. How the contribution leverages living natural systems as a solution to avert climate change?

Restoration increases the capacity of ecosystems to absorb and store carbon. It also increases the availability of fertile agricultural land and natural resources and hence reduces carbon emissions from deforestation caused by the expansion of agriculture.

4. Key outcomes:

Reduction in carbon emission and carbon capture

Land restoration and reduced and avoided degradation of forests, wetlands, grasslands and croplands could provide more than one third of the most cost-effective greenhouse gas mitigation activities required by 2030 to keep global warming to below 2°C (IPBES 2018).

Newly planted forests capture 1-10 t CO₂-e/ha/year and the restoration of 350 million hectares of degraded land over the next 10 years could remove 13-26 Gt of CO₂-e from the atmosphere (GPFLR, 2018), while restored seagrass beds can absorb 1.3 CO₂-e/ha/year over the first ten years (Greiner et al, 2013). Other carbon-rich ecosystems in need of restoration include peatlands and mangroves.

Increased climate resilience

Healthy ecosystems are better able to cope with shocks and adapt to change. For example, trees provide shade and have a cooling effect, while restored watersheds increase drinking water supplies and buffer against both floods and droughts. Restored mangrove forests help protect coastal areas against the effects of storms.

Social impact

Restoration creates jobs in rural areas. Farmers, fishers and forest owners can enjoy higher and more sustainable yields. Many benefits would accrue to poor rural communities, helping alleviate poverty. By restoring degraded ecosystems, we enhance the opportunities of future generations.

Net economic impact

Restoring 350 million hectares of degraded and deforested lands by 2030 could generate up to USD 9 trillion in net benefits (Verdon & Seidl 2017), while each US dollar invested in coastal restoration could yield more than USD 15 in net economic benefits (Conathan et al, 2014).

Impact on realization of the 2030 Agenda for Sustainable Development

Ecosystem restoration contributes directly to SDGs 1,2,6,13,14 and 15 by creating jobs and sustainable value chains, enhancing food and dietary diversity, increasing water availability and supplying wood energy for cooking, mitigating the effects of climate change and enhancing the resilience of ecological and social systems. It can also contribute to the avoidance of conflict and migration (SDG 16) by increasing the availability of natural resources.

Food security

Food security will be improved through control of erosion and increased availability of food, water and woodfuel for cooking.

Minimising species extinction and ecological losses and fostering an increase of biodiversity

Through thoughtful restoration of degraded ecosystems, habitats for wild plants and animals will be (re)created and impacts on existing habitat mitigated.

5. Which countries and organisations are involved in the contribution?

Seventy-two countries sponsored the recent [UNGA resolution](#) on the UN Decade on Ecosystem Restoration (2021-2030). FAO and UN Environment are leading the implementation of the Decade in close collaboration with other UN organizations, Convention Secretariats, NGOs, CSOs and the private sector.

6. How have stakeholders been consulted in developing the contribution?

This action is responding to the global call to reverse land degradation supported by the research community (e.g. [IPBES](#), [CIFOR](#)), NGOs (e.g. [IUCN](#), [WWF](#)) the private sector (e.g. [Commonland](#), [WYSS Campaign for Nature](#)), community organizations (e.g. [Ecosystem Service Partnership](#)), youth and school groups (e.g. [Cooperation on Health and Biodiversity](#) and [Plant for the Planet](#)). Consultations are ongoing.

7. Where the contribution can be put into action?

See the [map of land restoration opportunities](#). Many marine ecosystems are also in need of restoration.

8. How the contribution will be delivered? How will different stakeholders be engaged in its implementation? What are the potential transformational impacts?

The contribution will be delivered through a global mass movement catalysed by a communication campaign designed for the UN Decade on Ecosystem Restoration (2021-2030), supported by technical advice and existing partnerships and platforms including the [Bonn Challenge](#), [The Global Partnership on Forests and Landscape Restoration](#), [Forest and Landscape Restoration Mechanism](#), [Action Against Desertification](#), [The Collaborative Partnership on Forests](#), [Water Platform](#), the [Global Soil Partnership](#) and the [Soil Portal](#), [Pastoralist Knowledge Hub](#), [Forest and Farm Facility](#), [Agro-ecology Knowledge Hub](#), [Great Green Wall Initiative](#), [Mangroves for the Future](#) among many others.

9. Is this initiative contributing to other Climate Action Summit workstreams?

Yes: Climate Finance and Carbon Pricing; Resilience and Adaptation; Youth and Citizen Mobilization and Mitigation Strategy.

10. How does this contribution build upon this experience? How does the contribution link with different ongoing initiatives?

This action will accelerate progress towards existing global restoration goals, e.g. the [Bonn Challenge](#), which aims to restore 350 million hectares of degraded ecosystems by 2030. Currently, 57 countries, subnational governments and private organizations have committed to bring over 170 million hectares under restoration and 77 percent of Nationally Determined Contributions (NDCs) contain commitments for forest restoration (IUCN 2018).

It builds on the [Initiative 20x20](#) in Latin America that aims to restore 20 million hectares of degraded land by 2020, the [AFR100 African Forest Landscape Restoration Initiative](#) that aims to bring 100 million hectares of degraded land under restoration by 2030, the [Pan-African action agenda on ecosystem restoration for building resilience in Africa](#) and the [Regional Strategy and Action Plan for Forest and Landscape Restoration in Asia-Pacific](#).

11. Funding mechanisms

On average, the benefits of restoration are 10 times higher than the costs (IPBES, 2018) but unlocking all the benefits requires significant levels of investment. Much of this will have to come from private sources. Potential funding mechanisms include:

- Redirecting existing incentives, subsidies and public finance.
- Introducing carbon prices and allocating the proceeds from carbon taxes/auctioned emission permits to restoration efforts.
- Leveraging climate finance opportunities.
- Mitigating risk for private investors through insurance guarantees, tax credits and first-loss capital structures.
- Bundling projects to increase investment size while reducing project-specific risk through diversification.
- Carbon emissions offset schemes including emerging schemes such as the Carbon Offset and Reductions Scheme for International Aviation (CORSA).

12. Means of stewardship, metrics for monitoring

An inclusive governance structure and a monitoring system are being developed for the UN Decade on Ecosystem Restoration by FAO and UN Environment.

13. Communication strategy

The communication strategy for the UN Decade on Ecosystem Restoration is currently under development

14. Contact details of proponents

Mette.Wilkie@fao.org; Eduardo.Mansur@fao.org; Tim.Christophersen@un.org; Carole.SAINT-LAURENT@iucn.org Alexander.Jones@fao.org

References:

Conathan, M., Buchanan, J. and Polefka, S. 2014. The Economic Case for Restoring Coastal Ecosystems. (Available at: <https://cdn.americanprogress.org/wp-content/uploads/2014/04/CoastalRestoration-factsheet.pdf>)

GPFLR. 2018. Restoring forests and landscapes: the key to a sustainable future (available at http://www.forestlandscaperestoration.org/sites/forestlandscaperestoration.org/files/resources/GPFLR_FINAL%2027Aug.pdf).

Greiner, J. T., McGlathery, K. J., Gunnell, J., & McKee, B. A. 2013. Seagrass restoration enhances "blue carbon" sequestration in coastal waters. *PloS one*, 8(8), e72469. doi:10.1371/journal.pone.0072469 (Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3743776/>)

IPBES. 2018. Assessment report on land degradation and restoration. (Available at <https://www.ipbes.net/assessment-reports/ldr#report>).

IUCN & Climate Focus 2018. Increasing ambition and action in NDCs through forest landscape restoration. (Available at https://infoflr.org/sites/default/files/2018-07/flr_in_ndcs_summary.pdf)

Verdone, M. & Seidl, A. 2017. Time, space, place, and the Bonn Challenge global forest restoration target: Bonn Challenge global forest restoration target. *Restoration Ecology*. 10.1111/rec.12512. (Available at: <https://onlinelibrary.wiley.com/doi/abs/10.1111/rec.12512>)