



**Submission by the Food and Agriculture Organization of the United Nations (FAO)
To the United Nations Framework Convention on Climate Change (UNFCCC)
In relation to Inputs for the Standing Committee on Finance
relating to the organization of its next Forum**

The need to transform our food systems into solutions for health and climate risks

The FAO welcomes the opportunity to provide input for the UNFCCC Standing Committee on Finance's next forum as it relates to "Financing Nature-based Solutions". The FAO recognizes that the sustainability of our food systems depends on vital agro-ecosystem services and biodiversity for food and agriculture. This 'natural capital' enhances social resilience by protecting livelihoods against the direct impacts of climate change and related disasters, and sustainably maintains longer-term food production by providing, for example, water flow regulation, nutrient cycling, pollination, pest and disease regulation, and climate regulation. Furthermore, the food system is closely linked to energy both as a producer and as a consumer of energy, resulting in 22 percent of GHG emissions and 30 percent of energy use. Nature based solutions challenged through the energy dimension of food systems can achieve win-win solutions that target key dimensions such as climate change, poverty eradication and food security.

The impacts of climate change on agriculture are becoming increasingly severe, and while the sector absorbs 22 percent of the impact caused by disasters, this increases to 25 percent when only climate-related disasters are considered. Moreover, the ocean has absorbed more than 90 percent of the excess heat in the climate system and 25 percent of the anthropogenic carbon dioxide emissions. Although our food systems are highly vulnerable to climate and non-climate related hazards, the current health crisis due to COVID-19 is occurring in a pre-existing and now worsening food systems' crisis, which is characterized by large-scale environmental degradation and the loss of natural capital needed to support climate change disaster risk reduction, adaptation and mitigation. This includes 60% of global biodiversity loss on land, 33% of degraded soils, 34.2% of commercial fish stocks fished at biologically unsustainable levels, and 20% overexploitation of the world's aquifers, as well as close to 30% of the global GHG emissions driving climate change. These facts clearly indicate that our food systems are exposing us to health, climate and food insecurity risks. This translates into upwards of USD 12 trillion per year in damage to our environment, health, and development, which will amount to more than USD 16 trillion per year by 2050. With upwards of \$44 trillion of economic value generation – more than half of the world's total GDP –moderately or highly dependent on nature, it is clear that our health and well-being depend on that of our natural capital.

New sustainable agriculture opportunities could generate almost 80 million jobs by 2030, with more than 90% of them located in developing countries. That includes roughly 21 million jobs in Africa, 22 million jobs in India, 12 million jobs in China, and 15 million jobs in the rest of Asian developing countries. Transforming food and land use systems could create new business opportunities worth up to \$4.5 trillion a year by 2030. Considering the potential benefits to be derived from their application, a concerted effort should be made to scale up and optimize the use of nature-based solutions (NBS) as part of this transformation. More specifically, integrating NBS into wider food system risk-management and climate action (DRR, adaptation, mitigation) strategies can serve to identify and address business as usual (BAU) practices that hinder health and climate risk reduction and longer-term socio-ecological resilience. Nature-based solutions in food systems optimize synergies and co-benefits by simultaneously targeting the restoration, sustainable management, and the conservation of vital ecosystem services and biodiversity needed to:

- Buffer agricultural livelihoods against climatic and non-climatic risks and to support the adaptation of livelihoods and communities dependent on food systems
- Ensure longer-term efficient production of safe, nutritious and affordable food, while protecting the environment
- Restore carbon sinks (one-third of the cost-effective climate mitigation needed between now and 2030) and reduce emissions
- Reduce losses from climate related disasters in communities (e.g. extreme events, droughts, river and coastal flooding and erosion, etc.)

Bridging the finance gap for NBS

Equally important in this narrative is enhancing the economic case for NBS, particularly given the economic crisis caused by the current health crisis. Despite their importance, NBS remain heavily underfunded. A primary objective for FAO is to support countries in implementing and enhancing their NDCs as part of the Paris Agreement. Specifically, FAO is supporting the Koronivia Joint Work on Agriculture (KJWA) – through which the organization has been supporting countries to implement and enhance the agricultural components of their NDCs, including analyses that have identified a substantial number of NBS within both mitigation and adaptation climate commitments. Moreover, coastal adaptation involving aquatic food systems relies substantially on nature-based solutions, as recalled by the findings of the UNFCCC Working Group on Coastal Adaptation involving FAO. A key role for FAO this year is to continue to support countries on the ground and through policy advocacy at a global level. This will be focused on integrating climate and nature risk into policies and strategies, capacity development and convening roles that aim to scale-up NBS in food systems for risk management and climate action through diverse mechanisms such as farmer field school, webinars and online courses, etc.

Incentivizing change in times of crises

FAO is committed to fight poverty, hunger and malnutrition, recognizing that inclusive, equitable, resilient and sustainable growth is key for achieving Sustainable Development Goals and moving people out of food insecurity and poverty. Given that the economic burden of climatic and non-climatic disasters remains higher in low-income countries, particularly where poverty and dependency on agricultural livelihoods makes communities more vulnerable to the impacts of such disasters and the loss of natural capital, incentives to adopt NBS at farm-level will be particularly important, particularly when considering the recession caused by the current health crisis.

More specifically:

- In order to increase the resilience and sustainability of agricultural livelihoods, food security and the ecosystem services around them, smallholder producers need to be supported in the transition to improved practices and in scaling them to manage biodiversity, soil, water, coastal and riparian areas, forest and trees.
- Local farmers, foresters, fishers and fish farmers, should be the priority: A shift in perspective on financing smallholder producers is needed to make climate finance mechanisms more accessible, and better align the support they provide with the needs of the beneficiaries. This includes efforts from financiers and intermediaries to deliver more climate finance directly and behind the priorities of these local actors.
- De-risking smallholder investments: International finance mechanisms should also enable the involvement of the private sector in increasing the implementation of NBS by reducing the risks involved in financing certain types of projects, or in certain countries where there are elevated risks.
- Building capabilities to articulate risk and offer: Enhancing the capacity of farmers and fishers to better articulate the risks they are facing, why they should be invested in and how they can provide return on investment is crucial to building trust in communities and attracting private sector actors' support to NBS initiatives.

FAO's COVID-19 response as an enabler for NBS in food systems and green recovery

In line with last year's UNSG summit FAO committed [7 priority nature-based actions](#) that highlighted the organization's commitment to build carbon neutral, resilient, inclusive and sustainable food systems. As part of its **comprehensive response to COVID-19**, FAO has mobilized its analytical, technical and policy support in response to the COVID-19 pandemic. A holistic [FAO COVID-19 Response and Recovery Programme](#) in line with the UN approach to "build back better," and in pursuit of the Sustainable Development Goals, was developed with three main goals: to mitigate the immediate impacts of the pandemic, strengthen the long-term resilience of food and livelihoods, and to transform agri-food systems.

This includes supporting countries to scale up NBS that, target, for example, the restoration of agro-ecosystems, greening of cities, recarbonization of soils, sustainable intensification of livestock, global resilience of agro-ecosystems to climate-induced crop and pest impacts, and the adaptation of coastal and fishing communities, along side **nature-positive solutions** that support the enabling environment for NBS – including the reduction of food loss and waste and the promotion of circular bio-economy. Furthermore, this work is being carried out particularly as it pertains to the five major action tracks of the upcoming Food Systems Summit (2021)

- Affirming centrality of food systems for 2030 Agenda;
- Aligning public and private stakeholders among practical and actionable frameworks;
- Strengthening evidence base and developing tools for decision-making;
- Promote science-policy interface for food systems, and
- Support action-oriented partnerships.

Annex 1 provides an overview of FAO's relevant programmes, tools, case studies and publications related to the upcoming SCF Forum on financing NBS. **Annex 2** provides an overview of a proposed side event within the SCF forum on financing NBS, focused on aquatic food production that would showcase concrete examples of nature-based solutions' implementation in aquatic food systems.

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Annex 1. FAO's relevant programmes, tools, case studies and publications related to the upcoming SCF Forum on financing NBS

Activity/ Initiative/ Publication	Brief description and how it relates to SCF Financing NBS agenda
<p>FAO's Hand-in-Hand Initiative http://www.fao.org/hand-in-hand/en/</p>	<p>The initiative brings together countries that have the highest rates of poverty and hunger with developed countries who can provide support. The initiative prioritizes countries where national capacities and international support are the most limited or where operational challenges, including natural- or man-made crises, are the greatest. This is in keeping with the UN's priority commitment to "leave no one behind." It uses the most sophisticated tools available, including advanced geo-spatial modeling and analytics, to identify the biggest opportunities to raise the incomes and reduce the inequities and vulnerabilities of the rural populations, who constitute the vast majority of the world's poor. It also uses these tools to improve targeting and tailoring of policy interventions, innovation, finance and investment, and institutional reform.</p>
<p>FAO's Hand-in-Hand Geospatial Portal https://data.apps.fao.org/</p>	<p>A GIS data platform supports all stakeholders with rich, shareable data (agro-ecology, water, land, soils, GHG, etc.) needed to support evidence-based NBS. The platform also includes a subnational system of donor information developed by FAO and its partners.</p>
<p>Draft NBS in Agriculture Framework for Asia and the Pacific</p>	<p>FAO has developed a draft NBS framework for agriculture and has been applying the framework in the design of GEF-7 projects in Asia. This work has demonstrated how NBS can be designed to directly access and combine resources from the UNFCCC and other MEA/Convention financing mechanisms. These investments in NBS are intended as public technical demonstration of NBS approaches that can leverage additional public and private sector investment through budget allocations for integrated land-use plans incorporating NBS, blended finance and impact oriented finance seeking environmental outcomes based on the application of NBS approaches and private sector investments in infrastructure and value chain suppliers adopting NBS principles and approaches. The FAO portfolio in Asia employing this approach to demonstrating and scaling NBS in agricultural landscapes</p>

	<p>with GEF resources covers projects in around nine countries worth US\$60 million leveraging an additional US\$800 million in co-financing</p>
<p>The FAO Tool for Agroecology Performance Evaluation (TAPE) http://www.fao.org/agroecology/tools-tape/en/</p>	<p>Based on various existing assessment frameworks, TAPE is a comprehensive global tool that aims to measure the performance of agroecological transitions across the different dimensions of sustainability. TAPE applies to all types of agricultural systems. TAPE can be used to establish a baseline of agricultural sustainability for project or investment design, monitoring and evaluation, and to diagnose and compare the performance of different agricultural systems over time, at farm and territorial levels. TAPE is being piloted in over 10 countries, including for a GEF project (baseline and M&E)</p>
<p>The FAO Global Livestock Environmental Assessment Model-interactive (GLEAM-i) http://www.fao.org/support-to-investment/news/detail/en/c/1298227/</p>	<p>GLEAM-i (http://gleami.org) is an open and free online calculator developed by FAO that estimates greenhouse gas emissions from the livestock sector. It considers the life cycle of animal products, from production of inputs to farm gate. It is accessed by over 400 users a month to establish baselines of GHG emissions and estimate project/investment impacts. FAO is building capacity in IFIs and national banks on low carbon livestock investments using GLEAM-i (e.g. World Bank, IFC, IFAD, EBRD and Ugandan Development Bank)</p>
<p>The European Commission programme on 'Capacity Building related to Multilateral Environmental Agreements (MEAs) in African, Caribbean and Pacific (ACP) countries'</p>	<p>The Programme aims to bring cross-sectoral, ecosystem-based practices and approaches to biodiversity and chemical management to scale to increase the environmental sustainability of agriculture. It supports producers to transition to more sustainable, resilient and productive production systems by facilitating access to, <i>inter alia</i>, innovative solutions, adaptive-management trainings and financial and non-financial incentives. The Programme's activities are aligned with SCF's agenda to create enabling environments to facilitate access to finance for nature-based solutions.</p>

<p>FAO policy brief on ecosystem-based adaptation (EbA) in fisheries and aquaculture <i>Forthcoming</i></p>	<p>Ecosystem-based adaptation (EbA) consists of implementing nature-based solutions (NBS) that reduce human vulnerability to climate change by increasing ecosystems resilience (including their genetic and species diversity) and restoring or maintaining sustainable delivery of ecosystem services. EbA can be a crucial part of the solutions to increase climate adaptation and resilience in the fisheries and aquaculture sector. However, there is little guidance available to improve understanding and foster practical implementation of EbA in fisheries and aquaculture, and this policy brief contributes to filling this gap by clarifying EbA focuses in different aquatic ecosystems, giving examples of EbA measures, and outlining EbA planning and implementation steps.</p>
<p>FAO fisheries and aquaculture strategy on climate change (2021-2025) <i>Forthcoming</i></p>	<p>This medium-term (2021-2025) framework will be an update of the previous strategic framework (2011-2016). It aims to define the perspectives and objectives of Fisheries Division with respect to climate change issues and responses, operational effectiveness with respect to more localized delivery through regional and sub regional offices. Nature-based solutions (NBS) to increase climate adaptation and resilience in fisheries and aquaculture will constitute a crucial element of this strategic framework.</p>
<p>Opportunities for EbA in Coastal and Marine Ecosystems http://www.fao.org/in-action/kore/news-and-events/events-details/en/c/1129413/</p>	<p>This webinar was intended to introduce the basic principles of the ecosystem approach to fisheries and to highlight opportunities for addressing climate change risks and adaptation considerations. Examples of national and regional experiences were provided to illustrate on the ground experiences of the ecosystem-based management of coastal and marine fisheries.</p>
<p>FAO technical guidelines and toolbox on ecosystem approach to fisheries (EAF) and aquaculture (EAA) http://www.fao.org/3/Y4470E/y4470e00.htm#Contents http://www.fao.org/3/a-i1750e.pdf http://fishmedia.co.za/assets/uploads/EAF-TOOLBOX-low-res-FINAL.pdf</p>	<p>The ecosystem approach to fisheries or aquaculture (EAF/EAA) strives to balance diverse societal objectives by taking account of the knowledge and uncertainties about biotic, abiotic and human components of ecosystems and their interactions, and by applying an integrated approach to fisheries and to aquaculture within ecologically meaningful boundaries. The three fundamental requirements of the EAF/EAA are: ecological well-being (bio ecology), human wellbeing (socio-economy), and the ability to achieve (governance). The application of ecosystem-based adaptation (EbA) or more broadly, nature-based solutions (NBS) in the fisheries and aquaculture sector closely relate to issues identified under the ecosystem well-being component of EAF/EAA. These issues would require the adoption of measures aiming at preserving or restoring ecosystems (including their genetic and species diversity) and ecosystem services of relevance to fisheries and aquaculture (e.g. rehabilitation of aquatic habitats such as mangrove or coral reefs,</p>

	landscape management and river rehabilitation) and creating buffers against adverse impacts of climate change.
The Norway-funded project: Support member countries implement climate change adaptation measures in fisheries and aquaculture (GCP/GLO/690/NOR)	This project is funded by the government of Norway with the aim of improving country capacity to develop and implement climate change adaptation plans and actions in the fisheries and aquaculture sector. As part of a climate smart management plan, this project has included the design and preparation of a local ecosystem restoration plan in one of the countries (i.e. the Philippines).
The My-Coast project: Ecosystem Based Conservation of Myanmar's Southern Coastal Zone (GCP /MYA/026/GFF; GCP /MYA/025/GFF) http://www.fao.org/gef/projects/detail/zh/c/1105505/	This GEF-funded project aims to improve coastal zone management in Myanmar to benefit marine biodiversity, climate change mitigation, and food security. The project seeks to achieve its objective by strengthening national and local capacity to develop and implement a large-scale coastal zone conservation strategy.
The Bay of Bengal project: Sustainable Management of the Bay of Bengal Large Marine Ecosystem (BOBLME) (GCP /RAS/236/GFF; GCP /RAS/246/NOR; GCP /RAS/248/SWE) http://www.fao.org/gef/projects/detail/zh/c/1073969/	This project was funded by GEF and the governments of Norway and Sweden between 2009 and 2017 with the aim of improving the health of the marine and coastal ecosystems and living resources across the Bay of Bengal and the lives of coastal populations of the eight littoral countries. The project supported formal and informal collaboration among the eight participating countries to address some key issues affecting the health of ecosystem and fisheries resources.
The Kiribati project: Resilient Islands Resilient Communities (GCP /KIR/009/GFF) http://www.fao.org/sids/resources/projects/detail/en/c/281974/	The GEF-funded project seeks to improve biodiversity conservation and landscape level management to enhance socio-ecological resilience to climate variability and change in Kiribati. This project consists of three components: (1) enabling environment for ridge-to-reef conservation and sustainable use; (2) implementation of ridge-to-reef conservation and sustainable use strategies; and (3) lessons learning and sharing.

<p>The IkanAdapt project: Strengthening the adaptive capacity and resilience of fisheries and aquaculture-dependent livelihoods in Timor-Leste (GCP /TIM/009/GFF; GCP /TIM/012/LDF; GCP /TIM/010/GFF) https://www.thegef.org/project/ikan-adapt-strengthening-adaptive-capacity-resilience-and-biodiversity-conservation-ability</p>	<p>This GEF-funded project aims to enable fisheries and aquaculture stakeholders in Timor-Leste to adapt to climate change and manage biodiversity conservation through reducing vulnerabilities, piloting and adopting new practices and technologies and sharing information and knowledge. This project consists of three components: (1) enabling national fisheries and aquaculture related policies and programmes, legal frameworks and local management institutions to address climate change, current variability and biodiversity conservation; (2) enhancing climate change adaptive capacity, practices and biodiversity conservation in fishing and fish farming communities (coastal and inland); and (3) strengthening institutional capacity through the development of climate and biodiversity conservation related information systems, information management and monitoring operations.</p>
<p>The EAF-Nansen programme: Supporting the application of EAF to Fisheries management considering climate and pollution impacts (GCP/GLO/690/NOR) http://www.fao.org/in-action/eaf-nansen/en/</p>	<p>The EAF-Nansen programme is funded by the government of Norway. It is an initiative to support the implementation of the ecosystem approach in the management of marine fisheries, with a strong focus on Africa. The aim is to promote sustainable utilization of marine living resources and improved protection of the marine environment. This project has a strong research component; it is the only FAO project with a research vessel operating around Africa and the Indian Ocean to collect data. As regards climate change, the project is carrying out research activities such as comparing two upwelling systems, ocean circulation in South-east Africa and impacts on fish stocks.</p>
<p>The SEASIDE project: Strategies of eco-viability for fisheries and marine biodiversity facing climate change <i>In the pipeline</i></p>	<p>SEASIDE will use a recently developed eco-viability methodology combined with a novel participatory approach to identify and evaluate alternative ecosystem-based scenarios and strategies for marine biodiversity, fisheries and other marine ecosystem services, in a context of climate change. SEASIDE will thus provide a methodological framework supporting ecosystem-based fisheries management and guiding public policies addressing the sustainable use of marine ecosystems and the adaptation of fisheries to climate change.</p>
<p>Action Against Desertification http://www.fao.org/in-action/action-against-desertification</p>	<p>FAO Programme in support of the Great Green Wall (GGW). The GGW initiative is Africa's flagship response to combat climate change and desertification. FAO supports large-scale restoration for small-scale farming across North Africa, the Sahel and Southern Africa. (10 countries currently), applying a transformative approach that improves landscapes and livelihoods of millions of people and mitigates climate change.</p>

<p>The Forest and Landscape Restoration Mechanism http://www.fao.org/in-action/forest-landscape-restoration-mechanism</p>	<p>The FRLM mechanism helps countries (15 countries currently) restore degraded landscapes by identifying and implementing practices that restore a balance of the ecological, social and economic benefits of forests and trees within a broader pattern of land uses, and it supports countries to upscale forest and landscape restoration actions to achieve their NDCs as well as local - forest depended - communities to adapt to climate change.</p>
<p>Green Climate Fund (GCF) Result-based payments (RBP) pilot programme. https://www.greenclimate.fund/redd#redd-results-based-payments-pilot</p>	<p>Consistent with the UNFCCC framework for REDD+ (https://redd.unfccc.int/fact-sheets/redd-mrv-and-results-based-payments.html), the GCF has started to pilot REDD+ payments for proved reductions of CO2 emissions. Countries that have completed the first two phases of REDD+ for results generated from the end of 2013 to the end of 2018 are eligible to apply for phase 3 funding through this pilot programme. By May 2020, four countries have received RBPs under the GCF RBPs Pilot Programme: Brazil, Ecuador, Paraguay and the FAO-supported project in Chile (USD 63 million). FAO is currently supporting Argentina, Colombia and PNG to access GCF RBPs.</p>
<p>Monitoring data tools: Openforis http://www.openforis.org/home.html</p> <p>SEPAL http://www.openforis.org/tools/sepal.html)</p>	<p>To support climate finance mechanisms in decision-making, trustful, transparent and innovative tools are needed to monitor and support the reporting of NBS data. Open Foris is a set of free and open-source software tools that facilitates flexible and efficient data collection, analysis and reporting. System for Earth Observation Data Access, Processing and Analysis for Land Monitoring (SEPAL), is the cloud-based computing data platform for satellite-based forest monitoring. The adoption and use of Open Foris and SEPAL have had a positive impact on country reporting to the UNFCCC.</p>
<p>Support to countries to access carbon finance</p>	<p>FAO supports several countries in accessing carbon finance. This includes strategic advisory towards accessing international carbon finance opportunities, including results-based payments from multi-lateral sources and also market-based finance. An overview of country approaches towards accessing multiple sources of carbon finance in support of national development priorities is expected to be published in late 2020. Moreover, FAO provides technical capacity development to countries that wish to put in place the necessary systems and frameworks for reporting high-quality emission reductions in line with requirements of markets and donors. For example, several countries work hand in hand with FAO experts to meet requirements of the GCF results-based payment programme, the FCPF Carbon Fund and, potentially, the recently launched ART / TREES standard. This includes capacity development for forest monitoring and for mitigating</p>

	climate change through approaches for reducing emissions from deforestation and forest degradation (REDD+),
Mobilizing existing public and private sector finance for REDD+ and NBS	A range of activities to support national implementation of REDD+ aim to mobilize financing from existing public and private sources into NBS for climate, with a focus on forests. More than half of REDD+ strategies include activities related to investment planning, private sector mobilization, partnerships with financial institutions and development of financial mechanisms. FAO supports these activities through the provision of sound technical inputs, quality information and public-private sector engagement. These activities enhance the performance of policies and activities on the ground and reduce the perceived risks associated with NBS investments. Examples include, investment plan development, establishing partnerships with private financing entities (Ecotierra), enhancing the assessment of sustainable management of forest and agroforestry by public development banks, development of business plans for community forestry activities and dialogues with private sector.

Annex 2. Proposed SCF Forum side event on nature-based solutions and aquatic food production systems

Global fish production is estimated to have reached about 179 million tonnes in 2018 with a total first sale value estimated at USD 401 billion. Coastal and riverine ecosystems are critical for production of wild fish, for some of the ‘seed’ and much of the feed for aquaculture. The conservation and restoration of aquatic and coastal ecosystems are considered to be an essential piece of the portfolio of measures to mitigate global climate change: fish and fish products are rich in nutrients and micronutrients and have low carbon footprint, moreover healthy aquatic and coastal ecosystems, such as estuaries, coral reefs, mangroves and seagrass beds not only sustain the productivity of fisheries and aquaculture and sequester and store carbon, they are also more resilient and hence more likely to absorb changes resulting from global warming, or moderate the impacts when these changes are abrupt, as in the case of extreme events or disasters.

An event focusing on aquatic food production within the Standing Committee on Financing NBS forum that would showcase concrete examples of nature-based solutions’ implementation in aquatic food systems. The event would also explain the relevance of scaling-up and disseminating documented good practices through adequate climate finance that would allow fisheries and aquaculture to fully realize their potential for sustainable food production while preserving vulnerable aquatic ecosystems and enhancing conservation for climate resilience. The event would target representatives from countries, climate finance and partner institutions from the International Ocean community.