

## **The contribution of the Food and Agriculture Organization of the United Nations to the Report of the Secretary General on oceans and the law of the sea, on the topic of focus of the ICP21: “Sea-level rise and its impacts”**

### **Introduction**

1. The Food and Agriculture Organization of the United Nations (FAO) recognizes that climate change is one of the greatest challenges of our time and has made it a top priority. The FAO 2017 Climate Change Strategy acknowledges the linkages between reducing the causes and impacts of climate change and the achievement of the SDGs, and sets out how FAO can contribute its expertise and resources to support Member Nations to achieve climate change goals, build partnerships with other organizations and make a positive contribution to the international agenda on climate change. This priority and the outcomes of the Strategy are anchored by FAO Governing Body decisions on its Programme of Work and Budget and have been mainstreamed into all of FAO’s corporate Strategic Objectives.
2. FAO recalls the September 2019 Special Report on the Ocean and Cryosphere (SROCC) of the Intergovernmental Panel on Climate Change (IPCC), which confirms the multi-decadal trend of ocean warming and the rise of global mean sea level at a rate that has tripled over the last century as a result of ice and glacier melting at a global scale. The SROCC identifies the fisheries and aquaculture sector as one of the human activities exposed and vulnerable to climate drivers, and analyses impacts and responses, echoing the most relevant messages of the 2018 FAO Technical Paper 627, *Impacts of climate change on fisheries and aquaculture – synthesis of knowledge, adaptation and mitigation options*. Climate change will lead to significant changes in the availability and trade of fish products, with potentially important geopolitical and economic consequences, especially for those countries most dependent on the sector.

### **Understanding sea-level rise: its causes and effects**

3. FAO’s understanding of sea-level rise (SLR) and its work on addressing the impacts of climate change takes into account the SROCC’s summary of findings and the assessment of SLR and implications for low-lying islands, coasts and communities. In FAO, however, SLR is not segregated from but, rather, is considered together with other biophysical changes resulting from global warming, such as changes in ocean currents, acidification, rainfall, river flows, lake levels, thermal structure, severity and frequency of storms. This informs FAO’s understanding of impact pathways of climate change on fisheries and aquaculture and shapes its work and responses.
4. FAO concludes that these biophysical changes, including SLR, are affecting the production ecology and biodiversity of aquatic systems and habitats, resulting in modifications to species composition in catches, reduced fish production and yield (especially in the tropics), increased

yield variability and diseases. These changes are having an impact on the socioeconomic status of the fisheries and aquaculture sector in many parts of the world, on levels of poverty and food insecurity in areas dependent on fish and fishery products, as well as on the governance and management of the sector and on societies at large. In sum, these changes are having profound impacts on fishery and aquaculture-reliant communities and the ecosystems they depend on, especially in tropical regions.

5. A noteworthy finding in FAO Technical Paper 627 is that, while the mean global and Indian Ocean sea levels have risen during the past decades, the sea level has decreased substantially in parts of the western equatorial Indian Ocean near Zanzibar. This finding, which is in contrast with global SLR, needs to be monitored carefully in the near future.

### **Observed and projected environmental, social and economic impacts and resulting challenges relating to sea-level rise**

6. The SROCC considers ocean warming and acidification to be greater drivers of change in fisheries and aquaculture than SLR. The SROCC further concludes that the negative effects of SLR on fisheries and aquaculture are indirect, through adverse impacts on habitats (e.g., coral reef degradation, reduced water quality in deltas and estuarine environments, soil salinisation), as well as on facilities (e.g., damage to small and large harbours). The FAO Technical Paper 627 also concludes that SLR can have serious consequences for fisheries and aquaculture by adversely impacting nearshore habitats (e.g., the freshwater-marine interface along North Pacific coasts and ecosystems, and the muddy coastal regions of Cameroon), and coastal infrastructures (for example, coasts of Angola and Tanzania).
7. This indirect impact pathway makes projection of future SLR implications for coastal and marine fisheries and aquaculture challenging. Nevertheless, FAO considers that non-climatic anthropogenic drivers, such as demographic growth and reduced availability and quality of freshwater, play an important role in increasing low-lying coastal communities' exposure and vulnerability to SLR and to extreme sea level events. Therefore, adaptation measures should target such non-climatic anthropogenic drivers, notwithstanding some of the uncertainty associated with SLR and its impacts on fisheries and aquaculture.

### **Opportunities in responding to those challenges, including through cooperation and coordination at all levels on scientific, technical, technological, and financial aspects and capacity-building**

8. The SROCC considers that various options can play critical roles in crafting context-specific and integrated responses to SLR. Complementary to the protection, accommodation, ecosystem-based adaptation, coastal advance and retreat measures proposed in the SROCC, FAO identifies additional adaptation responses under its Adaptation Toolbox, including:

- Category 1: Institutional adaptation (e.g., spatial planning, cross-sectoral planning, ecosystem approach to fisheries/aquaculture (EAF/EAA), adaptive fisheries management, conflict-solving mechanisms);
  - Category 2: Measures addressing livelihoods (e.g. diversification of markets/fish products/livelihoods);
  - Category 3: Measures for risk reduction and management for resilience (e.g., monitoring, safety at sea, rehabilitation of ecosystems, reinforced barriers, social protection, stronger farming structures, addressing underlying poverty problems).
9. FAO is working with its partners to support the implementation of its Adaptation Toolbox at global, regional and country levels through its climate change adaptation projects. For example, Global Environment Facility (GEF)-funded projects through the Special Climate Change Fund (SCCF) and/or the Least Developed Countries Fund (LDCF) are underway in the Benguela Current, Malawi, Eastern Caribbean, Chile, Myanmar, Bangladesh, Cambodia and Timor Leste. FAO also provides direct assistance to countries through its Technical Cooperation Programme (TCP) and Regular Programme-funded projects covering Bangladesh, Indonesia, the Philippines, Sri Lanka and Viet Nam.
  10. A previous FAO initiative between 2013-2015 on addressing the impacts of SLR, was the technical assistance project *Strategies and Capacity Building in Pacific SIDS to Address Climate Change Impacts on Jurisdictional Claims* (“the SIDS Project”), undertaken in partnership with the Small Island Developing States of the Pacific (PSIDS). That initiative focussed on identifying fisheries governance options for PSIDS to address the perceived impact of SLR on inundating shorelines, islands and reefs, and the implications for the location of the outer-most points that form the baselines from which the maritime jurisdictional areas of coastal States, in particular the exclusive economic zones (EEZ), are measured. Except in a few cases, the United Nations Convention on the Law of the Sea of 1982 is not clear on whether coastal States would retain baselines or claims to maritime jurisdictional areas, including EEZs, if shorelines and basepoints are inundated, or whether such areas and claims would be reduced or even lost if islands disappeared because of SLR. These impacts would, in turn, affect the rights of coastal States, including Pacific SIDS, to exploit and manage the rich fisheries resources that occur within their existing EEZs.
  11. The conclusion of the PSIDS under the SIDS Project was that, even if SLR negatively affected the shorelines, reefs and basepoints, international law should be interpreted in a way that ensures that the outer boundaries of the PSIDS and the maritime jurisdictional areas, once claimed, are preserved. This conclusion led to a set of recommendations by the PSIDS to the Pacific Islands Forum (PIF), which included the following: a) PSIDS should complete their boundary delimitations by finalizing baselines, declare outer limits of their EEZs and negotiate with neighbouring PSIDS and coastal States where there are overlapping EEZs; and, b) regional declarations should be made stating that sea level rise should not have adverse impacts on the maritime jurisdictional areas of Pacific SIDS. The PIF in its communique of the Fiftieth Pacific Forum in Funafuti, Tuvalu, from 13 to 16 August 2019, stated that the leaders of PIF

are “committed to a collective effort, including to develop international law, with the aim of ensuring that once a Forum Member’s maritime zones are delineated in accordance with the 1982 UN Convention on the Law of the Sea, that the Members maritime zones could not be challenged or reduced as a result of sea-level rise and climate change.”

12. FAO considers climate change and its impacts in their entirety, and designs its related strategies, plans, programmes and projects in this context. Beyond oceans and fisheries and aquaculture, FAO is undertaking the following initiatives relating to climate change, which form the basis for partnerships and investment:

- **Climate-Smart Agriculture Programme.** This Programme supports countries to boost agricultural productivity and incomes, including by integrating and strengthening their efforts on sustainable production while adapting to climate change and reducing greenhouse gas (GHG) emissions and harmful environmental effects.
- **Climate Action for Sustainable Development** – This initiative supports countries to transition to low-emission, climate-resilient agriculture and food systems. It aims to turn Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs) under the Paris Agreement, as well as Long-Term Climate Strategies (2050), into concrete action by helping countries to optimize policy and technical interventions to meet their Paris Agreement commitments and SDG targets.
- **Climate Data Systems and Services** – This programme is aimed at advancing national weather and climate information systems for use in agriculture. Building on FAO’s agrometeorological information, this cutting-edge programme will harness advancements in climate services and transform national climate information systems and reduce the adverse impact of climate change and extreme weather events on agricultural productivity.
- **Water Scarcity Management** - Grounded in FAO’s Global Framework on Water Scarcity in Agriculture, with strong commitments from its partners, the Water Scarcity Management programme will bring new evidence and tools to fight water scarcity in agriculture and food systems, address growing competition for scarce water resources, promote best practices in water-use, provide tools to cope with droughts, and empower women to access water for agriculture.
- **Law and Climate Change** - Acknowledging that countries’ mitigation and adaptation goals need to be supported by appropriate legal and institutional frameworks to create enabling environments for the effective implementation of NDCs, the FAO Law and Climate Change Strategy (2019) provides a framework for FAO’s legal technical assistance to support countries’ goals through the development of appropriately designed legislative measures in the fields of agriculture, including fisheries and aquaculture.

- **Climate Change and Poverty** – FAO’s Strategic Programme on Rural Poverty Reduction developed a framework document, *Addressing the Climate Change and Poverty Nexus: A coordinated approach in the context of the 2030 Agenda and the Paris Agreement* (2019), to support climate and development practitioners understand and address the interrelated challenges of poverty and climate change, with a focus on small-scale fisheries and coastal communities. The approach comprises five Strategic Elements: Pro-poor climate mitigation and adaptation; Climate-sensitive poverty reduction and food security initiatives; Cross-cutting and sectoral synergies; Coherence and coordination within and among institutions; and Strengthening and supporting local initiatives. Policy recommendations and tools are presented and discussed, based on the premise that improving the coherence and coordination of policy, institutional, financial and practical linkages between climate change responses and poverty reduction and food security initiatives will contribute to greater integration of, and gains towards, achieving the SDGs and Paris Agreement objectives. The Strategic Elements and activities of this approach align with and contribute to the implementation of the Global Action Programme on Food Security and Nutrition in Small Island Developing States (GAP-SIDS).
- **Climate Change and Gender** - Climate change and gender equality in agriculture are corporate cross-cutting priority themes for FAO, as both are seen as central to FAO’s mandate to achieve food security for all by raising levels of nutrition, improving agricultural productivity and natural resource management and improving the lives of rural people. FAO works simultaneously towards gender equality and supports women’s diverse roles in agriculture, rural development and climate actions. FAO currently operates a range of country-specific programmes to promote rural women’s economic empowerment and enhance their resilience to climate change. Examples of initiatives in this regard are: (1) FAO and UNDP’s joint Integrating Agriculture in National Adaptation Plans (NAP-Ag) Programme, which supports country-driven efforts to mainstream gender into program activities. This has included the facilitation of training workshops and follow-up support; collection of sex-disaggregated data; and integration of gender analysis into adaptation studies and resulting policy roadmaps. Many of these activities are in line with proposed actions under the UNFCCC’s Paris Committee on Capacity Building and Gender Action Plan, which was developed and reviewed with FAO support at COP25; (2) A new and easy-to-assemble fish smoking and drying technology pioneered by FAO has been developed, used, tested and adapted to the FAO-Thiaroye fish processing technology (FTT-Thiaroye) in countries in Africa, Asia and the Pacific to improve energy efficiency in rural communities. This technology uses 50 percent less wood fuel compared to traditional open-type smoking rafts. The technology is also helping to reduce health hazards, improve food safety and quality, improve working conditions and cut down food losses in many small-scale fishing communities. It also contributes to climate change mitigation through preservation of mangroves while building resilience to climate impacts through coastline protection. The introduction of this technology has helped poor rural women reduce their work burden and exposure to health risks from smoking inhalation. It also contributed to the increase in the value and quality of the fish and increased household income.

FAO is currently finalizing two projects. The first project is “Scaling up implementation of the Gender Action Plan (GAP) in Agriculture and the Koronivia Joint Work on Agriculture (KJWA) under the UNFCCC (2020-2021). The project aims to support Least Developed Countries to develop gender-sensitive policies; build capacities to implement, monitor and report on NDCs, KJWA and SDGs; increase participation and engagement of women in the UNFCCC processes; and improve access to information and knowledge products related to the agriculture sector. The second project is on “Empowering women in food systems and strengthening the local capacities and resilience of Small Island Developing States in the agri-food sector”, which aims to promote an enabling policy environment for the socio-economic empowerment of rural women and girls through enhanced participation and benefit from climate resilient value chains. The activities under the two projects will contribute to the implementation of the GAP-SIDS.

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