

# Climate Change and the Ocean - adaptation strategies for fisheries and aquaculture (FAO)

## **1. Context and rationale**

COP 21 was a turning point for Oceans issues in the UNFCCC arena. After significant multi-stakeholder work the Paris Agreement (e.g. preamble, Article 4.1), explicitly recognized the vital role of oceans in the global climate systems. Since COP 21, the multi-stakeholder alliances formed have been ramping up their efforts, culminating in two major outcomes: in COP 22, the Oceans day became part of the Climate Action Agenda, with a significant number of high-level events co-organized by FAO. In COP 23, the Ocean Pathway Partnership (<https://cop23.com.fj/the-ocean-pathway>) was launched, co-chaired by Fiji and Sweden, with the objective of including appropriate climate mitigation and adaptation actions derived from the ocean into parties NDCs and NAPs.

FAO has been a leading member of the coalition of organizations lifting the importance of Ocean issues in the climate change agenda, with a particular role in leading adaptation options. It is clear that the viability and sustainability of fishery and aquaculture systems will be determined by their ability to adapt to climate change impacts. A critical step towards facilitating fisheries and aquaculture adaptation to climate change is to provide tools and approaches to the sector that strengthens their adaptive capacity. In 2018, FAO published a Technical report written with over 100 experts on the Impacts of Climate Change in Fisheries and Aquaculture (<http://www.fao.org/3/i9705en/i9705en.pdf>), with the primary objective of proposing adaptation toolboxes for a sector that includes some of the most vulnerable in society around the world.

## **2. An overview of the contribution**

This contribution highlights FAO's new adaptation toolbox for fisheries and aquaculture. This toolbox provides guidance on the tools and methods available to facilitate and strengthen adaptation, thus contributing to filling the current knowledge gap and provide guidance for a coordinated and continued adaptation strategy. It contains a portfolio of climate adaptation tools and methods recommended and currently available to governments, industries and individual fishers and fish farmers.

The toolbox includes three fundamental strategies to reduce impacts and take advantage of opportunities from climate change: i) institutional adaptation, ii) livelihood adaptation, and iii) risk reduction and management for resilience.

It foresees to build climate change adaptation strategies based on a good understanding of a given fishery and aquaculture system and a reliable assessment of current climate variability and potential future climate changes, as pre-requisites for determining early low- or no-regret options and longer-term adaptation interventions respectively.

The toolbox facilitates a key step in climate change adaptation, which is putting adaptation tools into practice.

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

Adaptation measures included in the toolbox can foster adaptation actions to advance in the sustainable use and conservation of the marine resources to increase their resilience towards climate change impacts. Moreover, it can increase the adaptive capacity of the fishing and fish farming communities, which can contribute to minimize some of the treats and maximize the opportunities emerging from climate change in the fishing communities.

**4. How might the contribution support both climate, mitigation and adaptation as well as other important co-benefits**

**5. Reduction in carbon emission and carbon capture (GTonnes) – N.A.**

**6. Increasing climate resilience**

The toolbox includes specific entry points to enhance the resilience of the fisheries and aquaculture sectors to climate change by guiding communities, countries and other key stakeholders in their adaptation efforts.

**7. Social impact (job increase; poverty reduction, etc.)**

8. The effective application of the toolbox will support fishing and fish-farming communities to be able to adapt to climate change, reduce over fishing and sustainably manage the oceans, thus contributing to their livelihoods and poverty eradication.

**9. Net economic impact (total in US\$; how was it achieved?) – N.A.**

**10. Impact on realization of the 2030 Agenda for Sustainable Development (in particular SDGs 1,2,6,12,13,14,15,16)**

The contribution will facilitate achieving SDG14 (including sub-targets 14.2, 14.4, 14.5, 14.6, 14.7 and 14.B) while also contributing to other SDGs, specially SGD1, SDG2 and SDG3.

**11. Just transition**

The toolbox contributes to a just transition by securing jobs and livelihoods of communities of fishers and fish farmers vulnerable to climate change impacts, while shifting to sustainable production and protecting biodiversity.

**12. Food security**

The toolbox will support coastal communities to be able to continue having access to high quality animal protein, rich in essential vitamins and micronutrients, thus contributing to food security, especially in those developed countries that are more dependent on fish products for their nutrition.

**13. Minimising species extinction and ecological losses and fostering an increase of biodiversity**

Resources that are already under stress (e.g. with too high fishing pressure) need to be subject to rebuilding strategies in order to improve their capacity to adapt to climate change. By developing and implementing adaptive management systems and tools future changes in the productivity of the ecosystem and the status of the different fish stocks can be addressed, minimizing biodiversity and ecological losses.

**14. Which countries and organizations are involved in the contribution ?**

15. The FAO adaptation toolbox is being tested and further developed through a number of GEF-funded projects on adaptation strategies in the Eastern Caribbean, Benguela region, and in Myanmar, Malawi and Chile. It is expected that this coalition of adaptation-ready countries will grow as financial support allows the toolbox to be rolled over.

**16. How have stakeholders (for example indigenous peoples, local communities, and youth) been consulted in developing the contribution ?**

The involvement of all main stakeholders involved in the fisheries and aquaculture sector is foreseen in the implementation of the adaptation toolbox.

**17. Where the contribution can be put into action?**

The application of the toolbox will be proposed to coastal communities already looking for adaptation tools to adapt to climate change and to update their NDCs and NAPs, especially in those areas where stronger impacts of climate change are expected.

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

This adaptation toolbox consist in an iterative process that incorporates system feedbacks over time and includes; i) a cyclic vulnerability assessment of the sector, where the scope and the objectives are set, ii) the development of a climate adaptation strategy based on the results of the vulnerability assessment, and iii) the implementation, monitoring and evaluation of the climate adaptation strategy.

The different stakeholders are key part of the successful implementation of the adaptation toolbox as they are the main actors involved.

The transformational impacts include the recovery and sustainability of the fish stocks/fish farms from which numerous vulnerable communities depend for their livelihood and nutrition.

**19. Is this initiative contributing to other Climate Action Summit work stream (industry transition; energy transition; climate finance and carbon pricing; infrastructure; cities and local action; resilience and adaptation; youth and citizen mobilization; social and political drivers; mitigation strategy)?**

Yes. It contributes to the resilience and adaptation work stream.

**20. Examples of experience to date: how does this contribution build upon this experience? How does the contribution link with different ongoing initiatives?**

The toolbox was developed making use of an extensive literature review of impacts, adaptations and tested solutions, including through the development of the FAO technical Report on the impacts of climate change on fisheries and aquaculture. It additionally benefited from FAO-led field work throughout the world, where the impacts of climate variability as well as change, and of management and policy solutions, were assessed and lessons learned.

The toolbox is currently being further developed, implemented and road-tested in Barbados, St. Lucia, Dominica, South Africa and the Philippines through GEF and FAO funded projects, and it is linked with the requirements of the Paris Agreement to update countries NDC by 2020. For example, in the case study of the Philippines, a technical document assessing the projected impacts and vulnerabilities to climate

change of Sardinella fisheries is being produced, and will be followed by meetings with stakeholders to implement the toolbox. The project is expected to result in the identification of specific adaptation actions to be carried out in line with the toolbox.

**21. *Mechanisms for funding (with specific emphasis on potential partnerships)***

The implementation of adaptation toolbox responds to the UNFCCC inviting UN organizations, specialized agencies, and bilateral organizations to enhance financial and technical support the NAP process for developing countries.

**22. *Means of stewardship, metrics for monitoring***

The effectiveness of adaptation tools in fisheries and aquaculture needs further research. Metrics on fish production, livelihoods and food security provided by countries that implement the toolbox can be indicators of the success of the adaptation toolbox.

**23. *Communication strategy***

FAO has a strong communication strategy, including through regular strategic technical reports, such as the FAO technical paper 627, where the adaptation toolbox is described in detail. These reports have large impact and dissemination among FAO member countries and the scientific community. Also, leveraging on FAO communication experience, tailor made materials to disseminate the activities and outputs of this project will be prepared.

**24. *Contact details of proponents***

Manuel Barange, Director Fisheries and Aquaculture Policy and Resources Division. FAO, Rome.  
[manuel.barange@fao.org](mailto:manuel.barange@fao.org)  
[Alexander.Jones@fao.org](mailto:Alexander.Jones@fao.org)

