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<b>ASIA-PACIFIC FISHERY COMMISSION</b>						
<b>Thirty-fifth Session</b>						
<b>Cebu, the Philippines 11-13 May 2018</b>						
<b>Building climate resilient fisheries and aquaculture in the Asia-Pacific region</b>						

**BACKGROUND**

1. On 12 December 2015 in Paris, the 21st Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) concluded negotiations on a landmark agreement (the Paris Agreement<sup>1</sup>) to limit global average temperatures to below 2°C and to pursue efforts to limit the temperature increase to 1.5°C. The Agreement will enter into force when it is ratified by at least 55 Parties that in aggregate account for at least 55 percent of total global emissions. The commitment period will commence in 2020 following the close of the extension period for the Kyoto Protocol and last at least until 2030.
2. The Agreement recognizes "the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the impacts of climate change" and underlines the need to "increase the ability to adapt to the adverse impacts of climate change and foster climate resilience [...] in a manner that does not threaten food production." The Agreement also notes "the importance of ensuring the integrity of all ecosystems, including oceans, and the protection of biodiversity [...]".
3. Mitigation remains the core objective of the Paris Agreement; however it reflects increasing attention to adaptation, loss and damage, capacity building, technology development and transfer, and climate finance.
4. To tackle the drivers and impacts of climate change, the Paris Agreement requests countries to develop and implement Nationally Determined Contributions (NDC). While countries are not legally bound to achieve their NDC contributions, they have agreed to be bound to report their progress through an enhanced transparency framework to monitor country progress toward their NDCs. NDC cover all sectors, greenhouse gas emissions and mitigation as well as adaptation actions.
5. In the Agreement, UN Organizations are encouraged to support developing countries on enhancing adaptation actions and to report their efforts to UNFCCC. The Agreement decides

<sup>1</sup> [https://unfccc.int/documentation/documents/advanced\\_search/items/6911.php?preref=600008831](https://unfccc.int/documentation/documents/advanced_search/items/6911.php?preref=600008831)

that the Green Climate Fund, GEF, Least Developed Countries Fund and Special Climate Change Fund shall serve the Agreement and requests the GCF to expedite support for the least developed countries and other developing country Parties for the formulation and implementation of National Adaptation Plans (NAP).

6. It is important for the fisheries and aquaculture sector to be prepared for and to engage in the national UNFCCC-linked processes, such as the development of Nationally Determined Contributions (NDC), and National Plan of Action (NAP).
7. In 2007, COFI identified the need to address threats posed by climate change in fisheries and aquaculture and requested FAO to undertake a scoping study<sup>2</sup> to identify the key issues on climate change and fisheries, initiate a discussion on how the fishing industry can adapt to climate change, and for FAO to take a lead in informing fishers and policy makers about the likely consequences of climate change for fisheries. As a result of this study, the 29<sup>th</sup> session of COFI noted climate change to be one of the Fisheries and Aquacultures Divisions' priority areas of work. Since then, COFI has reiterated the need to improve understanding of the implications of climate change and ocean acidification on fisheries and aquaculture.
8. Over the past fifteen years, the sector has greatly improved its understanding of climate change implications to their fisheries and aquaculture sectors, through global and local monitoring of the aquatic systems, improved forecasting and impacts models, implementation of vulnerability assessments specific to sector, climate-proofing sector policies, participatory adaptation processes, as well as analyzing the sector's role in greenhouse gas (GHG) mitigation. The latest IPCC reports<sup>3</sup> document much of this improved knowledge, however, they also highlight significant gaps, such as downscaling impacts, adaptation and mitigation information for food security and related food production sectors, and understanding implications for inland aquatic systems. To help remediate these gaps, IPCC AR6 Special Reports on 1) land use, land degradation and food security and 2) oceans and cryosphere will be undertaken and should include fisheries and aquaculture production systems.
9. FAO, along-side many partners, has been assisting countries in understanding climate change and ocean acidification implications to fisheries and aquaculture, in measuring the greenhouse gas emissions and mitigation potentials within the sector, in identifying and implementation adaptation priorities, in representing the sector in national and global climate change discussions and in accessing climate finance<sup>4</sup>. This work has been guided by the FAO Fisheries and Aquaculture Climate Change Strategy (2011-2016)<sup>5</sup>, which is nested within the broader strategies and frameworks of FAO and coordinated through the Global Partnership for Climate, Fisheries and Aquaculture (PaCFA).
10. The 31<sup>st</sup> Session of APFIC emphasized that adaptation and mitigation of climate change impacts related to fisheries and aquaculture is a very important issue in the region and recommended that APFIC should review the effects of climate change on fisheries and aquaculture in the region and provide advice to member countries on strategic planning for adaptation and mitigation measures for the sector. The 31<sup>st</sup> Session further suggested that this advice should cover the key aspects of: likely effects on fisheries and aquaculture

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<sup>2</sup> [www.fao.org/docrep/012/i0994e/i0994e00.htm](http://www.fao.org/docrep/012/i0994e/i0994e00.htm)

<sup>3</sup> [www.ipcc.ch/report/ar5/](http://www.ipcc.ch/report/ar5/)

<sup>4</sup> For an overview of FAO's support to countries and climate change-related publications, please refer to background documents COFI/2016/SBD.19 and COFI/2016/SBD.20

<sup>5</sup> Refer to COFI/2016/Inf.18

resources and production; implications for fisheries and farmers vulnerability and potential strategies and opportunities for adaptation and mitigation.

11. The APFIC/FAO regional consultative workshop “Implications of climate change on fisheries and aquaculture: challenges for adaptation and mitigation in the Asia-Pacific Region” was convened on 24-26th May 2011, in Kathmandu, Nepal<sup>6</sup>. It was convened in collaboration with the Directorate of Fisheries Development, Department of Agriculture, Ministry of Agriculture and Cooperatives of the Government of Nepal. The APFIC/FAO Regional consultative workshop was the APFIC Secretariat response to the recommendations of the 31<sup>st</sup> Session of APFIC.
12. The regional consultative workshop brought together 50 participants from member countries and competent regional organization partners to further raise the awareness of all relevant stakeholders to the threats of climate change the regional fisheries and aquaculture sector through sharing of best available information and knowledge, to discuss and analyze specific potential impacts of different types of climate change patterns on marine capture fisheries, inland capture fisheries, coastal aquaculture and inland aquaculture.
13. The workshop reviewed material prepared by APFIC Secretariat<sup>7</sup> and the presentations of the actions which have been taken national government and international and regional organizations in addressing the climate change issue in the fisheries and aquaculture context. It further analyzed the strength and weakness of the region in fisheries and aquaculture related climate change adaptation and mitigation, and identified the capacity gaps and other constraints of the APFIC member countries in effectively coping with challenge of climate change and maintain the sustainability fisheries and aquaculture industry in the region.
14. Based on the recommendations of the 2011 APFIC workshop, the FAO has been assisting APFIC members in 1) implementing National Plans of Action (NAPA) through the Least Developed Countries Fund managed by GEF (e.g. Bangladesh, Cambodia (in development), Laos, Myanmar and Timor-Leste (in development)); 2) integrating climate change into regional projects (e.g. BoBLME, RFLP and ISLME); 3) supporting discussions on Green Climate Fund activities in fisheries and aquaculture (e.g. Myanmar, Viet Nam, Maldives, Sri Lanka); 4) responding to emergencies (e.g. Philippines); 5) learning and testing adaptation options for fisheries and aquaculture (e.g. Global FishAdapt conference<sup>8</sup>, Lower Mekong River Basin workshop on environmental monitoring<sup>9</sup>, Philippines TCP); and 6) testing means to improve fuel efficiency in fishing fleets (e.g. Thailand).
15. The 76<sup>th</sup> Executive Committee commended the Secretariat for its efforts in documenting climate change impacts and vulnerabilities as well as adaptation and greenhouse gas mitigation priorities within the sector. The need to ensure representation of the sector in national climate change strategies and implementation plans was underscored and the Executive Committee welcomed the continued support of the FAO in this area. The Committee requested a follow-up APFIC/FAO regional consultative workshop to provide a platform for key stakeholders to share lessons and good practices related to addressing climate change implications for fisheries and aquaculture in the region.

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<sup>6</sup> For the workshop report, please refer to <http://www.fao.org/3/a-ba0084e.pdf>

<sup>7</sup> For the background report, please refer to <http://www.fao.org/apfic/publications/detail/en/c/421249/>

<sup>88</sup> See <http://www.fishadapt.com/>

<sup>9</sup> See <http://www.fao.org/3/a-i6641e.pdf>

## **REGIONAL CONSULTATION TO BUILD RESILIENCE OF AQUACULTURE AND FISHERIES IN ASIA-PACIFIC**

16. In response to the above request, a FAO/APFIC Regional Consultative Workshop, “Building Climate Resilient Fisheries and Aquaculture in the Asia-Pacific Region” was held November 14 to 16, 2017 in Bangkok, Thailand. The workshop brought together policy makers, managers and practitioners who were engaged in the development and implementation of national and regional policies, programmes and projects addressing climate change in fisheries and aquaculture in the Asia-Pacific region.
17. The regional consultative workshop brought together 65 participants from member countries and regional organization partners to attain the following outcomes:
  - Increased understanding of APFIC member countries and key regional players about the current status of climate change adaptation and mitigation potentials and efforts for fisheries and aquaculture in Asia-Pacific region;
  - Broad sharing among the countries and regional players about technological advances and good management practices for strengthening the resilience of fisheries and aquaculture;
  - Recommendations made for a regional strategy and for priority actions at the regional and country levels to build climate resilience and contribute to GHG mitigation of fisheries and aquaculture in Asia-Pacific region based on in-depth analysis of key constraints and gaps.
18. Key presentations by FAO set the scene for the workshop including an introduction to the recent Paris Accord on Climate Change and its implications for national actions and regional overviews on the status of climate change adaptation and mitigation actions in fisheries and aquaculture. Presentations on the programmes, efforts and progress by the national governments and international and regional organizations in addressing the climate change issue in the fisheries and aquaculture context were delivered and updated issues, gaps, and support needed to address climate change in fisheries and aquaculture were highlighted.
19. To reflect the diversity of issues faced in the region and the differentiated needs of aquaculture and fisheries, participating countries were divided into fisheries and aquaculture groups and then into regional clusters to 1) identify the threats/risks due to climate variability and change, the sector’s contributions to GHG emissions and analyze gaps and constraints; and 2) recommend strategies and actions at regional and national levels for effectively addressing climate change impacts and climate variability to build the climate resilience of Fisheries and Aquaculture.

### **Summary of national and regional efforts for climate resilience in fisheries and aquaculture**

20. Over the recent years, countries in the APFIC region have made wide ranging efforts for climate change adaptation and mitigation. All APFIC countries have ratified the United Nations Framework Convention of Climate Change (UNFCCC) and signed the Paris Agreement. Some of the Least Developed Countries (including Bangladesh, Cambodia, Laos PDR, Myanmar, Nepal, and Timor Leste) have developed a National Adaptation Programme of Action (NAPA) on Climate Change. Compared to the initial consultation in 2011, countries have progressed significantly in their climate-related planning in the fishery and aquaculture sector, and especially the degree to which this has been integrated into broader climate change related planning at the agriculture sector level and beyond. Member countries have furthered their efforts to integrate the fishery and aquaculture sectors into the national climate change planning process.
21. A brief summary of the range of efforts to date across the APFIC countries, supported by regional and global partners, in fisheries and aquaculture is provided in the following table. More detailed listings of actions are provided in APFIC/18/INF 08.

<b>Capture Fisheries</b>	<b>Aquaculture</b>
Financing climate adaptation and mitigation	Financing climate adaptation and mitigation
Climate smart/resist/resilient fisheries	Adoption of climate-adaptive technologies or practices
Collaboration among different sectors and agencies	Framework for Action
Capacity building	Awareness and Capacity Building
Research, Monitoring and Evaluation	R&D for development of climate change-resilient technologies or practices
Involvement of communities	Mechanisms to support farmers
Safeguard vulnerable fishers and populations	Mechanisms to support and vulnerable groups
Mitigation (fuel consumption efficiency and fuel-saving practices, reforestation)	Research on carbon sequestration and aquaculture as carbon sinks (e.g. culture of mollusks and seaweeds) or culture of low carbon footprint species
Ecosystem approach to fisheries management (EAFM)	
Conservation of fisheries resources	
Enhancement of fisheries productivity	
Climate adaptation in sustainable development to ensure food security	

22. However, there remain significant gaps and constraints in the understanding of sectoral effects of and vulnerabilities to climate change due to the lack of basic data on the vulnerability and risk assessments as well as projected impacts at the down-scaled levels. Although improving, there remains limited awareness at the community level and a lack of knowledge on specific options (technological, management, risk management, livelihoods diversification, etc) to reduce vulnerability/risk at the fisher/farmer levels.

23. Early warning systems specific to the sector and integration of the sector into disaster risk management (DRM) frameworks also remain weak. In addition, cross-sectoral climate change strategies and plans, although incorporating fisheries and aquaculture more frequently than in the past, are still generally lacking specific strategies and actions for the sector. Climate change issues often remains a low priority at the national political level, leading to a lack of national support or policy to address climate change challenges. There also often remains a lack of clear fisheries and aquaculture management approaches, roadmaps, plans, and policies to mitigate GHG from within the sector.

## **OUTCOME OF THE REGIONAL CONSULTATION**

24. In addition to providing a platform for sharing of climate change adaptation and GHG mitigation efforts across the region, the regional consultation recommended the following major strategies for country government, regional organizations, academies and private sector to further support climate change adaptation and GHG mitigation in fisheries and aquaculture:

### ***Capture Fisheries***

*Country coordination to support the following:*

- Developing a regional strategy paper documenting climate risk mitigation
- Promoting holistic approaches and consistent plans to build climate resilient countries in Asia-Pacific
- Supporting and providing technical expertise for the preparation and implementation of national strategies and action plans

- Adopting international agreements
- Developing a regional mechanism to share early warning information for disasters and solutions
- Regional capacity building
- Coordinating and cooperating resource management at the regional level

*Research, development cooperation, training, technology exchange and information both at national and regional levels in the following areas:*

- Data base and common knowledge bank on climate change and its impact and adaptation at the regional and national levels for the benefit and common understanding of all stakeholders
- Climate smart technology
- Energy saving fishing vessels
- Climate change solutions focusing on innovative implementation regional public-private partnership (PPP)

*Social well-being*

- Integrate human well-being in climate adaptation and mitigation strategies
- Mainstream gender in climate change regional plans and agreements

*Management*

- Promoting EAFM concept at the regional level
- Promoting community-based management
- Establishing closed season for fishing

*Campaigns*

- Media campaigns- “Together-- We Sink and Swim”
- Responsible Fishing
- Recycling processing by-products

*GHG Mitigation*

- Resolve to provide fuel efficient and emission compliant engines to replace the existing fuel efficient and emission non-compliant engines from fisheries sector
- Promote use of non-conventional renewable energy for fisheries
- APFIC countries have to agree on a target time line to reduce GHG emission from fisheries at the regional level.

*Other recommendations*

- Link to disaster risk reduction frameworks and strategies.
- Stock enhancement
- Fisheries should be included as the sectoral entity in climate change related matters in UNFCCC Conference of Parties and be provided with required attention/priority in climate change policies/strategies and actions
- APFIC shall assist the member countries in harmonizing the climate change and fisheries policies and address transboundary implications.
- APFIC shall facilitate the member countries to address climate change related issues in their fisheries sector
- There should be a regulatory framework and a governing body at the national and regional levels for regulating and monitoring climate change related issues at both levels
- Funding support for mitigation and adaption for fisheries sector from GCG or other relevant funding source

***Aquaculture***

*Regional Strategies*

- Establishment of a regional information center on climate change for efficient sharing of information/data and technology transfer; assessment of each country’s capacity in addressing climate change and adoption of best strategies at the regional level

- Development of regional policy (and legislative) framework for climate resilient aquaculture
- Regional cooperation and pooling of resources for R&D on climate change issues that is of regional interest
- Implementation of a certification and labeling scheme for aquaculture products with minimal contribution to GHG emissions/climate change
- Develop the model in climate change for Asia Pacific
- Establish a regional early warning system for climate change related events
- Organize regional capacity building programs for climate change mitigation and adaptation (including disaster risk reduction, preparedness and management) that can be echoed at the national and local levels

### *Regional Actions*

#### Capacity Building

- Conduct regional capacity building or training on climate change issues including risk and vulnerability assessment of aquaculture areas, establishment of a monitoring and early warning system, climate change resilient aquaculture technologies like IMTA and RAS, etc.; similar capacity building programs can be adopted at the national and local levels to include women and other vulnerable groups
- Facilitate knowledge sharing through conduct of seminars and workshops, exchange of publications and other information materials, farmers interaction w/cross visits with different countries for learning good practices on CC mitigation and adaptation, etc
- Facilitate dispatch of international/regional expert to disseminate advanced climate-resilient aquaculture technology/climate-smart tool kits
- Facilitate access to international funding and technology support (e.g. under the UNFCCC and other multilateral funding mechanisms)

#### Regional Cooperation

- Create a technical working group composed of representatives from member countries that will assess the needs, potentials and strategies for climate change adaptation and mitigation measures in each country; facilitate the organization of a regional consultation to formulate a regional policy framework for climate change adaptation and mitigation
- Create a network to facilitate sharing of knowledge and technology among countries in the region, especially on climate-resilient aquaculture technologies and practices

#### Production Systems

- Create a platform to promote wider dissemination and adoption of climate change resilient and adaptive technologies (e.g. IMTA and other integrated production systems)
- Create a network for collaborative R&D efforts related to climate change (e.g. strain improvement/selection for climate-adaptive traits like temperature tolerance, etc. in aquaculture commodities especially those that are economically important in the different member countries)

### *National Strategies*

- Policy formulation regarding climate change in aquaculture
- Capacity building on and promotion of good aquaculture practices for reduced risks to climate disasters and damage; facilitate dissemination and transfer of technology, and provide technical assistance to farmers to improve farming practices
- Promote optimum use of inputs; reduce consumption of fuel and electricity for aquaculture equipment and facilities

- Develop knowledge and information management systems network; organize interdisciplinary workshop on climate change impacts on aquaculture; promote interdisciplinary approaches towards innovative solutions
- Promote farmers awareness to CC impact on their production and livelihood support to fish farmers through addressing gaps and constraints in addition to the CC
- Promote small-scale aquaculture including integrated agro-aquaculture systems such as rice-fish farming, aquaculture in mangrove systems (aquasilviculture), use of high-value species that are environmentally-friendly; develop and promote feeds that have low carbon footprints
- Analyze marketing gaps, map marketing strategies and pilot in several areas

#### *National Actions*

- Establish an information center on climate change; collate results from vulnerability assessments including life cycle assessment of aquaculture commodities affected or vulnerable to climate change impacts, or assessment of adaptive capacity of areas/communities to impacts of climate change
- Increase investment in research and initiatives towards climate-resilient and sustainable aquaculture and food security
- Implement capacity building programs and IECs; conduct interdisciplinary workshops/seminars among relevant agencies; conduct training for government officials, NGOs, fish farmers to build analytical skills and increase understanding of climate change issues
- Dissemination of climate-resilient technologies and early warning systems; promote the use of suitable fish species (tolerant to high salinities, tolerant to high/fluctuating temperature, fast-growing strains and use large fingerlings in areas where growing period is limited; transfer low investment fish production technologies in seasonal water bodies to improve livelihood and resilience in flood prone areas; invest in development of ICT systems for monitoring fish farming processes/operations
- Organize dialogues/discussions between and among countries and institutions on areas of cooperation to address climate change and unify activities related to climate change; prioritize areas that are high impact and require immediate action, set up interdisciplinary working groups, pilot successful models, disseminate through seminars and farm visits, and scale up
- Provide financial support (e.g. loan) and material support (relief) to affected farmers/communities
- Implement insurance schemes for aquaculture farmers
- Provide alternative livelihoods for people who are vulnerable to climate change
- Promote community-based resource enhancement and communally-managed fisheries/aquaculture resources; including mangrove rehabilitation

#### **SUGGESTED ACTION BY THE COMMISSION**

25. The Commission is invited to comment on the report and recommendations for action issuing from the regional consultative workshop, particularly with respect to regional cooperation as well as in their national contexts.
26. The commission is invited to recommend immediate actions for APFIC/FAO and the member governments.