

FAO FISHERIES AND AQUACULTURE DEPARTMENT

# STRATEGY FOR FISHERIES, AQUACULTURE AND CLIMATE CHANGE

Framework and aims 2011–16





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# INTRODUCTION

More than 500 million people depend directly or indirectly on fisheries and aquaculture for their livelihoods. Fish also provides essential nutrition for 3 billion people and at least 50 percent of animal protein and essential minerals for 400 million people in the poorest countries. However, climate change is creating huge challenges for a sector already facing serious threats from overfishing and poor management. The broader threat posed by climate change to development and food security is increasingly well recognized and is now a major local, national and international priority. Its implications for fisheries and aquaculture in general, and for coastal and riparian communities in particular, are enormous. The sector and the aquatic environments on which it depends also have potentially important but as yet poorly defined roles in the management and mitigation of greenhouse gas (GHG) emissions. There are significant issues concerning the impacts of fuel and energy use, with major consequences for “blue carbon” management and its global ecosystem value. Although often overlooked or neglected amid broader development concerns, the fisheries and aquaculture sector has unique issues and vulnerabilities with respect to climate change, and these require specific and well-considered responses.

The FAO Fisheries and Aquaculture Department has already taken significant initiatives with respect to climate change and the sector, starting with a project-based Policy Brief<sup>1</sup> as the first thematic sectoral outline of issues, interactions and potential responses. This was further developed within the FAO-wide preparatory work on climate change and emergency responses, and with the 2008 FAO Expert Workshop on Climate Change Implications for Fisheries and Aquaculture.<sup>2</sup> In 2009, FAO helped to form the Global Partnership for Climate, Fisheries and Aquaculture (PaCFA),<sup>3</sup> a voluntary grouping of 20 international organizations and sector bodies sharing a common concern for climate change interaction with global waters and living resources and their social and economic consequences. The partnership reflected a mutual desire to develop a coherent approach through a multiagency global programme of coordinated actions and to address the pressing need to raise the sector’s profile in global climate change discussions. With FAO support, the PaCFA prepared a summary strategic framework for the United Nations Framework Convention on Climate Change (UNFCCC) COP15 meeting in Copenhagen in December 2009. The FAO Fisheries and Aquaculture Department acts informally as the secretariat for the PaCFA and expects to play a continuing role where its comparative advantages lie and where Member States call on its assistance.

At the regional and subregional levels, FAO’s commitment to decentralized action and to cross-agency linkages also leads to important directions for development responses to climate change. This presents the Fisheries and Aquaculture Department with challenges in linking global programmes and strategies with national actions and outcomes. Therefore, the aim of this document is to provide the medium-term (2011–16) framework defining the perspectives and objectives of the Fisheries and Aquaculture Department with respect to climate change issues and development responses, and its coherence and operational effectiveness with respect to more localized delivery through regional and subregional offices.

<sup>1</sup> FAO. 2007. *Building adaptive capacity to climate change. Policies to sustain livelihoods and fisheries*. New Directions in Fisheries – A Series of Policy Briefs on Development Issues, No. 08. Rome. 16 pp. [also available at <ftp://ftp.fao.org/docrep/fao/010/a1115e/a1115e00.pdf>].

<sup>2</sup> FAO. 2008. *Report of the FAO Expert Workshop on Climate Change Implications for Fisheries and Aquaculture, Rome, 7–9 April 2008*. FAO Fisheries Report No. 870. Rome. 2008. 32 pp. [also available at <ftp://ftp.fao.org/docrep/fao/010/i0203e/i0203e00.pdf>].

<sup>3</sup> Current members of the PaCFA are the BCC, CBD, EBCD, FAO, GLOBEC, ICES, ICFA, ISDR, NACA, NACEE, OECD, OSPESCA, PICES, SEAFO, SPC, UNDP, UNEP, UNESCO-IOC, World Bank and WorldFish Center.



## KEY CLIMATE CHANGE ISSUES AND THEIR IMPLICATIONS FOR FISHERIES AND AQUACULTURE

The role of the oceans and other aquatic systems as major carbon sinks and in influencing climate, health, food security and economic development in coastal and riparian zones is crucial, and it is under imminent threat from climate change. The buildup of carbon dioxide and other GHGs is modifying some fundamental features of the oceans, coasts and freshwater ecosystems. Air and sea surface temperatures, rainfall, sea level, seawater and ocean water acidity, wind patterns, and the intensity of tropical cyclones are all changing. Physical and chemical changes in oceans and freshwaters will change aquatic production, catch composition and species distribution

through a complex interplay of ecological changes. These will affect fisheries and habitats together with the composition and location of production and will have major impacts on aquaculture productivity and securing its sustainability. Physical changes to coasts, estuaries, wetlands, lakes and rivers will be caused by changing weather patterns, weather-driven extreme natural events and sea-level rise. These will affect the safety and security of people, their homes and their means of production, including fisheries and aquaculture assets and infrastructure.



There may also be indirect effects on vulnerable people forced to migrate from other affected areas.<sup>4</sup>

Although precise consequences cannot yet be forecast, climate change is likely to affect fisheries and aquaculture, their dependent communities and related economic activities along three main pathways:<sup>5</sup>

1. indirect wider socio-economic effects (e.g. freshwater-use conflicts affect all food production systems, while adaptation and mitigation strategies in other sectors affect aquatic systems in general or fisheries and aquaculture directly);

2. biological and ecological responses to physical changes (e.g. productivity, species abundance, ecosystem stability, stock locations, pathogen levels and impacts);
3. direct physical effects (e.g. sea level change, flooding, storm impacts).

Fishers, fish farmers and coastal and riparian inhabitants will bear the force of these impacts through even less stable livelihoods, changes in availability and quality of fish, and rising risks to their homes, safety and health. Lives are already precarious and vulnerable in many fishery-dependent communities because of poverty and the lack of social services and essential infrastructure. Further threats come from overexploited fishery resources and degraded ecosystems. Although some opportunities may arise if climate change improves local conditions for fisheries or aquaculture, the negative implications for food security and livelihoods in developing countries, and particularly in highly dependent small island States, are profound.

The potential vulnerability of systems and communities in various contexts can be broadly predicted on the basis of the nature and scale of climate change impacts, their probability, and the ability of systems and communities to respond. However, specific impacts and their scale cannot be defined with great precision, nor can the social or economic outcomes. How to gauge the resilience of systems and communities and their ability to respond is only now being explored. The consequences for the sustainability of aquatic ecosystems for fisheries and aquaculture, and for the people that depend on them, are as yet uncertain.

Some countries and fisheries might benefit while others will lose. The only certainty is that change will occur, and people and decision-makers must be prepared for it.

For FAO's Member States and governing bodies, the significance of climate change issues was also reflected strategically in the 2009 session of the FAO Committee on Fisheries (COFI), where a number of Members shared information and experiences regarding climate change and fisheries and aquaculture. In particular, they indicated the need for:

- capacity building to increase the resilience of fishing communities;
- reduction of energy consumption in fisheries and aquaculture;
- reduction of GHG emissions in the fisheries sector;
- increased funding of research, with a particular focus on the situation in the small island developing States (SIDSs);
- increased support of the work of FAO on climate change in fisheries and aquaculture.

<sup>4</sup> Op cit., see note 2.

<sup>5</sup> Cochrane, K., De Young, C., Soto, D. & Bahri, T., eds. 2009. *Climate change implications for fisheries and aquaculture: overview of current scientific knowledge*. FAO Fisheries and Aquaculture Technical Paper No. 530. Rome, FAO. 212 pp. [also available at [www.fao.org/docrep/012/i0994e/i0994e00.htm](http://www.fao.org/docrep/012/i0994e/i0994e00.htm)].



## ROLE OF THE FAO FISHERIES AND AQUACULTURE DEPARTMENT IN BROADER CLIMATE CHANGE FRAMEWORKS



The challenges of climate change need to be met across societies and economies, from individual to organizational level, involving private, public and civil-society agents. Across these, unprecedented levels of communication and collaboration are required in order to build effective partnerships for response. FAO's work on climate change is guided by its mandate to "raise levels of nutrition, improve agricultural productivity, better the lives of rural populations and contribute to the growth of the world economy".<sup>6</sup>

Based on its multidisciplinary activities in agriculture, forestry, fisheries, aquaculture, livestock, economics,

rural development and food security, FAO is committed to applying an integrated approach to climate change adaptation and mitigation. This means identifying current and potential challenges and helping its Members, particularly the most vulnerable, to improve their capacities to respond to the negative impacts of climate change and to profit from the opportunities that may emerge. FAO places particular importance on identifying occasions and practices that could promote synergies among adaptation and mitigation objectives and, at the same time, help to achieve development goals.

<sup>6</sup> See [www.fao.org/about/mission-gov/en/](http://www.fao.org/about/mission-gov/en/) and [www.fao.org/about/en/](http://www.fao.org/about/en/) for more information about FAO and its mandate.



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## FAO CLIMATE CHANGE FRAMEWORK<sup>7</sup>

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FAO's work covers a broad spectrum of activities that range from local to global and from immediate actions to long-term strategies for dealing with climate change. It is committed to an ecosystem approach that embraces agriculture, forestry and fisheries. Core principles that guide its work on climate change include:

- integrating climate change concerns into food security and development planning across all sectors and spatio-temporal scales;

- seeking a systems approach that builds on integration and synergies in mitigation, adaptation and sustainable food production;
- working in a demand-driven, location-specific and participatory manner, considering gender-specific needs as well as the priorities of indigenous communities;
- addressing adaptation and mitigation as an ongoing social learning process that integrates local and scientific knowledge;
- promoting synergies among the international conventions and agreements on climate change, desertification, biodiversity, fisheries and forestry.

With respect to climate change adaptation, FAO has defined six priority action areas for agriculture, forestry and fisheries:

1. development and application of data and knowledge for impact assessment and adaptation;
2. support and improvement of governance for climate change adaptation;
3. building of livelihood resilience to climate change;
4. targeted approaches for conservation and sustainable management of biodiversity;
5. identification, support and application of innovative technologies;
6. improved disaster risk management (DRM).

With respect to climate change mitigation, FAO has defined four priority action areas:

1. strengthening the agriculture, forestry and other land-based sectors in climate change negotiations and international agreements;
2. data and knowledge for mitigation;
3. methods and technologies for mitigation;
4. governance for climate change mitigation.

<sup>7</sup> From: FAO. 2009. *FAO – profile for climate change*. [available at <ftp://ftp.fao.org/docrep/fao/012/i1323e/i1323e00.pdf>].



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## PaCFA CLIMATE CHANGE FRAMEWORK

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In 2009,<sup>8</sup> the PaCFA identified global priority activities in relation to climate change impacts, adaptation and mitigation under four programme areas: awareness, enhanced knowledge, implementation of activities and resource mobilization. The following elements can be noted.

### Key activities for climate change impacts, including:

- Awareness-raising through the synthesis of observations on the mechanisms behind climate change and its potential impact on fisheries, aquaculture and aquatic ecosystems; the development of relevant guidelines ensuring that climate change impact assessment covers aquatic ecosystems and fisheries and aquaculture adequately.
- Knowledge improvements through better understanding of risks – who and what is affected – and the role and implications of vulnerability (different areas, regions and scales); harmonization of databases of

<sup>8</sup> Report of the Informal Coordination Meeting on Climate Change: Impacts, Adaptation and Mitigation in Fisheries and Aquaculture. FAO, Rome, 9–11 March 2009.



indicators, strengthening and/or creating working groups to assess impacts and consequences, and development of guidelines.

- Implementation of activities through targeting ongoing planning and development processes, lobbying regional fisheries and other organizations and non-governmental organizations (NGOs) regarding guidelines, capacity building; and encouraging relevant organizations to include climate change in their action plans and to identify leaders and key players.

#### **Key activities within the area of adaptation, including:**

- Awareness-raising through targeted communication strategies, synthesizing current knowledge and identifying and targeting community leaders and movers.
- Knowledge improvements through identifying benefits of well-managed fisheries and aquaculture systems; training in key themes, use of ecosystem approaches, pilot projects, monitoring and impact assessments; identification and targeting of vulnerable communities and enhancement of systems for monitoring and assessing risk from natural hazards.

- Implementation of activities such as dissemination of key messages, convening of multilevel meetings, capacity building and empowerment of policy-makers; promotion of diversified livelihoods for vulnerable communities, and of insurance schemes, disaster relief funds and the integration of fisheries and aquaculture into the climate change mitigation and adaptation strategies of other sectors.
- Identification of resources and partners to ensure financing is available for fisheries and aquaculture adaptation strategies; development of resource mobilization teams and strategies; entering into strategic partnerships and exploring the possibilities for funding at community level.

#### **The key activities for mitigation cover emissions reductions, carbon sequestration and policy actions, including:**

- Awareness-raising through the development and dissemination of key policy messages, development of best practices brochures and integrating action in ongoing mitigation processes.
- Knowledge improvements through workshops and specific technical reviews and case studies; better understanding and use of the potential of aquatic environments (and aquatic food production systems) to act as carbon sinks; analysis of the potential impact of sequestration options on ecosystem services, small-scale fisheries and markets; and opportunities and synergies between fisheries and aquaculture and climate change mitigation.

- Implementation of activities such as testing approaches (large-scale and small-scale fisheries and aquaculture will require different approaches) to emission reduction; the role of certification and labelling in marketing products; technical guidelines; linking fleet decommissioning and efficiency improvements with carbon markets; mainstreaming mitigation into policies; development of national frameworks and setting emission reduction targets for the sector.
- Identification of resources and partners to ensure short-term to long-term financing through a range of donors from the private sector, national governments, multilateral and bilateral agencies.

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## COMPARATIVE ROLE AND STRENGTHS OF FAO'S FISHERIES AND AQUACULTURE DEPARTMENT

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Focusing more specifically on the fisheries and aquaculture sector and FAO's strategic, knowledge-building and partnership roles, the particular strengths of FAO's Fisheries and Aquaculture Department in approaching climate change issues within broader development partnerships include:

- frameworks, methods and global collation of fisheries and aquaculture resource, production and exploitation data, status and trends;
- experience and development of best practices in fisheries and aquaculture related DRM;
- support for the implementation of the Code of Conduct for Responsible Fisheries through the development and application of the ecosystem approach to fisheries (EAF) and the ecosystem approach to aquaculture (EAA);
- fisheries and aquaculture sector policy analysis and outlook, including artisanal and small-scale sectors and their role in national economies, community development, food security and poverty alleviation;
- support for national fisheries and aquaculture policy and legislation development, including stakeholder participation; and linkages to other sectors; analyses, information and technical support for fishery and aquaculture technologies, product development, commercialization and trade;
- coordination across the sector through its role as the secretariat of the PaCFA and through regional fishery bodies (RFBs), the COFI, and the Sub-Committees on Aquaculture and on Trade, etc, and links with national and regional organizations and economic development agencies;





- its role as a source of unbiased information, and its ability to provide a neutral forum in which complex and sometimes contentious issues can be addressed.

Knowledge and capacity building will be essential in responding effectively to climate change impact, mitigation and adaptation challenges, and the fisheries and aquaculture sector can benefit from FAO's particular resources and expertise, which include:

- extensive geographical presence (through country, subregional, liaison and regional offices) with localized expertise and/or accessible linkages to wider information resources;
- decentralized technical and operational structures and processes allowing local interactions, knowledge building and decision-making;
- global and regional networks, including fisheries and aquaculture resources specialists, national programme focal points and multistakeholder committees, and technical networks on a wide variety of fisheries and aquaculture issues;
- programmes on cross-cutting issues (including food security, gender, biodiversity, agriculture, sustainable economic and social development, environment, climate change, bioenergy) that enable FAO to act at the intersectoral level;
- convening role at various policy levels (i.e. COFI, Sub-Committees on Aquaculture and on Trade; RFBs, and ministerial-level and high-level FAO technical conferences);
- databases and information repositories on topics relevant to fisheries, aquaculture and climate change;
- a range of effective and well-recognized communication mechanisms (World Wide Web, publications, journals, video, etc.).



## FISHERIES AND AQUACULTURE DEPARTMENT PROGRAMME ON CLIMATE CHANGE, AND ANTICIPATED RESULTS

In the light of the above, a strategic approach and programme framework is defined below, and this is in turn aligned with the Department's strategic and organizational objectives for the sector.<sup>9</sup> It is also linked with the PaCFA framework, which provides an overarching structure for wider partnership-based development goals associated with climate change, fisheries and aquaculture.

The *goal* of the programme is to enable people, communities and States to meet their social and development objectives effectively while responding to the additional challenges imposed by climate change on fisheries and aquaculture.

The *purpose* of the programme is to support Member States and partners in mitigating, and adapting effectively to, the impacts of climate change for fisheries, aquaculture and aquatic ecosystems, through policy development, knowledge development and exchange, normative outputs, practical demonstrations, and capacity building.

<sup>9</sup> FAO. 2009. *Strategic Framework 2010-2019* [available at [www.fao.org/about/19185-1-0.pdf](http://www.fao.org/about/19185-1-0.pdf)].



The key *operational objectives, outputs and proposed activities* of the programme for the period 2011–16 are:

1. **Set up and develop global, regional and local climate change action partnerships across public, private, community and NGO sectors to support regional and subregional cooperation and to develop interregional and global policy and management initiatives within the sector.**

Related activities would include:

- a. Consult and identify interested partners at global and regional levels; establishing and agreeing on partnership aims and mechanisms.

- b. Set out and agree on programme or project plans, delivery, management and implementation systems.
  - c. Define specific approaches and linkages for mainstreaming climate change issues into sector development, inclusion of the sector into global climate change actions and ensuring links with DRM and emergency processes.
  - d. Develop funding strategies, initiate and develop contacts and potential programme connections.
  - e. Set up funded structure for sustained implementation programmes.
2. **Establish the knowledge base for local, national and international policy development for climate change and the fisheries and aquaculture sector; specifically, to raise awareness of the importance of the sector with respect to climate change mitigation and adaptation, its contribution to the Millennium Development Goals (MDGs), the vulnerability of its communities at various scales, and the ways in which climate change responses can be developed.**

Related activities, together with partners, would include:

    - a. Define scales, contexts, information sources, key knowledge gaps and priority work areas.
    - b. Develop indicators at the global, regional and local levels to identify climate change impacts and vulnerabilities based on local and regional reviews of physical, environmental, social, economic and institutional issues.
    - c. Develop sector linkages with climate change scenarios outside the sector and improve the sector's presence in the UNFCCC, the Intergovernmental Panel on Climate Change (IPCC) and other climate change knowledge fora.
    - d. Define ways in which scientific and local knowledge would best be linked for mitigation and adaptation purposes.
    - e. Use and develop methodologies for improved integration of information and knowledge (e.g. databases, geographic information systems, decision systems, economic and valuation systems).
    - f. Maintain the Department's knowledge, quality assurance and dissemination functions across the programme's activities.



**3. Identify and develop climate change mitigation actions for the fisheries and aquaculture sector at the global, regional and national levels; support their implementation within and across the sectors; and identify resources to support prioritized actions.**

Related activities would include:

- a. Review and establish agreed methodologies for estimating energy use and GHG emissions from capture fisheries, aquaculture and post-harvest and supply chain subsectors.
- b. Estimate sectoral GHG emissions (through global registries, case studies, typologies and models) and identify the key

technological, economic and policy-modifying factors relating to these emissions.

- c. Identify mitigation (including carbon and GHG capture) potentials at the national and regional levels in the main fisheries and aquaculture subsectors, and define conditions for supporting their uptake.
- d. Undertake case studies for the development of policies and technologies to support the transition to energy-efficient aquatic food production systems with low GHG footprints.

- e. Identify funding and operational opportunities and linkages with other partners at the community, national and regional levels.
- f. Support and collaborate with other agencies and actors to carry out and scale up mitigation activities.

**4. Identify and promote effective climate change adaptation strategies within fisheries and aquaculture sector development frameworks at the global, regional and national levels, and identify resources to support prioritized actions at all levels.**



Related activities would include:

- a. Review and improve understanding of ecosystems, communities and societies vulnerable to climate change in fisheries and aquaculture sectors at the local, national and regional levels.
- b. Collect and analyse examples of vulnerability identification, of impact reduction mechanisms and of adaptation strategies, and define criteria and indicators for effective outcomes.

- c. Identify effective adaptation responses, at the physical, economic, institutional and governance levels, including DRM links, related to a range of locations, contexts and subsector features.
- d. Define linkages with wider development and climate change adaptation and mitigation contexts, and determine how sectoral needs can best be met.
- e. Develop and disseminate "best practice" guidelines on, for example, adaptation strategies in fisheries and aquaculture in a multisectoral context.
- f. In consultation with Members, identify case studies and programmes for the development and implementation of adaptive strategies, making full use of relevant funding and operational opportunities at the local, regional and global levels.
- g. Collaborate with partners to promote and scale up (or down) adaptation strategies.

**5. Initiate lesson-learning and capacity-building processes with partners to establish more effective climate change and sectoral knowledge and response through specific tools, such as the development of strategies and best practices.**

Related activities would include:

- a. Establish lesson-learning methodologies and processes across the programme's activities.

- b. Develop a strategy for setting sectoral findings in broader climate change contexts, and for prioritizing, scaling up and further evaluating options and strategies for capacity building.
- c. Carry out lesson learning across a range of contexts and subsectors, and develop dissemination materials (including guidelines for stakeholders and policy-makers).
- d. Build capacity among partners from the local to international levels to share lesson learning, further develop knowledge potentials, and promote effective participation in global, national and local climate change actions.

**6. Develop and implement a communication strategy for climate change mitigation and adaptation for a range of audiences and develop a coordinated approach to global planning and feedback.**

Related activities would include:

- a. Define a communication strategy for a wide range of audiences, making use of partnership links at the local, regional and global levels.
- b. Agree on priorities, mechanisms, partnership approaches, targets, specific outcomes and relevant indicators.
- c. Identify funding and operational opportunities to implement the communication strategy, including promoting linkages with other communication resources.

The programme and the work of the Department will contribute to broader efforts by Member States, partners and regional organizations to address the following thematic and cross-cutting issues.

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## GOVERNANCE

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Issues of governance lie at the heart of effective resource management and create the overarching context in which social and economic development objectives can be addressed. This is a recognized theme within the fisheries and aquaculture sector as a major part of the Department's broader development support strategy, and it will be further shaped by the issues of climate change. The programme will aim to ensure that climate change mitigation and adaptation factors are mainstreamed into sectoral governance initiatives at a range of levels. Particular emphasis will be given to enhancing institutional capacity for defining, planning and implementing resource use in fisheries and aquaculture, with greater involvement of communities and producer groups, using transparent and inclusive stakeholder processes. Development efforts in fisheries and aquaculture will seek to provide a framework that encourages private enterprise and investment at the household, community and corporate level in effective partnerships with other stakeholders and in ways in which climate change mitigation and adaptation can be effectively realized.

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## GENDER

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Owing to inadequate gender awareness, the contribution of women in fisheries and aquaculture is often undervalued or misinterpreted, as are their related dependence and vulnerability. The implications for development are significant as are the issues of capacity building and resilience with respect to climate change. A better understanding of gender roles and interactions is required, and effectively targeted support and promotion need to be developed. This fundamental FAO-level theme is embedded in the Department's climate change strategy, and its implementation, lessons and best practices from all sectors need to be communicated effectively for application in wider development.

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## FOOD SECURITY AND LIVELIHOODS

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The role of fisheries and aquaculture in food security is widely recognized and significant in most parts of the world. Impacts of climate change within and outside the sector and the related social and economic responses will have an important effect on food security interactions. Links with FAO's



wider food security strategies will be important, as will lesson sharing within and across the sectors. Food security is also an integral element in sustainable livelihoods, and a livelihoods-based focus will be essential in effective implementation of the programme. This will apply with respect both to the livelihood context of fisheries and aquaculture within various communities and States and to the implications for alternative livelihoods as a means of building social and economic resilience. These concepts are directly linked to the promotion of human well-being and security.



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## ENVIRONMENT

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The interactions and dependence between, on the one hand, fisheries and aquaculture and, on the other, the features of natural resources and environments lie at the heart of sustainable development in the sector. Climate change impacts and interactions are also substantially defined in physico-chemical and bioecological terms, both in aquatic and terrestrial contexts. Consequently, a major strategic development focus on environments is essential. As an important component of this, ecosystem services and their valuation have become more strongly defined,

together with global policy support for protection and conservation. FAO's own strategic and operational positions with respect to environment and resource use are well established, and it will be important to ensure that the Department's strategy links with, and contributes to, these emerging areas. More specifically, strong links between climate change adaptation, mitigation and environmental protection can be found in the ecosystem approach to fisheries and aquaculture, including aspects of improved fuel and energy efficiency.



## COORDINATION AND COOPERATION



Coordination of the programme and its activities within the Department and FAO has to be carried out in a clear and transparent manner to ensure effective delivery. An essential feature of the Department's strategy, and a necessary condition for its ability to achieve impact across a range of social, geographical, institutional and policy contexts, will be its effectiveness in identifying programme objectives and collaborating with stakeholders and key partners in targeting them. The establishment and aims of the PaCFA,

in response to calls for concerted action from stakeholders, and FAO's role in this have been noted above. In addition, a number of other areas of coordination and cooperation can be defined within and outside FAO.

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### COORDINATION AND COOPERATION WITHIN FAO

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To realize the full potential of the Department to service its clients, an effort is needed to mainstream climate change into each programme, especially into field projects. Climate change will increasingly involve more programmes in the Department, other FAO departments and FAO's



regional and subregional offices. It is crucial that coordination mechanisms are strengthened and that mutually relevant information is easily accessible.

Two coordination bodies for climate change relevant to the fisheries and aquaculture sector operate in FAO headquarters and are actively supported by the Department:

1. Fisheries and Aquaculture Department's Working Group on Climate Change. Its activities include information sharing and coordination within the Department, coordinating the Department's inputs to outside initiatives, and advising on issues needing departmental decision.

2. Interdepartmental Working Group on Climate Change (IDWG CC). Its activities include information sharing, facilitating interdepartmental coordination and coordinating joint FAO activities on climate change.

Coordination for fisheries, aquaculture and climate change is under the overall supervision of the Department's Working Group on Climate Change. It is implemented by technical officers throughout the Department, including those in the field offices. The Working Group serves as the Department's focal point for providing input to the IDWG CC, for liaison with the UNFCCC Secretariat on technical issues, for coordinating responses to outside inquiries for information, and for tracking and representing FAO in policy discussions in UNFCCC and in other fora. The members are also the focal points for information exchange between FAO Headquarters and its regional and subregional offices on their respective activities on climate change.

Regional and subregional offices will increasingly incorporate climate change activities into their work programmes, including those involving fisheries and aquaculture. Coordination mechanisms for climate change activities differ among the regional and subregional offices, depending on local contexts, but are developing positively through regional climate change strategy development and implementation. A regular exchange of information exists between fishery officers at FAO Headquarters and their regional and subregional colleagues. A further area of coordination and cooperation concerns the need to mainstream fisheries and aquaculture into FAO's wider range of climate change and DRM programmes. Here, the strategy underpins the Department's role in working with other FAO Departments to assist the sector in participating in cross-sectoral and integrated climate change and DRM strategy development and implementation. It is critical that issues concerning the fisheries and aquaculture sector are properly reflected in FAO and partner strategies, and that experiences gained are brought into wider practice. The sectorally defined links between DRM and development should also be further strengthened, based in turn on the strategy's themes on mainstreaming climate change issues into the broader sectoral development context.



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## WORKING IN PARTNERSHIP WITH OTHER ORGANIZATIONS


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A primary interface for the definition and development of partnerships for climate-change-related strategies will be the COFI. In addition to its governance role, the COFI is an important intergovernmental forum for strategy and policy development and for debate and endorsement of emerging themes. This also provides an important forum for linkage with other intergovernmental bodies, with international and regional investment bodies, research agencies, international NGOs and civil-society organizations. In more

direct operational aspects, FAO's role in supporting and contributing to coordinating functions for the PaCFA is important and, through this, the major strategic partnerships could be developed with relevant organizations. These in turn would be linked with the range of partnerships already established or being developed in the Department's regular programme and its programme of fieldwork. Links with RFBs, with regional economic councils (RECs) and with other regional bodies will also be important, and be key areas of interaction for regional and subregional offices.



## STRATEGY FOR FISHERIES, AQUACULTURE AND CLIMATE CHANGE PROGRAMME LOGICAL FRAMEWORK



This logframe (logical framework) defines FAO's expected role within the wider contexts mentioned in the document Strategy for Fisheries, Aquaculture and Climate Change, based on its mandate, comparative strengths and current work plans. It is structured to provide a planning and management framework in which specific projects can be linked. At this stage, activities and indicators are described only at an indicative level – this would be open to development with partners and according to specific regional and subregional objectives. The framework has been defined for the period 2011–16 but can also be used as the basis for a rolling review and update process.

# PROGRAMME LOGFRAME: FISHERIES, AQUACULTURE AND CLIMATE CHANGE –

PROGRAMME LEVEL	INDICATORS	MEANS OF VERIFICATION	RISKS AND ASSUMPTIONS
<b>Goal</b>			
People, communities and States meet their social and development goals effectively, while taking into account and responding to the additional challenges imposed by climate change (CC) on fisheries and aquaculture	Governance performance, strategies, process monitoring, resilience parameters, future provisioning	Actions, accords, structures, data (ecosystem, social and economic), future analyses, investment priorities	
<b>Purpose</b> ( <i>expected result</i> )			
Member States and partners supported to adapt effectively to and mitigate the impacts of CC for fisheries, aquaculture and aquatic ecosystems, through policy development, knowledge development and exchange, normative outputs, practical demonstration, and capacity building	Functional partnerships, well-developed strategies, and implementation actions; outputs, ecosystem quality, food security and social benefits maintained	Partnership agreements, reports and actions; output, value, food supply, income and other statistics	CC impacts too indeterminate; social and political stresses, and investment demands in other sectors too great
<b>Outputs</b>			
<b>1</b> Global, regional and local CC action partnerships, across public, private community and NGO sectors, promoted and supported, with management and implementation structures as required	Joint actions and projects among agencies; Global Partnership for Climate Change, Fisheries and Aquaculture (PaCFA) meetings	Agency documents, partnership agreements, memoranda of understanding (MoUs), work plans	National and local government capacity and implementation aims; consistency of agency aims, strategic objectives, funds, timing
<b>2</b> Strategic context, awareness-raising, policy development and knowledge base for CC and fisheries sector established, interlinking with other sectors, defining spatial scale other impact/response features	Strong, accessible body of sector knowledge linking with CC science, policy, actions; clear influencing themes and messages into key arenas	Documents, engagement in strategy processes – reviews with coherent, well-founded content, clear CC links, at local to global levels	Incoherence, complex messages, trade-off issues, other lobbies; CC indeterminacy, data and standards inadequacy, inconsistency
<b>3</b> Fishery sector CC mitigation-related issues/actions identified and developed, and implementation supported within and across the sector	Analyses of greenhouse gas (GHG) interactions and range of mitigation measures identified, reduction in GHG emissions	Documentation of emissions and GHG reduction/capture methods from subsectors; guidelines on emissions reductions	Inadequate interest, research, action, funding, poorly measurable effects, policy deficits
<b>4</b> Adaptation strategies identified and promoted for implementation within mainstream sector development frameworks	Guidelines and pilot cases promoting adaptation in fisheries and aquaculture, more-resilient communities	Documentation of local, national, global actions, analyses of results	Insufficient attention, funding, data, pressure of wider influences, policy deficits
<b>5</b> Lesson-learning and capacity-building process established with partners to build CC and sectoral knowledge and response through specific tools: e.g. strategies, best practices	Documentation on CC links, mitigation and adaptation available; assistance in strategy and plan development	Assessments, studies, documentation, guidelines, strategies	Disorganized/unfocused approach, funding, unclear messages
<b>6</b> Communication strategy for CC mitigation and adaptation, for a range of audiences defined and implemented	Clear messages about sector, CC and development widely accessible	Materials, Web sites, documents; target and usage records	Effective connection across agencies, mixed messages

# ROLE AND STRATEGY OF THE FAO FISHERIES AND AQUACULTURE DEPARTMENT

## ACTIVITIES

- 1.1 Consult and identify interested partners at the global and regional levels, including establishing and agreeing on partnership aims and mechanisms.
- 1.2 Set out and agree on programme or project plans, delivery, management and implementation systems.
- 1.3 Define specific approaches and linkages for mainstreaming climate change issues into sector development, inclusion of the sector into global climate change actions and ensuring links with disaster risk management (DRM) and emergency processes.
- 1.4 Develop funding strategies, initiate and develop contacts, potential programme connections.
- 1.5 Set up funded structure for sustained implementation programmes.

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- 2.1 Define scales, contexts, information sources, key knowledge gaps and priority work areas.
- 2.2 Develop indicators at the global, regional and local levels to identify climate change impacts and vulnerabilities based on local and regional reviews of physical, environmental, social, economic and institutional issues.
- 2.3 Develop sector linkages with climate change scenarios outside the sector and improve the sector's presence in the UNFCCC, IPCC and other climate change knowledge fora.
- 2.4 Define ways in which scientific and local knowledge would best be linked for mitigation and adaptation purposes.
- 2.5 Use and develop methodologies for improved integration of information and knowledge (e.g. databases, GIS, decision systems, economic and valuation systems).
- 2.6 Maintain the Department's knowledge, quality assurance and dissemination functions across the programme's activities.

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- 3.1 Review and establish agreed methodologies for estimating energy use and GHG emissions from capture fisheries, aquaculture and post-harvest and supply chain subsectors.
- 3.2 Estimate sectoral GHG emissions (through global registries, case studies, typologies and models) and identify the key technological, economic and policy-modifying factors relating to these emissions.
- 3.3 Identify mitigation (including carbon/GHG capture) potentials at the national and regional levels in main fisheries and aquaculture subsectors, and define conditions for supporting their uptake.
- 3.4 Undertake case studies for the development of policies and technologies to support the transition to energy-efficient and low GHG footprint aquatic food production systems.
- 3.5 Identify funding and operational opportunities and linkages with other partners at the community, national and regional levels.
- 3.6 Support and collaborate with other agencies and actors to carry out and scale up mitigation activities.

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- 4.1 Review and improve understanding of climate change vulnerable ecosystems, communities and societies in fisheries and aquaculture sectors at the local, national and regional levels.
- 4.2 Collect and analyse examples of vulnerability identification, of impact reduction mechanisms and of adaptation strategies, and define criteria and indicators for effective outcomes.
- 4.3 Identify effective adaptation responses, from physical, economic to institutional/governance levels, including DRM links, related to a range of locations, contexts and subsector features.
- 4.4 Define linkages with wider development and climate change adaptation and mitigation contexts, and determine how sector needs can best be met.
- 4.5 Develop and disseminate best-practice guidelines on, for example, adaptation strategies in fisheries and aquaculture within a multisectoral context.
- 4.6 In consultation with Members, identify case studies and programmes for the development and implementation of adaptive strategies; making full use of relevant funding and operational opportunities at the local, regional and global levels.
- 4.7 Collaborate with partners to promote and scale up (or down) adaptation strategies.

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- 5.1 Establish lesson-learning methodologies and processes across the programme's activities.
- 5.2 Develop a strategy for setting sectoral findings into broader climate change contexts, and for prioritizing, scaling up, and further evaluating options and strategies for capacity building.
- 5.3 Carry out lesson-learning activities across a range of contexts and subsectors and develop dissemination materials to capture lessons learned (including guidelines for stakeholders and policy-makers).
- 5.4 Build capacity among partners from the local to international levels to share lesson learning, further develop knowledge potentials and promote effective participation in global, national and local climate change actions.

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- 6.1 Define a communication strategy for a wide range of audiences, making use of partnership links at the local, regional and global levels.
- 6.2 Agree on priorities, mechanisms, partnership approaches, targets, specific outcomes and relevant indicators.
- 6.3 Identify funding and operational opportunities to implement the communication strategy, including promoting linkages with other communication resources.





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