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"Oceans and sustainable development: integration of the three dimensions of sustainable development, namely environmental, social and economic"

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Executive Summary

The strategic role that fisheries and aquaculture play in relation to food security and poverty alleviation, in addition to creating opportunities for economic growth, places this sector in a special position vis-à-vis other sectors benefitting from the oceans. Importantly, the fisheries sector is most dependent on healthy marine ecosystems and therefore has the highest stakes in relation to its sustainable use. This perception is reflected in the responsiveness that the sector showed in developing international instruments such as the Code of Conduct for Responsible Fisheries (CCRF), agreed to by the international community, only three years only after UNCED. The adoption of the CCRF was followed by many instruments and guidance principles and approaches, some of which, such as the EAF, specifically addresses the integration of three

dimensions of sustainability in fisheries and aquaculture development. While much remains to be done for the practical realization of sustainable fisheries in the broader ecosystem context, the overall normative framework exists making fisheries an innovative sector in terms of embracing the principles of sustainable development. The steering of fisheries and aquaculture development through good management and, more broadly, good governance is essential in order for the sector to contribute to meeting the demand for fish, including in a way that is environmentally sustainable and contributes to reducing food insecurity and poverty. This can only be achieved if ecological, social and economic sustainability concerns are addressed in an integrated way while ensuring that the sector is integrated into broader multisectoral management.

Societal awareness of fisheries resources and of the impacts of fishing activities on the environment continues to increase. The precautionary approach to fisheries management and Ecosystem Approach to Fisheries (EAF) are now part of many management strategies. New legislation has been put in place including improving the sustainability of marine aquaculture and soft law instruments such as the Small-Scale Fisheries Guidelines focus on specific components of the fisheries sector that need special attention. New initiatives are developing to strengthen and complement these efforts such as the Blue Growth Initiative and the Coastal Fisheries Initiative.

While it could be argued that all FAO's work in relation to fisheries and aquaculture is either directly or indirectly contributing to sustainable development, this paper presents important approaches and initiatives that more explicitly and directly aim at integrating the three dimensions of sustainability.

1. Introduction

Oceans, seas and coastal areas provide a vital source of nutritious food, employment, recreation, trade and economic well being for millions of people around the world and other goods and services that are vital for the very existence of life on earth. Oceans play a key role in atmospheric and climate regulation, while coastal areas provide flood protection and erosion control for low-lying coastal communities. Capture fisheries and aquaculture provide about 4.3 billion people with about 15 percent of their average per capita intake of animal protein and contribute, either directly or indirectly, over 200 million jobs globally, with marine aquaculture expanding rapidly from the coasts to offshore areas and potentially to the high seas. Travel and tourism, ports and associated infrastructures, mining activities and energy production are also

sectors that use oceans and seas to create jobs and economic and social benefits for millions of people globally.

Over the last century a multitude of threats have eroded the ocean's ability to sustain the benefits it can provide for present and future generations. Furthermore, poorly managed human activities and resulting negative impacts have been eroding the resilience of the oceans, including to climate change. While marine ecosystems become more vulnerable, population growth, especially along the coasts, makes more people depend on marine ecosystem services for their health and livelihoods.

Overfishing - the most immediate threat - is compounded by the destruction of critical habitats such as mangroves, salt marshes, and coral reefs as well as by pollution, discards and climate change. Some 29% of the assessed exploited marine fish stocks are overexploited leading to, biodiversity losses, reduced food production on the order of 16.5 million tonnes[1] and economic losses on the order of 50 billion USD/year[2].

Fishing communities in developing countries are particularly vulnerable to this marked decline in the productivity of marine fisheries, as many people, especially those with the lowest income, have few if any alternative livelihoods. The dramatic effects of overfishing are worsened by avoidable losses of up to 30% of total harvest due to inadequate post-harvest practices. Climate change and natural disasters, access conflicts[3], rapid development and population growth further increase the vulnerability, poverty and food insecurity of the easily marginalized, poor fishing communities.

It has long been recognized that sustainable use of natural resources requires approaches that reconcile different and apparently contrasting objectives such as those related to maintaining ecological well-being and those aimed at sustaining the social and economic benefits that can be derived from these resources. This is consistent with the concept of sustainable development formulated in connection with the United Nations Convention on Environment and Development (1992), but with roots longer back to the United Nations Conference on the Human Environment (Stockholm, 1972). More recently, the need to consider the multiples effects of human activities on ecosystems as well as the threat of climate change, has called for more integrated approaches to management across multiple sectors.

[1] Overexploitation has led to the loss of 16.5 million tonnes of fish production each year (Ye et al 2013) in a world that still has 868 million people in hunger (FAO 2013).
[2] World Bank and FAO. 2009. The sunken billions: the economic justification for fisheries reform. Washington, DC, The World Bank, and Rome, FAO. 100 pp.
[3] These include not only conflicts over the allocation and use of space with other sectors such as tourism, ports and coastal aquaculture, but also within the fisheries sector because coastal fisheries include artisanal/small-scale, semi-industrial and industrial fisheries - all of which are competing for access to the coastal area and to the fish resources within.

In FAO's new strategic framework, emphasis has been put on these aspects. In particular, Strategic Objective 2 "*Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner*" has identified development of adequate policy and governance frameworks as key to achieving its goals. Two levels of governance need to be addressed. One is sectoral, that focuses on sustainability in a given sector, and one is multisectoral, focusing on the interactions between sectors and their compounded impacts at ecosystem level. At the sectoral level it will be important to make sure that the three dimensions of sustainability (environmental, social-including equity issues, and economic) are considered and integrated and tradeoffs balanced. The cross-sectoral level will ensure coherence and coordination across sectors to achieve overall sustainability goals. Governance is key to these aspects and is a key element of Strategic Objective 2. Setting relevant policy objectives, strengthening institutional and legal frameworks to create the enabling environment to transition to sustainable agriculture (including fisheries and aquaculture), establishing practices that are participatory, accountable, equitable and transparent will be key areas of work to achieve this strategic objective. In other words, "good governance" is considered as a pre-condition for sustainability of agriculture systems, including fisheries.

2. Issues and challenges

Ecological sustainability . The detrimental ecosystem effects of overfishing can be direct or indirect. Direct effects are those that result from excessive fishing activities such as excessive mortalities of target or non-target species. Indirect effects emerge as a feed-back or feed-forward delayed response of the fishery system such as changes in ecosystem structure and function arising from: (i) thinning or elimination of prey populations (bottom-up forcing); (ii) excessive reduction of predators (top-down effect); and (iii) altering the size composition or the life history traits of the resource. Further, species important to system function may be affected by overfishing such as excessive removals of herbivores can lead to habitat modification. Fisheries have obvious impacts on ocean biodiversity and these are expected to increase as a result of a growing demand for fish. The above impacts affect overall ecosystem structure and functioning and reduce ecosystems ability to adapt to climate variability and change and other drivers of change.

Social and economic inequities and economic inefficiencies reinforce the perverse incentives that are central to many of the sustainability problems of fisheries. Overcapacity is, in many cases, the cause of overfishing of fisheries and is exacerbated by subsidies. Additional social and economic factors include the increase of human populations on coastal areas, the widespread poverty and social marginalization affecting many coastal fishing communities[4] and inefficient market structures. High levels of post-harvest losses, especially in poor areas, exacerbate these issues.

[4] increases the pressure on fish stocks and leads fishers to use often unsustainable fishing practices, further degrading the carrying capacity of the ecosystem and the productivity of fisheries

Despite the work by FAO and other partners, progress on actual implementation of various market mechanisms to support sustainable fisheries has been slow. Management practices based on stronger users' rights are still not widely accepted, and subsidies not been significantly addressed. Compounding this problem, the lack of experience in business planning and management means coastal fishers and local fishing communities struggle to escape the poverty trap and will keep overexploiting coastal resources.

The related lack of adoption by coastal fisheries of improved practices to reduce fish waste, discards and fish losses prevents fishers and coastal communities from fully realizing potential benefits of their fishing activities.

Governance and Management. Ineffective fisheries governance and management is at the heart of declines in fisheries resources. The current governance challenge – and a key source of poor management results - is to address the inadequacy of the behavioural incentives that are created by many management systems.

The critical factors exacerbating inefficient governance and management include: (i) poor stakeholder participation; (ii) insufficient scientific support and ineffective management approaches; (iii) insufficient access to relevant and timely data and information; (iv) weak capacity for monitoring, control and surveillance (MCS); and (v) insufficient use of available knowledge. Operating under the principle of free and open access creates conflicting and disparate incentives among users, other stakeholders, and managers and simply does not ensure the sustainability of these resources. Yet, a large number of fisheries are managed in this way instead of being managed using incentive-aligning strategies.Moreover, fisheries don't exist in isolation. The socio-economic and institutional environment within which they exist has important impacts on the behaviour of fisheries stakeholders.

Politically unpalatable transitions to more effective fisheries management are made even more difficult by inadequate institutional frameworks (in terms of out-dated laws and regulations, poor information flows, and limited stakeholder participation); weak decision-making mechanisms; and a general lack of integration of sectoral development policies.

Societal demands for increasingly higher standards of resource stewardship from users and managers, alike, are requiring greater transparency and accountability and an active desire to participate and shape utilization decisions. Unfortunately, this is happening even while the capacity of many fishery bodies is still insufficient for effecting management or for fully implementing the new international instruments, particularly at regional levels. Many fisheries bodies are simply advisory, have weak decision-making rules, and lack sufficient resources.

An important challenge is to deal with the trade-offs between the dimensions of sustainability, starting from reconciling and harmonizing management and policy objectives across these dimensions. Examples of possible trade-offs include : (i) Maximizing rent vs employment vs food production; (ii) Optimizing outputs vs distribution among actors; (iii) Exploiting forage fish (krill,

cephalopods) for humans vs leaving them to predators; (iv) Subsidizing small- or large-scale fisheries, or none of them; (v) Keeping fish for the local communities wellbeing vs selling it away to foreign fleets in exchange of foreign exchange; (vi) Locating MPAs in most ecologically important vs less problematic areas; (vii) Catch quantity vs catch quality and diversity; (viii) Development of local vs export markets. Each of them may have different short and long-term implications and it is important to face them and find ways to overcome the transitional difficulties in order to reach the ultimate goal. There are also important trade-offs between fisheries and other economic sectors with short as well as long-term implications that should be addressed within space-based, cross sectoral, integrated policy and management frames.

3. Solutions

There have been a number of positive achievements in the fisheries sector. Since the early 1950s, fisheries development policies and trade have led to an increasing amount of fish supplied as food on a per capita basis despite concomitant increases in population. During the last two to three decades, fisheries have become a major source of income and foreign exchange for many developing countries whilst aquaculture has contributed to increasing the supply of fish and stabilizing prices.

Societal awareness of fisheries resources and of the impacts of fishing activities on the environment continues to increase. The precautionary approach to fisheries management and Ecosystem Approach to Fisheries (EAF) are now part of many management strategies. New legislation has been put in place including improving the sustainability of marine aquaculture and soft law instruments such as the Small Scale Fisheries guidelines focus on specific components of the fisheries sector that need special attention. New initiatives are developing to strengthen and complement these efforts such as the Blue Growth Initiative (BGI) and the Coastal Fisheries Initiative (CFI).

While it could be argued that all the work of the FAO's Fisheries and Aquaculture Department is either directly or indirectly contributing to sustainable development, this section will focus specifically on approaches and initiatives that more explicitly and directly aim at integrating the three dimensions of sustainability.

3.1 Blue Growth Initiative (BGI)

The concept of Blue Growth, which has been referred to also as "*Blue Economy*", "*Green Economy in a Blue World*", "*Blue Green Economy*", "*Blue economy, the new maritime green economy*" or "*Green growth in fisheries and aquaculture*" has developed during recent years as an emerging paradigm for the sustainable management of natural marine and freshwater resources. The terminology "*Blue Growth*" is preferred by many instead of "*Blue Economy*", because there has been criticism in some development circles of the "*green economy"* concept, in particular its emphasis on zero or limited growth.

Due to a recognition by FAO of the importance and need for the fisheries and aquaculture sector to sustainably grow in order to meet rising food demand and contribute to poverty alleviation, and the fact that zero growth is neither realistic nor desirable, FAO has launched in December 2013 the "*Blue Growth Initiative*". FAO defines Blue Growth as **"***Sustainable growth and development emanating from economic activities using living renewable resources of the oceans, wetlands and coastal zones that minimize environmental degradation, biodiversity loss and unsustainable use of aquatic resources, and maximize economic and social benefits*". With the BGI, FAO aims at restoring the productive potential of the oceans and wetlands by strengthening responsible management regimes and practices to reconcile economic growth and food security with their conservation and the eco-systems they sustain, and to create an enabling environment for people employed in fisheries and aquaculture to act not only as resource-users but also as resource-stewards. It focuses on improved livelihoods and social equitability as well as transparent and more secure food systems.

The FAO BGI builds on the existing strong international legislative and policy framework centred around the FAO Code of Conduct for Responsible Fisheries and its related international agreements, guidelines and plans of action described before. The challenge is to provide incentives and adequate resources to adapt and implement this framework at the local, national and regional levels to secure political commitment and governance reform, including by building effective institutions that lead to the adoption of ecosystem approaches to fisheries and aquaculture with fair and responsible tenure systems. The FAO BGI aims at enabling the catalysis of policies, investment and innovation which would underpin sustained growth and give rise to new economic opportunities in ecosystem goods and services. It would integrate key aspects of economic performance, such as poverty reduction, job creation, social inclusion and community resilience, with those of environmental performance, such as mitigation of climate change, ecosystems and biodiversity restoration. It would mobilize financial and technical support and build local capacity for the design and implementation of blue growth Strategies and create action-oriented policy options and institutions tailored to the respective economic circumstances and constraints of Member countries. The FAO BGI also promotes partnerships among industry, governments and communities at all levels. The recognition of the fundamental role the private sector and public-private partnerships will play in changing current behaviors and practices, and accepting that short-term economic impact will be superseded by long-term economic gain, is essential.

The FAO BGI is organized around 4 streams of work:

- Capture fisheries, both from marine and inland
- Sustainable intensification of aquaculture
- Secured food systems and improved livelihoods
- Economic growth from ecosystem services

FAO uses its expertise in Headquarters and the field, its networks and strategic partners, to promote projects around these 4 streams of work that support actions with BG impact at the global, regional and national levels.

Several countries and RFMOs have formally applied to join the BGI and requested FAO to assist with the implementation of one or several of the four streams of work of the BGI. Extra-budgetary resources have been mobilized, including through Technical Cooperation projects (TCPs), to initiate work particularly in coastal countries of Africa and Asia. Additional resources

are needed to address the increasing demand for piloting the BGI in other regions and countries and upscale successful experiences to benefit other communities and regions.

Following is a brief description of ongoing and projected BG activities:

(a) Integrating BG concepts into fisheries policy and governance processes aimed at sustainable aquatic resource development, management and conservation.
(b) Providing technical assistance on Sustainable Intensification of Aquaculture.
(c) Dissemination of better management practices, decent employment and livelihoods and improved markets in fisheries and aquaculture.
(d) Improving ecosystems services in the aquatic sector.

The BGI aligns with related initiatives launched by other Organizations such as GEF, UNEP, OECD, World Bank, World Fish Center and the EU to promote the concept of Blue Growth and related activities. As a result, through the BGI, FAO would provide knowledge products (science-based fisheries information, facilitation for extension and advisory services, capacity building for policy development and for the implementation of international instruments and good practices), experience and on-the-ground operational capacity.

Annex 1 maps pilot countries and regions with ongoing and pipeline BGI related activities.

3.2 Ecosystem Approach to Fisheries and to Aquaculture (EAF/EAA)

FAO has been promoting the adoption of an integrated approach to fisheries management, i.e. one that explicitly takes into account the three dimensions of sustainability, for the past decade or so, through the Ecosystem Approach to Fisheries (EAF, FAO, 2003). However, it should be noted that the FAO Code of Conduct for Responsible Fisheries (CCRF, 1995), formulated on the wake of the Earth Summit (Rio, 1992) is the first milestone in fisheries in terms of capturing principles of sustainable development. EAF is, in effect, a means of implementing many of the provisions of the Code and provides a way to implement these in a practical and comprehensive way. More recently the same approach has been applied to aquaculture, resulting in the Ecosystem Approach to Aquaculture (EAA).

EAF and EAA are holistic strategies for managing capture fisheries and aquaculture that integrate the ecological, socio-economic and institutional dimensions.

In the FAO definition of EAF, the word 'ecosystem' is used to emphasize the holistic nature of the approach, addressing the fishery system as an integrated socio-ecological system. Human beings are an integral part of the ecosystem. FAO's definition reflects this notion:
"An Ecosystem Approach to Fisheries strives to balance diverse societal objectives, by taking account of the knowledge and uncertainties about biotic, abiotic and human components of ecosystems and their interactions and applying an integrated approach to fisheries within ecologically meaningful boundaries." (FAO, 2003[5]).

[5] FAO. The ecosystem approach to fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 2. Rome, FAO. 2003. 112 p.

The above clearly addresses both human and ecological well-being thus combining two concepts, that of conserving biodiversity, ecosystem structure and functioning and that of fisheries management dealing with providing food, income and livelihoods for humans. The definition therefore provides the basis for mainstreaming sustainable development into fisheries policy frameworks and decision-making at national, regional and global levels.

The political commitment to EAF formally materialized in connection with the 'Reykjavik Conference on Sustainable Fisheries in the Marine Ecosystem' (Reykjavik, 2001), when 45 participating countries undersigned a declaration and a pledge to incorporate ecosystem considerations in fisheries management. This commitment was reinstated in connection with the WSSD (Johannesburg, 2002) where 2010 was agreed as target for its application (WSSD, Plan of Implementation, Paragraph 29, d). The Twenty-seventh Session of the Committee on Fisheries (COFI) in 2007 broadly agreed that "EAF was the appropriate and necessary framework for fisheries management" and highlighted the "need for aquatic production to follow an ecosystem approach to aquaculture".

The EAF provides a framework to explicitly address objectives relevant to the three dimensions of sustainability, evaluate tradeoffs and identify strategies to achieve acceptable results for environmental sustainability, food security and macroeconomic development goals.

An ecosystem approach to aquaculture (EAA) has been defined as "*a strategy for the integration of the activity within the wider ecosystem such that it promotes sustainable development, equity and resilience of interlinked social-ecological systems*." The EAA provides a planning and management framework whereby parts of the aquaculture sector can be effectively integrated into local planning and affords clear mechanisms for engaging with producers and government for the effective sustainable management of aquaculture operations by taking into account the environmental the socioeconomic and governance objectives.

The key features of the framework proposed in the FAO guidelines for planning and implementing under an EA management, both for Fisheries (EAF) as well as for aquaculture (EAA) can be summarized as follows:

- a management plan is developed for a very specific area/system with operationally defined boundaries;
- stakeholder participation is envisaged at all levels of the planning and implementation steps;
- all key components of a fishery/aquaculture system (ecological, social-economic and governance), are comprehensively considered while also taking into account external drivers;
- sustainability issues that need attention are identified and prioritized through a formal process (e.g. risk assessment)
- management objectives related to environmental and social/economic aspects are reconciled including explicit consideration of trade-offs between them;

- an adaptive management process is established that includes mechanisms for feed-back loops at different time scales to adjust the tactical and strategic performance based on past and present observations and experiences;
- 'best available knowledge' is the basis for decision-making, including both scientific and traditional knowledge, while promoting risk assessment and management and the notion that decision making should take place also in cases where there is lack of detailed scientific knowledge.
- the system builds on existing management institutions and practices.

Development of fisheries management plans is a key element in the implementation of these integrated approaches. It should be noted that the CCRF (FAO, 1995) also explicitly requires that "Long-term management objectives should be translated into management actions, formulated as a fisheries management plan or other management framework". Implementation of an ecosystem approach requires, perhaps more explicitly than under conventional fisheries management and the CCRF, that management plans be developed by explicitly taking into account the three dimensions of sustainability. The planning process consists largely of examining existing or developing fisheries to identify key objectives (ecological, social and economic), priority issues to be addressed in order to move towards these objectives and the action required. Planning and implementation of EAF entail establishing a management cycle that includes initial planning, implementation and feed-back loops that are essential under an adaptive framework. Implementing EAF will require an initial planning exercise (including 'Scoping', 'Setting objectives' and 'Formulating actions and rules'), to revise existing or developing new management plans for a given fishery, a sub-sector (e.g. small-scale fisheries) or a given region. The management cycle entails stakeholder participation at all steps, the use of best available knowledge, which also implies that the planning and decision making should take place without postponing until improved knowledge is available. Another innovative element of the EAF framework is to consider objectives and priority of actions along the three main dimensions of fisheries systems, i.e. the ecological, social and economic and identifying the most apporpriate governance system to address these. This management cycle is also followed by the EAA.

Managers and stakeholders are encouraged to use ample time to identify, discuss and agree on the broad objectives and values that the management system is supposed to address and related to those, what issues pose the highest risk of not achieving the intended objectives. The process is guided by the issue (see for example http://www.fao.org/fishery/eaf-net/eaftool/eaf_tool_1/en). This step, issue identification, is an important one as most commonly different stakeholders have different values and different perceptions of the main sustainability issues, which leads to conflicts.

EAF/EAA and Climate Change[6]

Similar to the process described more generally for fisheries (and aquaculture) management, the EAF/EAA process itself assists in the monitoring of climate change impacts. A key step in any EAF/EAA process includes the identification of issues (and their prioritisation through a risk assessment) that need to be addressed by management, including all direct and indirect impacts of the fishery/farm on the broader system.

Improving the general resilience of fisheries and aquaculture systems will reduce their vulnerability to climate change. Biodiversity-rich systems may be less sensitive to change than overfished and biodiversity-poor systems. Healthy coral reef and mangroves systems can provide many benefits, including natural barriers to physical impacts. Fisheries- and aquaculture-dependent communities with strong social systems and a portfolio of livelihood options have higher adaptive capacities and lower sensitivities to change. Larger-scale production systems with effective governance structures and adequate mobility of capital tend to be more resilient to change. In addition, by assisting in improving our understanding about the role of aquatic systems as natural carbon sinks and how fisheries impact this role and by supporting a move to environmentally friendly and fuel-efficient fishing, aquaculture and post-harvest practices, implementing the EAF/EAA will also feed into global greenhouse gas mitigation efforts.

Practical implementation of EAF

During the past 15 years or so, substantial effort has been put into furthering the EAF, both through normative work (e.g. guidelines and toolboxes) as well by assisting developing countries with practical implementation. Thanks to substantial extra budgetary funding support has been provided to developing nations in Latin America, Africa, Southeast Asia and the Mediterranean. The EAF concept have been mainstreamed in national policies, management plans and adopted at national and regional levels, e.g. by RFBs. Highlights of FAO's work are provided in Annex 2.

3.3 Integrated developments and programmatic approaches

3.3.1 The Commons Ocean Program – to advance sustainable fisheries and biodiversity conservation in areas beyond national jurisdiction

Oceans and coastal areas provide a vital source of nutritious food, employment, recreation, commerce and socio-economic benefits as well as other crucial goods and services. The Areas Beyond National Jurisdiction (ABNJ) and related ecosystems are subject to impacts from a variety of sectors including shipping, deep-sea mining and fishing. Seeking to generate a catalytic change, the ***Global sustainable fisheries management and biodiversity conservation in***

[6] See fisheries and aquaculture chapter in the FAO. 2013. Climate-smart Agriculture Sourcebook. http://www.fao.org/docrep/018/i3325e/i3325e.pdf

the ABNJ Program – referred to as the **Common Oceans Program**– was approved by GEF under the lead of the FAO and is being executed in close collaboration with a large array of partners.

The Common Oceans Program aims to promote efficient and sustainable management of fisheries resources and biodiversity conservation in ABNJ to achieve an efficient and equitable system capable of generating and sustaining wealth and conserving the biodiversity upon which ocean health and human well-being depend. The Program focuses on tuna and other shared highly migratory stocks, deep-sea fisheries and associated biodiversity and contributes to achieving the global targets agreed in international fora.

The five-year Program is an innovative, unique and comprehensive initiative working with a wide range of partners. It is made of four Projects which bring together governments, regional management bodies, civil society, the private sector, academia and industry to work towards ensuring the sustainable use and conservation of ABNJ biodiversity and ecosystem services.

The wide range of partnerships, working successfully under the coordination of FAO, brings together organizations and initiatives with diverse roles, mandates and membership, united by the common goals of sustainability and conservation of biodiversity.

The Program concentrates on short-term milestones as part of a long-term plan to establish the strong networks, best management practices and facilitate information sharing needed to make a transformational impact towards responsible and sustainable use of ABNJ resources. It aims to:

- move towards the ecosystem approach and rights-based systems and away from the "race to fish";
- increase our ability to protect fragile ecosystems;
- foster international and cross-sectoral coordination and sharing of information.

The Programme is composed of four Projects:

- **Sustainable management of tuna fisheries & biodiversity (the ABNJ Tuna Project) (led by FAO/WWF)**

The objective is to achieve sustainable and efficient tuna fisheries production and biodiversity conservation through the systematic application of an ecosystem approach.

This project will focus on three component areas:

  - Supporting implementation of sustainable and efficient fisheries management and fishing practices
  - Reducing illegal, unreported and unregulated (IUU) fishing through strengthened and harmonized monitoring, control and surveillance (MCS)

- Reducing ecosystem impacts from tuna fishing, including bycatch and associated species

- **Sustainable use of deep-sea living resources & biodiversity (led by FAO/UNEP)**

The objective is to enhance sustainability in the use of deep-sea living resources and biodiversity conservation in the ABNJ through the systematic application of an ecosystem approach.

This project will focus on four areas:

- Improved implementation of existing policy and legal frameworks
- Reduced significant adverse impacts on Vulnerable Marine Ecosystems (VMEs) and Ecologically or Biologically Significant Areas (EBSAs)
- Improved planning and adaptive management for deep-sea fisheries in ABNJ
- Development and testing of a methodology for area-based planning

- **Oceans Partnership for sustainable fisheries & biodiversity conservation (led by the World Bank)**

The objective is to develop business plans for investment in long-term, sustainable management of several different fisheries, each spanning areas within and beyond national jurisdiction.

The project will be implemented by the World Bank through regional execution agencies and focus on three areas:

- The development of large-scale pilot project activities for sustainable fisheries in priority ocean areas
- Oceans innovation grant facility
- Monitoring and evaluation of pilots and innovation grants, advocacy and lesson learning

- **Strengthening global capacity to effectively manage ABNJ (led by FAO and the Global Ocean Forum)**

Promote effective global and regional coordination on ABNJ, including through information exchange, capacity development, and enhanced engagement of stakeholders at global, regional and national levels in constructive policy dialogues on ABNJ.

Building on the efforts of the other projects and partners, this project will focus on three main areas:

- Global and Regional Cross-sectoral Dialogues

- Capacity Development
- Knowledge Management and Outreach

The Tuna Project, has been operational since the beginning of 2014 and it is working closely with the partners, including the tuna Regional Fisheries Management Organizations (RFMOs) to advance the RFMO processes that align with the objectives of the Project. Similarly, the Deep-Sea Project has started its operations during late 2014, and it is gearing towards full implementation. The Ocean Partnership Project, led by the World Bank, has started in the last quarter of 2014, establishing four activities also related to tuna fisheries in various regions of the world. The Global Capacity Project has also been in operations since mid 2014, supporting dialogues involving young regional leaders to discuss global issues affecting the ABNJ.

3.3.2 The Coastal Fisheries Initiative (CFI)

The Coastal Fisheries Initiative (CFI), which sees FAO as its Global Coordinator, has been developed within the framework of the GEF's work on safeguarding world oceans and their coasts. Recognizing the need for more integrated approaches to sustainable development and ocean activities, based on strong sectoral management, the CFI is intended to complement the GEF multi-country LME approach. Its rationale builds on the recognition that overfishing is among the greatest threats to oceans' health and that the biological diversity in the world's oceans is concentrated in near-shore waters. The initiative takes the three pillars of sustainability – the environmental, social and economic dimensions – into account, including resilience, and recognizes that, especially in developing countries, millions of people are directly dependent on the capture fisheries value chains for their livelihoods and that small-scale fisheries account for approximately 50 percent of the total marine fish catch volume and up to 85% of the people involved in marine fisheries globally.

The CFI intends to support the multiple actors involved in coastal fisheries in developing countries to shift toward an integrated, inclusive and sustainable approach to fisheries management and development. This in turn will contribute in a significant way to global environmental efforts to restore ocean health.

i) Role and importance of coastal fisheries

Coastal fisheries represent a critical provider of livelihoods, particularly in coastal areas of developing countries, and have a key role in food security through the provision of highly nutritious food and incomes. Coastal fisheries represent 87% of the roughly 80 million tons/year produced by marine capture fisheries and are the dominant source of marine protein to meet human needs. This flow of high quality, affordable protein is particularly important for poorer population groups: it provides 4.3 billion people with about 15 percent of their animal protein (FAO, 2014) and plays an important role in ensuring food security in many parts of the world.

Marine fisheries are estimated to employ over 60 million people, including both fishers and postharvest jobs, and 85 percent are small-scale fishers and fish workers primarily operating in coastal waters in developing countries (World Bank, 2012). The number of people for whom coastal fisheries are essential amounts to two hundred million if those indirectly dependent on fisheries are included and the sector engages both women and men, with women often playing a central role in fish processing and marketing.

Fishery products are the most internationally traded food in the world and developing countries account for more than 50 percent of global fish exports in value and for more than 60 percent in volume (FAO Sub-committee on fish trade, 2014). Fishing and associated activities stimulate a wide range of other economic activities and can constitute an important engine for both local economies and wider economic growth. Coastal fisheries also have a cultural importance as engagement in **fisheries** often is a central defining characteristic of the communities involved. Healthy ecosystems/fisheries can help reduce vulnerability and economic losses from disasters.

ii) Objective and expected outcomes

The GEF mandate emphasizes the creation of Global Environment Benefits (GEBs) and there should be a strong focus on ecosystem health but at the same time attention should be given to the social and economic dimensions. Food security needs to be a priority especially when working in a context of poverty and with those who are dependent on fisheries for their livelihoods. The goal and development objective of the CFI will reflect the necessity to take an inclusive perspective of sustainability in line with the outcomes of the Conference on Sustainable Development "Rio+20".

The proposed Global Environmental Objective of the CFI is:

> *To contribute to coastal fisheries delivering sustainable environmental, social and economic benefits*

The purpose or Development Objective of the CFI is:

> *To demonstrate effective, sustainable and replicable models of coastal fisheries management characterized by good governance and proper incentives*

As the CFI is both about demonstrating how coastal fisheries sustainability and social economic benefits can be improved through the application of existing approaches, in an integrated approach as necessary, and achieving impact on the ground providing a basis for replication, the 'models' referred to in the development objective includes both processes and results. The expected outcomes of the CFI also include this important dual perspective.

The outcomes of the CFI will be:

1. Improvement in the enabling environment (processes and institutional structures) required for sustainable fisheries management and coastal livelihoods at CFI pilot sites are demonstrated.

2. Collaborative processes among development partners have been successfully tested and are replicated in new initiatives.
3. Knowledge on CFI experiences of innovative approaches to coastal fisheries management is documented and accessible to the wider global community concerned with coastal fisheries.

Indicators will be developed for each of the components of the CFI as they are developed in more detail in each geographic area.

iii) Approaches and methods to be applied

The CFI is an initiative aiming to find innovative approaches to coastal fisheries management and development that can bring about sustainable use of coastal resources and related marine and coastal areas and habitats for the benefit of coastal populations and those dependent on coastal marine ecosystem services for their well-being. The CFI is motivated by a perception that there exist a number of valid approaches (see above) but that current implementation patterns where approaches are used in isolation of one and other – or with limited coordination and collaboration – is an ineffective way of going about business. **The innovativeness of the CFI will hence not be new approaches *per se* but the way existing approaches are used in relation to one and other.** This requires strong and effective collaboration between different partners where each partners brings its strength to contribute to the common effort.

Key principles that need to be followed in order to ensure this include:

- **Consultation** and participation: coastal fisheries management requires a multi-stakeholder approach which fully recognizes the rights and priorities of different interest groups and their right to be consulted, and participate in decision-making, about all matters that are likely to affect their lives and livelihoods;
- **Transparency**: clearly defining and widely publicizing policies, laws and procedures in applicable languages, and widely publicizing decisions in applicable languages and in formats accessible to all.
- **Accountability**: holding individuals, public agencies and non-state actors responsible for their actions and decisions according to the principles of the rule of law, and providing opportunities for feedback and discussion of interventions between agencies responsible for their implementation and those affected by them;
- **Economic, social and environmental sustainability:** applying the precautionary approach and risk management to guard against undesirable outcomes, including overexploitation of fishery resources and negative environmental, social and economic impacts;

- **Gender equality and equity** is fundamental to any development. Recognizing the vital role of women in coastal fisheries, equal rights and opportunities should be promoted.
- **Holistic and integrated approaches:** recognizing the ecosystem approach to fisheries (EAF) as an important guiding principle, embracing the notions of comprehensiveness and sustainability of all parts of ecosystems as well as the livelihoods of fishing communities, and ensuring cross-sectoral coordination as coastal fisheries are closely linked to and dependent on many other sectors.
- **Feasibility and social and economic viability:** ensuring that policies, strategies, plans and actions for improving coastal fisheries governance and development are socially and economically sound and rational. They should be informed by existing conditions, implementable and adaptable to changing circumstances, and should support community resilience.

The FAO, including in its capacity as Global Coordinator for CFI, will also be responsible for the key knowledge management component, ensuring that experience and learning generated by the CFI components are capture, interpreted and made available in accessible formats as widely as possible, both within CFI and to wider global audiences.

The FAO, in collaboration with other relevant agencies, will also be responsible for the development and implementation of a research component of the initiative focusing on the development and dissemination of indicators and assessment methodologies for fisheries performance.

3.3.3 Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF) Guidelines

It is estimated that about 85% of the global workforce in capture fisheries operates in small-scale fisheries and the contributions of small-scale fisheries to poverty alleviation and food and nutrition security are being increasingly recognized, most notably in the Rio+20 outcome document (*The Future We Want*).

Despite their importance, small-scale fisheries face a number of challenges. The overall development of the fisheries sector, as well as increased pressure from other sectors (e.g. tourism, aquaculture, agriculture, energy, mining, industry, infrastructure developments) with often stronger political or economic influence, has contributed to a decline in aquatic resources and threats to aquatic habitats, ecosystems and small-scale community livelihoods. Small-scale fishers, fish workers and their communities also face a myriad of other challenges and constraints, including unequal power relations, lack of access to services and limited participation in decision-making processes which may lead to unfavorable policies and practices.

Following the recommendation of the 29th Session of the Committee on Fisheries (COFI) in 2011 and driven by the outcome of a number of global and regional conferences and consultative

meetings exploring how to bring together responsible fisheries and social development in coastal and inland small-scale fishing communities, FAO facilitated the development of an international instrument for securing sustainable small-scale fisheries in the form of international guidelines - The *Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines).* The SSF Guidelines are the outcome of an extensive consultation process directly involving over 4,000 stakeholders and represent a global consensus on principles and guidance for small-scale fisheries governance and development. The SSF Guidelines aim to enhance the contribution of small-scale fisheries to global food security and nutrition, to contribute to equitable development and poverty eradication, to achieve sustainable utilization of fishery resources, and to promote an economically, socially and environmentally sustainable future of our planet and its people. It proposes guidance that can be used by States and stakeholders for the enhancement of sustainable small-scale fisheries governance and development. It also promotes awareness raising and the advancement of knowledge on small-scale fisheries.

The SSF Guidelines complement the 1995 Code of Conduct for Responsible Fisheries (CCRF) and are based on international human rights standards, responsible fisheries governance and sustainable development in line with the outcome document '*The future we want* 'and other international instruments, e.g. the Voluntary Guidelines on Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security and the Voluntary Guidelines on the Progressive Realization of the Right to Adequate Food in the Context of National Food Security.

Drawing on these instruments, the SSF Guidelines contain a number of key guiding principles that should underpin their future implementation: i.e. human rights and dignity; respect of cultures; non discrimination; equity and equality including for gender; consultation and participation; rule of law; transparency; accountability; economic, social and environmental sustainability; holistic and integrated approaches; social responsibility; feasibility and social and economic viability. It should be stressed that the SSF Guidelines specifically include the ecosystem approach to fisheries among the guiding principles and refer to EAF throughout the text.

With regard to subject matter content, the SSF Guidelines recognize the importance of all three pillars of sustainability which contribute to Blue Growth. They contain five main thematic areas in relation to responsible fisheries and sustainable development:

- Governance of tenure in small-scale fisheries and resource management;
- Social development, employment and decent work;
- Value chains, postharvest and trade;
- Gender equality;
- Disaster risks and climate change.

In addition, the SSF Guidelines include four areas related to ensuring an enabling environment and supporting implementation:

- Policy coherence, institutional coordination and collaboration;
- Information, research and communication;
- Capacity development;
- Implementation support and monitoring.

After the endorsement of the SSF Guidelines by COFI in 2014, the next big challenges lies ahead: the SSF Guidelines will only be effective if they are recognized, understood and widely accepted by stakeholders and systematically applied in accordance with the guiding principles established therein.

The SSF Guidelines are global in scope and provide a broad policy framework. To facilitate their implementation, there will be a need for a strategic approach that includes practical guidelines at regional and national levels that take local circumstances into consideration. The overall strategic approach for implementation of the SSF Guidelines should build on the inclusive and consensus-seeking spirit and environment that characterized their development. Accordingly, future implementation of the SSF Guidelines should be based on participation and partnerships, with implementation anchored at the national and local levels within a framework of regional and international collaboration, awareness raising, policy support and capacity development. This will require support to and collaboration with many different actors including governments, development agencies and international financing institutions, NGOs, academia, civil society and the private sector at all levels. Interdisciplinary partnerships will be required to ensure that the holistic approach promoted in the SSF Guidelines is implemented, i.e. considering all three pillars of sustainability (environmental, social and economic), involving men and women in the whole fisheries value chain and accruing benefits both within and outside fishing communities that contribute to food security and poverty eradication. This multidisciplinary and cross-sectoral perspective needs to be reflected in the national level processes of multi-stakeholder platforms and the development of national and subnational implementation strategies.

The aim of the strategic approach should be to have the principles of the SSF Guidelines mainstreamed in policies, strategies and actions at international, regional, national and local levels. Progress has in fact already been made in this respect and the SSF Guidelines are referred to in several ongoing policy processes, e.g. in the African Union draft 'Policy framework and reform strategy for fisheries and aquaculture in Africa', the report of the UN Special Rapporteur on the Right to Food presented at the 67th Session of the UN General Assembly in 2012, the Farmers' Forum of the International Fund for Agricultural Development since 2012, a resolution of the Western Central Atlantic Fishery Commission (WECAFC/15/2014/8) and in the Committee

on Global Food Security's *Principles for responsible investment in agriculture and food systems* and the recommendations of the 41st Committee on Food Security.

Further coordination and cooperation at the intergovernmental and inter-agency levels is needed to support countries and region in addressing the challenges associated with the inter-sectoral nature of the SSF Guidelines implementation and exchanges of implementation experiences and lessons learned will be important to optimize implementation effectiveness.

4. Post-2015 development agenda process and Sustainable Development Goals

During 2013-2014, FAO has continuously supported the Post-2015 development agenda process with technical and policy guidance. In February 2014, it presented Members with a package of issue papers on 14 themes identifying and suggesting ways to tackle the key social, economic and environmental barriers to improved food security and nutrition. One of these themes is Fisheries, Aquaculture, Oceans and Seas, which underlined that if the current trend in unsustainable uses of aquatic resources is not reversed, the ability of our oceans to deliver food for future generations will be severely compromised. FAO has also kept all involved stakeholders updated on relevant developments with a bi-monthly electronic bulletin entitled: Post-2015 and SDGs: Nourishing people, Nurturing the planet.

In addition, FAO has contributed to numerous technical reviews through the UN Technical Support Team (TST), of the Report of the Open Working Group (OWG) of the General Assembly on Sustainable Development Goals (A/68/970; 12 August 2014). Technical and policy advice was provided by FAO specifically on current SDG 14: "Conserve and sustainably use the oceans, seas and marine resources for sustainable development", in particular, in close collaboration and consultation with UN Oceans partners. Suggestions and comments were submitted on SDG 14 Targets and accompanying Means of Implementation (MoI) in an iterative process that fundamentally shaped the final formulation of the items under this Goal.

FAO continues to suggest that social issues in fisheries and aquaculture, participation of stakeholders and capacity development would deserve more recognition in the present texts, while some targets, as formulated, appear to require very significant efforts which possibly will be very difficult to realize within the given time frames, as proposed in the present text.

Key stakeholders need to be enabled to consult together and to take on their respective roles and responsibilities to achieve sustainable development of fisheries and aquaculture. Capacity development is required to effectively implement policies, institutional arrangements and processes that do lead to empowerment of fishing communities, fish farmers, CSOs and public entities and to improve cooperation and coordination among stakeholders within and beyond the fisheries and aquaculture sectors.

Investments in Blue Growth, based on effective implementation of international instruments and approaches such as the CCRF, the Ecosystem Approach to Fisheries (EAF) and to Aquaculture (EAA) and associated guidelines, IPOAs, Small-scale fisheries guidelines, are needed at all levels. It is expected that the Code of Conduct for Responsible Fisheries and related instruments will continue to be recognized as existing international regimes that will guide implementation of SDG 14.

With the closure of the Open Working Group process, there are now three main parallel tracks that FAO will continue to support. FAO will continue to engage in the main Post-2015 intergovernmental negotiations, leading up to the Post-2015 Summit in September, providing technical and policy guidance and ensuring that the richness of issues that was reflected in the OWG Report is maintained and, where possible, strengthened.

In parallel, the UN Statistical Commission—an intergovernmental body—will prepare indicators to support the SDGs. FAO's Chief Statistician co-chairs the Inter-Agency Expert Group that is supporting the Commission, and is expected to help build consensus on a feasible set of meaningful indicators that provide usable information to policy makers while keeping costs reasonable. A key challenge for fisheries and aquaculture in this context would be to go beyond the fish stocks indicator currently used for the MDGs and develop new indicators to reflect additional dimensions of sustainable development.

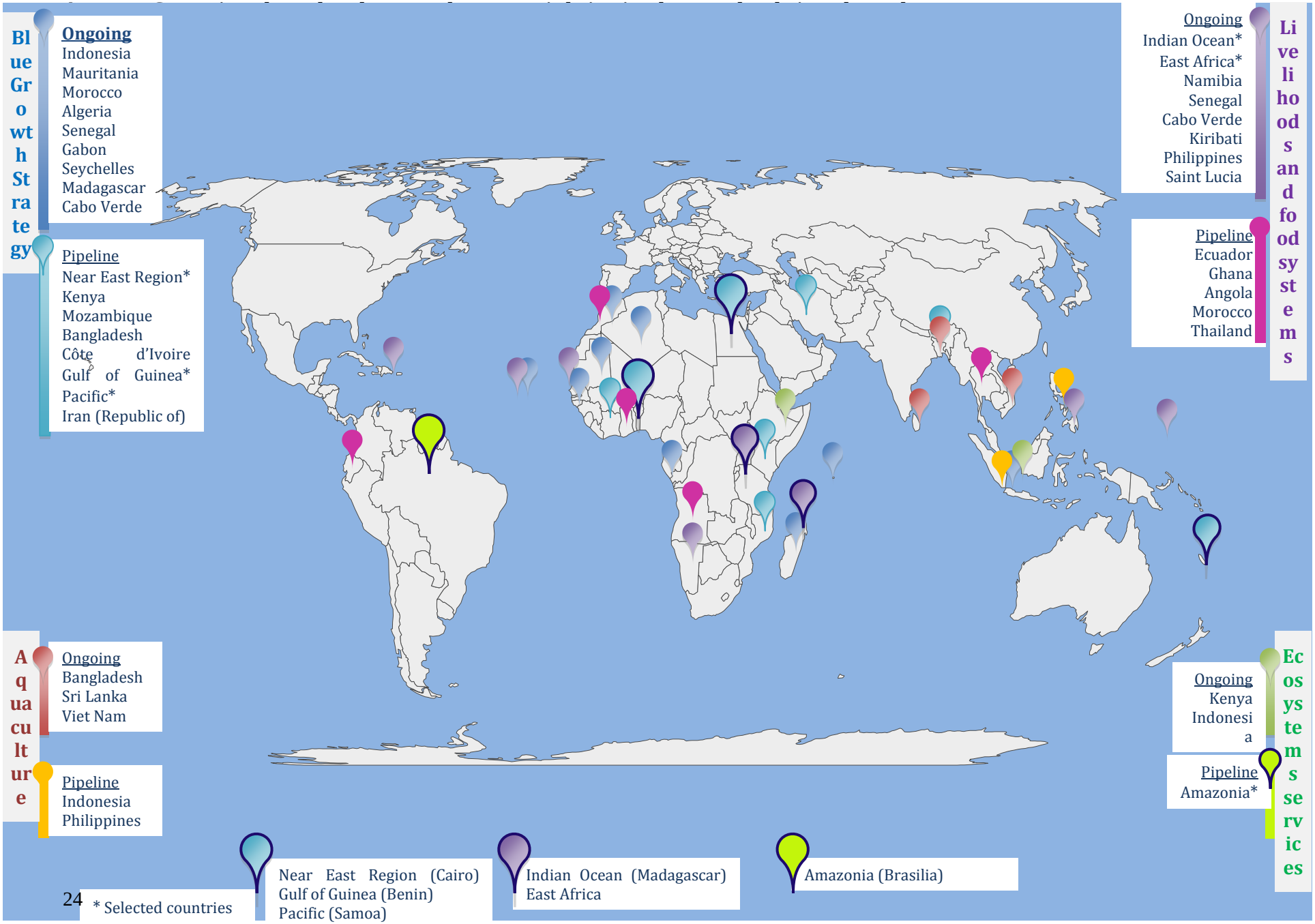
The third track concerns financing for development and means of implementation. FAO is now fully engaged in all aspects of the Financing for Development process, leading up to the Third International Conference on Financing for Development in Addis Ababa in July. This track will discuss financing, but also broader Means of Implementation (trade, technology transfer, capacity development, partnership etc.). FAO is currently preparing a proposal on means of implementation based on its original 14 issue papers, as a contribution to the process. In addition, it is preparing a short brief on how the Partnership for Development can be strengthened to support the ambitions and modalities of the new agenda, and is also working with IFAD and WFP to prepare a joint brief on financing aspects of Goal 2 on food security, nutrition and sustainable agriculture.

5. Conclusions

The strategic role that fisheries and aquaculture play in relation to food security and poverty alleviation, in addition to creating opportunities for economic growth, places this sector in a special position vis-à-vis other sectors benefitting from the oceans. Furthermore, this sector is most dependent on healthy marine ecosystems and therefore has the highest stakes in relation to its sustainable use. This perception is reflected in the responsiveness that the sector showed in developing international instruments such as the CCRF agreed to by the international

community only three years after UNCED which will celebrate its 20th anniversary in Vigo, Spain, from the 8th and 9th of October 2015. All 136 COFI Members will be invited. This event, which constitutes the First International Fisheries Stakeholder Forum, represents an unique opportunity to bring all the stakeholders together to advance in the sustainable management of the fisheries sector, to discuss ways to overcome existing problems.

The Code of Conduct for Responsible Fisheries was followed by many instruments and guidance, some of which, such as the EAF, specifically addresses the integration of three dimensions of sustainability in fisheries and aquaculture development. While much remains to be done for the practical realization of sustainable fisheries in the broader ecosystem context, the overall normative framework exists making fisheries an innovative sector in terms of embracing the principles of sustainable development. The steering of fisheries and aquaculture development through good management and, more broadly, good governance is essential in order for the sector to contribute to meeting the demand for fish, including in a way that is environmentally sustainable and contributes to reducing food insecurity and poverty. This can only be achieved if ecological, social and economic sustainability concerns are addressed in an integrated way while ensuring that the sector is integrated into broader multisectoral management.


Blue Growth Strategy
Ongoing
Indonesia
Mauritania
Morocco
Algeria
Senegal
Gabon
Seychelles
Madagascar
Cabo Verde
Pipeline
Near East Region*
Kenya
Mozambique
Bangladesh
Côte d'Ivoire
Gulf of Guinea*
Pacific*
Iran (Republic of)
Livelihoods and food systems
Ongoing
Indian Ocean*
East Africa*
Namibia
Senegal
Cabo Verde
Kiribati
Philippines
Saint Lucia
Pipeline
Ecuador
Ghana
Angola
Morocco
Thailand
Aquaculture
Ongoing
Bangladesh
Sri Lanka
Viet Nam
Pipeline
Indonesia
Philippines
Ecosystems services
Ongoing
Kenya
Indonesia
Pipeline
Amazonia*
Near East Region (Cairo)
Gulf of Guinea (Benin)
Pacific (Samoa)
Indian Ocean (Madagascar)
East Africa
Amazonia (Brasilia)
* Selected countries

Annex 2. FAO's work for practical implementation of EAF/EAA

As a follow up to the international commitments FAO has been working in various ways to further the adoption of integrated approaches to fisheries management, and in particular the EAF, and for aquaculture the EAA. This includes normative work, as well as field work related to policy and management frameworks, implementing a number of projects in various parts of the world to support developing nations in their efforts to improve fisheries management in a way that is coherent with EAF and, in turn, with the principles of sustainable development. All the work of FAO's Fisheries and Aquaculture Department contributes either directly or indirectly to the implementation of the principles contained in the CCRF and to the EAF or the EAA. Here only specific actions that aim at the application of EAF (or EAA) as an integrated approach will be reported.

Normative activities supporting integration of the three dimension of sustainability

The FAO has developed or supported the development of numerous normative products under the EAF framework. The guidelines in support of the implementation of the CCRF are all relevant in relation to strengthening application of EAF or the EAA. More specific guidance includes:

- EAF guidelines[7], developed following directly from the recommendation of the ministerial conference in Reykjavik in 2001.
- The human dimensions of EAF [8]. These guidelines highlight human aspects, given the focus often given to ecological issues.
- Putting into practice EAF[9], which is a simplified version of the initial EAF guidelines (i.e. FAO, 2003).
- EAF Toolbox[10] , also on a web, interactive version[11] . The toolbox is structured following the EAF fisheries planning and implementation and provides the tools that are relevant to the specific step in the process.
- GIS for EAF[12]. This is an overview of how to use GIS tools in support to the implementation of EAF.
- Community-based EAF[13]. The document is the result of a close collaboration between the South Pacific Community (SPC), The Nature Conservancy (TNC) and FAO in adapting the EAF framework to local context.

[7] FAO. 2003. Fisheries management 2. The ecosystem approach to fisheries. FAO Technical Guidelines for Responsible Fisheries No. 4, Suppl. 2. Rome, FAO. 112p.
[8] FAO. 2009. Fisheries management. 2. The ecosystem approach to fisheries. 2.2 Human dimensions of the ecosystem approach to fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 2, Add. 2. Rome, FAO. 88p.
[9] FAO. Putting into practice the ecosystem approach to fisheries. Rome, FAO. 2005. 76p.
[10] FAO, 2012. EAF Toolbox: The ecosystem Approach to Fisheries. Rome, 172 pp.
[11] http://www.fao.org/fishery/eaf-net/topic/166272/en
[12] Carocci, F.; Bianchi, G.; Eastwood, P.; Meaden, G. Geographic information systems to support the ecosystem approach to fisheries: status, opportunities and challenges. FAO Fisheries and Aquaculture Technical Paper. No. 532. Rome, FAO. 2009. 101p.
[13] SPC, FAO and TNC. 2010. A community-based ecosystem approach to fisheries management: guidelines for Pacific Islands countries. Secretariat of the Pacific Community. Noumea, New Caledonia 54 pp.

- EAA guidelines[14]
- Spatial tools for EAA[15]
- MPAs[16] Fisheries management, v. 4: Marine protected areas and fisheries. FAO Technical Guidelines for Responsible Fisheries 4 suppl. 4. Rome, FAO. 2011. 198p.
- Models for EAF[17] provides useful guidance to the various ecosystem models that can be used to assess fisheries impacts on marine ecosystems.

FAO is developing a guide to indicators for EAF, including ecological, social and economic indicators.

FAO is developing a guide on the implementation of international legal instruments and best legal practices at national level, in support of reinforcing national legal frameworks that provide an appropriate basis for the application of the EAF. The guide is expected to be available in the latter part of 2015. This guide has global relevance.

Also relevant are the "Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication"[18], developed with support of the FAO, that specifically include the ecosystem approach to fisheries among the guiding principles (Chapter 3) and refer to EAF throughout the negotiated text, supporting the integration of environmental, economic and social pillars of sustainable development.

Guidance is also developed at regional and national levels. For example, as part of the Bay Of Bengal Large Marine Ecosystem Project (BoBLME) a web site on the EAFM[19] has been developed, which is a version of the EAF training course and process tailored to the BoBLME context.

The APFIC (Asia Pacific Fisheries Commissions) has developed Regional Trawl Guidelines, designed to support an EAFM decision making process and providing the relevant technical guidance to support the different parts of an EAF plan.[20]

FAO in a joint effort with the WB is developing a manual for aquaculture zoning, site selection and aquaculture management areas under the EAA.

EAF Management plans supporting integration of the three dimensions of sustainability

The process that leads to the formulation of management plans described in Section 1, which explicitly investigates social, environmental and economic objectives, issues, opportunities and

[14] FAO.2010. Aquaculture development. 4. Ecosystem approach to aquaculture. FAO Technical Guidelines for Responsible Fisheries. No. 5, Suppl. 4. Rome, FAO. 53p.
[15] Aguilar-Manjarrez, J.; Kapetsky, J.M.; Soto, D. 2010. The potential of spatial planning tools to support the ecosystem approach to aquaculture. FAO/Rome. Expert Workshop. 19–21 November 2008, Rome, Italy. FAO Fisheries and Aquaculture Proceedings. No.17. Rome, FAO. 2010. 176p.
[16] FAO. 2011. Fisheries management, v. 4: Marine protected areas and fisheries. FAO Technical Guidelines for Responsible Fisheries 4 suppl. 4. Rome, FAO. 198p
[17] FAO. 2008. Fisheries management. 2. The ecosystem approach to fisheries. 2.1 Best practices in ecosystem modelling for informing an ecosystem approach to fisheries. FAO Fisheries Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 2, Add. 1. Rome, FAO. 78p.
[18] http://www.fao.org/fishery/ssf/guidelines/en
[19] http://www.boblme.org/eafm/
[20] http://www.fao.org/3/a-i3575e.pdf

actions, is being supported through a number of field projects and countries/regions. Below some examples are provided.

The EAF Nansen project is an initiative to support the implementation of the ecosystem approach in the management of marine fisheries. The aim is to promote sustainable utilization of marine living resources and improved protection of the marine environment. The project, funded by the Norwegian Agency for Development Cooperation (Norad), started in 2006, is ongoing and a new phase is envisaged starting in 2016.

Thanks to the availability of the Research Vessel "Dr. Fridtjof Nansen", deployed in collaboration with the Institute of Marine Research (IMR) of Bergen, Norway, knowledge on the state of resources and ecosystems is provided to developing countries. Furthermore, the project supports capacity development on various aspects of fisheries research and management (institutional strengthening) in partner countries for them to be able to generate and use the knowledge required for EAF and to manage their fisheries following the EAF principles and methodologies. A key component of the project is the preparation of fisheries management plans for the implementation of EAF and the improvement of the fisheries management process in partner countries. To date, the project collaborates with more than 30 African coastal countries and 16 have finalised fisheries management plans coherent with the EAF principles.

The project *Protection of the Canary Current Large Marine Ecosystem (CCLME)* has the overall objective to secure global environmental benefits by reversing (over time) the depletion of fisheries and conserving nursery and reproductive habitat of the Canary Current Large Marine Ecosystem (LME). This can only be achieved through regional collaboration in effective management leading to the sustainable use of its transboundary fisheries in an ecosystem approach, and to the targeted control/reduction of pollution in many critical coastal areas.

A draft Management Plan for the Shared Small Pelagic Fishery of Northwest Africa had been prepared in collaboration with the Sub-Regional Fisheries Commission. This document is the output of three stakeholder workshops that identified overall sustainability objectives and the key issues to be addressed in order to achieve them.

This draft management plan is based on the principles of the Ecosystem Approach to Fisheries (EAF). The plan provides a broad context and a common understanding of the basic rules for the sustainable management of the small pelagic fish stocks which are distributed across the exclusive economic zones (EEZs) of Morocco, Mauritania, Senegal and The Gambia. The document includes the overarching objectives and provides an EAF Log-Frame – a simplified representation of key elements that permit an understanding of the plan and also serves as a tracking and evaluation tool to assess its performance. The document further serves to communicate the basic information on the fishery and its management to the competent authorities, staff of the fisheries administrations and research institutes, and other stakeholders of the four countries.

The Caribbean Large Marine Ecosystem (CLME) project aimed at supporting sustainable management of the shared Living Marine Resources of the Caribbean LME and adjacent areas through an integrated management approach that will meet the WSSD target for sustainable fisheries. During the period 2009 to 2013, existing Transboundary Diagnostic Analyses (TDAs) were updated using a Fishery Ecosystem-based approach.

One of the case studies was related to the shared stocks of shrimp and groundfish fishery of the Guianas-Brazil shelf and aimed at mainstreaming EAF in the management of the shrimp and groundfish resources. A sub-regional training was provided on the fundamentals of the EAF and ecological risk assessment methodology to representatives from administration, industry, NGOs and academic institutions from Brazil, French Guiana, Surinam, Guyana, Trinidad & Tobago and Venezuela. National consultations were carried out in most countries to lay the basis of a sub-regional management plan for the shrimp and groundfish fisheries. An agreement was found between countries on the main issues to be addressed as a matter of priority in the sub-region, as well as on potential solutions.

Strong expectations were created by the case study for the stakeholders who were consulted and there is a real need of follow-up in order to keep the momentum. Different requests were submitted by the countries where national consultations were held, but all of them could not be supported because of lack of resources (institutional strengthening, development of management plans, improvement of statistic system, increase knowledge base on fish/shrimp species, etc.). However, this illustrates how the process initiated with the case study on shrimp and groundfish could easily be continued, building on the momentum that was created. Funding request was submitted to GEF to provide further support to administrations to develop, complete and implement an EAF sub-regional management plan.

The BOBLME project is supporting countries to implement an ecosystem approach to fisheries management of shared fish stocks in the Bay of Bengal. The EAFM framework has three tiers: working groups (including a Hilsa Fisheries Assessment Working Group) to provide technical information; a Regional Fisheries Management Advisory Committee (RFMAC) - to interpret the information and deliver ecosystem based fisheries management advice; and a Regional Fisheries Management Forum to deliberate on the advice and make decisions for national actions. The RFMAC comprises members from the BOBLME countries, SEAFDEC, FAO, BOBP-IGO and IUCN.

REBYC II CTI project has initiated development of management plans using the integrated approach and will soon be finalized.

The FAO component of the Mediterranean Sea LME (MEDLME) is named “Promote the sustainable use of fisheries resources through the application of the Ecosystem Approach to Fisheries”. Its three main activity areas include (a) mainstreaming EAF into fisheries management and research, under which a number of trainings on EAF has been carried out, (b) increasing fisher’s participation in fishery monitoring, thus increasing simultaneously the knowledge base, stakeholder participation and the legitimacy of management, and (c) addressing by-catch and discards in the Tunisian bottom trawl fishery in the Gulf of Gabes. The whole FAO component addresses the improvement of fisheries management through increased and improved implementation of the EAF in its multiple dimensions.

FAO is also assisting in developing *climate change adaptation plans* at community, sector, national and regional scale around the world, through the use of participatory social-ecological vulnerability assessments and adaptation actions in line with the EAF.

Several additional project are in the pipeline, such as the EAF Nansen Programme (Phase II, 2016-2020) and the Indonesian Sea LME, that include the adoption of the EAF as part of their work.

Supporting the implementation of EAF and EAA; focusing in those countries and locations where the fisheries and aquaculture are strongly increasing

The tropical mangrove estuary "Estero Real" in Nicaragua is a RAMSAR area of international interest, risking high level of degradation due partly to poor shrimp fisheries and aquaculture practices, poverty and lack of equity in the distribution and use of resources.
The ecosystem approach to fisheries and aquaculture (EAFA) is being implemented here since 2010 through a long participatory process with a strong national and local ownership. The final participatory workshop to adopt the management plan was held in March 2013[21] and its implementation is slowly taking place. There is an increased understanding of the need to balance social, economic and environmental objectives and the need for adequate governance to achieve the sustainable use of fisheries and aquaculture resources. Government institutions have significantly changed their way to address fisheries and aquaculture management for poverty alleviation, food security and conservation of ecosystem services including biodiversity. Interaction between Nicaragua Fisheries and Aquaculture Institution (INPESCA) and the environmental institution (MARENA) significantly improved and an integrated management system for the Estero Real has been created. A public-private collaboration between government institution and the shrimp farming industry (which is playing a key role in the management plan) aiming at assisting the transformation and inclusion of small scale fishermen in the aquaculture value chain in farming cooperatives has been established.

Supporting Policy and Legal frameworks to incorporate EAF and its integrated principlesFAO supports countries and regions to review and update their policies, strategies and legal frameworks to incorporate the EAF and integrated objectives, processes and information requirements necessary for sustainable development. Some examples include:

- FAO has supported Regional Fisheries Bodies (e.g. GFCM, APFIC) to formally adopt the EAF and its integrated principles as part of their mandate. For example, APFIC endorsed EAF as an approach at its 32nd Session (http://www.fao.org/docrep/017/i3141e/i3141e00.pdf) and provides an overview of the way that APFIC/FAO member countries have embraced EAF and moved forward with it. Countries that explicitly embrace EAF include Malaysia, Australia, Indonesia, Philippines.
- Under the aegis of APFIC, FAO supported the review of the fisheries and aquaculture legislation of Myanmar with a focus on freshwater fishing. A broader review, focusing also on marine fisheries and aquaculture is being carried out at the moment.
- The EAF helps member countries and RFBs monitor implementation of EAF around the world through the Code of Conduct for Responsible Fisheries Questionnaire[22]
- FAO carried out reviews and supported the development of draft fisheries legislation in a number of countries and regions, in which the implementation of the EAF is particularly emphasized, including in Belize, Maldives and the South-West Pacific Region. In addition, FAO supported Uruguay in developing a law on responsible fisheries and aquaculture in accordance with the EAF. Law No. 19.175 on "Responsible Fisheries and

[21] http://www.fao.org/documents/card/es/c/3f81503d-a995-4399-a897-6a2dfbb083ab/
[19] http://www.apfic.org/downloads/finish/26-fishery-aquaculture-legislation/43-myanmar-fisheries-legislation-with-particular-reference-to-freshwater-fisheries-legislation.html
[22] http://www.fao.org/fishery/topic/166326/en

Aquaculture promotion" entered into force on 7 January 2014. Follow up work on the development of regulations for artisanal fisheries has been undertaken.).[23]

- The EAF Nansen project carried out a review on the implementation of EAF in national legislation in Africa (Legislating for an ecosystem approach to fisheries – A review of trends and options in Africa[24]).
- The Review of current fisheries management performance and conservation measures in the WECAFC area including the implementation of EAF and integrated decision-making in the review. [25]
- As part of its mandate and normative framework, FAO uses its technical cooperation programme to support the development of fisheries and aquaculture policies in the wider Caribbean. In these cooperative arrangements, national governments partner with FAO and other stakeholders to develop both national policies and the strategic plans for their implementation in order to guide the development of the sector. As part of its technical input, FAO promotes the alignment of national sectoral strategic goals with the three pillars of sustainability, ensuring that national programmers pursue these pillars concurrently. Governments are often wary of including this three pillared approach given the perceived complexity to deliver such integrated results. This is particularly true in the often understaffed and underfunded fisheries and aquaculture agencies of the region. To assist in this regard, FAO also encourages the inclusion of EAF and EAA in these policies and strategic plans to provide Member States with a theoretical and operational framework to achieve their three-pillared strategic goals. As a result, the EAF and EAA have become formally incorporated into the National Policies and Strategic Plans of Suriname, Guyana and The Bahamas (among others).

EAF Capacity development

Although the principles, processes and tools supporting integrated sustainable development within the EAF and EAA are not new, the sector requires capacity development to move from conventional fisheries to more integrated and participatory fisheries management. Guidance is available and most projects have a capacity development component. Training courses and programmes have evolved both in the form of stand-alone training activities or courses in collaboration with Universities or regional organizations (e.g. regional fisheries bodies).

EAF Nansen project

Most of the project components entail either directly or indirectly capacity development, spanning from on-the-job training to dedicated courses organized in collaboration with universities, mainly in Africa. Several courses on planning and implementing EAF have been delivered in collaboration with the University of Accra (Ghana), with Rhodes University (South Africa) and, in French, with the university of Ibn Zhor (Morocco). Collaboration with training centers in Europe on delivering EAF courses has also been established. This includes collaboration with the International Centre for Advanced Agronomic Studies (CIHEAM, Spain) and the Centre for Development Innovation (The Netherlands). An EAF course was given in Portuguese at the Eduardo Mondlane University in Maputo, Mozambique.

[23] http://www.parlamento.gub.uy/leyes/AccesoTextoLey.asp?Ley=19175&Anchor=
[24] ftp://ftp.fao.org/fi/DOCUMENT/eaf_nansen/Reports/EAF-NansenReportNo10_En.pdf and ftp://ftp.fao.org/fi/DOCUMENT/eaf_nansen/Reports/EAF-NansenReportNo10_Fr.pdf)
[25] http://www.fao.org/3/a-i4255e.pdf

A teaching kit on EAF for Basic Schools in Africa (including a Teacher's Guide and Pupil's workbook) was developed both in English and French.

BoBLME/APFIC/FAO/NOAA

- The Essential EAFM regional training course developed BOBLME/NOAA/APFIC/FAO, including manuals, training course, trainers notes, powerpoints etc.
- Legal awareness raising and training was provided in the South-East Asia region on legal aspects related to by-catch management and ecosystem approaches to fisheries management.

Asia Pacific Fishery Commission

The APFIC Regional Trawl Guidelines are designed such that they would support an EAFM decision making process, providing the relevant technical guidance to support the different parts of an EAF plan. [http://www.fao.org/3/a-i3575e.pdf]

Sustainable Management of Bycatch in Latin America and Caribbean Trawl Fisheries (REBYC-II LAC)

The main objective of this project is "to reduce the negative ecosystem impact and achieve more sustainable shrimp/bottom trawl fisheries in the Latin American and Caribbean (LAC) region through implementation of an ecosystem approach to fisheries (EAF), including bycatch and habitat impact management". The EAF is the main management framework adopted for this project that will be implemented in the period 2015-2019. Likewise, the previous phase of REBYC, REBYC-II CTI (2011-2015) also adopted this framework although not from the onset. In the REBYC-I CTI project, the EAF has gradually crept into the project design and now its role is very significant. In the REBYC-II LAC project, the EAF has a strong presence in the Logical Framework and in the Work-Program. It is the key approach in the implementation of this project.

Collaboration with the Organización del Sector Pesquero y Acuícola del Istmo Centroamericano (OSPESCA)

EAF/EAA capacity development efforts have taken place focusing on areas where there is a strong interaction between fisheries and aquaculture such is the case of shrimp fisheries and aquaculture in Central America. In collaboration with OSPESCA, a regional training workshop that took place in 2012 for the eight Central America countries resulted in base line reports on the status of shrimp fisheries and shrimp aquaculture and the integrated EAF/EAA management plan for all the countries[26]

Information for EAF and the three dimensions of sustainability

The sector has been trying to fill the gaps in data relating to the three pillars at the same time promoting the precautionary approach and the need for decision-making under uncertainty. Historically focused on single species biology, the sector is getting more experience in capturing and using economic information. The more recent acknowledgement of the need for social and

[26] http://www.fao.org/3/a-i3654s.pdf

ecological information has been hampered by data availability. FAO supports work to fill information gaps that enable the three pillars to be considered concurrently in decision-making.

For example, in 2014, New Partnership for Africa's Development (NEPAD)-FAO Fisheries Programme (NFFP) published "The value of African fisheries"[27], estimating the contribution to national and agriculture Gross Domestic Products (GDPs) and the employment generated by African fisheries and aquaculture sectors as an attempt to support the economic and social pillars in decision-making.

The FAO has also supported several other social and economic baseline studies and manuals to fill the gap in support of integrated decision-making, such as socio-economic surveys of Egyptian fisheries[28] and work to develop social surveys in the Adriatic Sea fisheries.[29]

A major contribution to filling knowledge gaps is provided by the RV Dr. Fridtjof Nansen as part of the EAF Nansen project. The vessel carries out resources and environmental surveys resulting in biomass estimation of national and transboundary resources and environmental/habitat information that is essential to identify critical/sensitive habitats as a basis for spatial planning. Norway is presently building a new research vessel that will operate as part of the EAF Nansen Programme Phase II.

In addition, the FAO has supported economic valuations of ecosystem services in the Bay of Bengal[30] and the Canary Current LME and will support a similar assessment in the Indonesian Seas LME. The assessments seek to demonstrate both the economic benefits provided by healthy marine and coastal ecosystems and the potential economic losses/damages resulting from the loss of these services, as well as to identify economic instruments that can be used to strengthen the sustainable management of marine and coastal natural resources.

EAF for integrated decision-making

FAO supports processes that enable integrated decision-making, such as the inclusion of social, economic, environmental and governance objectives, risks and opportunities in developing management plans, as trigger points for management action, and as part of the monitoring framework for management plan implementation. FAO also supports the development of multi-disciplinary and multi-sectoral management advisory committees that evaluate information and analyses across the three pillars to enable integrated decision-making. FAO also promotes the use of integrated decision-making tools, such as bio-economic models that explicitly attempt to pull objectives and constraints from across the three pillars.

[27] http://www.fao.org/3/a-i3917e.pdf
[28] http://www.faoeastmed.org/pdf/publications/EastMed_TD19.pdf
[29] http://www.faoadriamed.org/html/SocioEconomic/SEconomic.html
[30] http://www.boblme.org/eventDocs/Draft%20BOBLME%20ecosystem%20valuation%20report%20Nov2014.pdf