FAO EAF-Nansen Project Report No. 1 **EAF-N/PR/1 (En)**

Report of the

REGIONAL WORKSHOP ON ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT IN THE GULF OF GUINEA AND FIRST STEERING COMMITTEE MEETING

Accra, Ghana, 23–26 October 2007

NANSEN PROJECT

THE EAF-NANSEN PROJECT

FAO started the implementation of the project "Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries (EAF-Nansen GCP/INT/003/NOR)" in December 2006 with funding from the Norwegian Agency for Development Cooperation (Norad). The EAF-Nansen project is a follow-up to earlier projects/programmes in a partnership involving FAO, Norad and the Institute of Marine Research (IMR), Bergen, Norway on assessment and management of marine fishery resources in developing countries. The project works in partnership with governments and also Global Environment Facility (GEF)-supported Large Marine Ecosystem (LME) projects and other projects that have the potential to contribute to some components of the EAF-Nansen project.

The EAF-Nansen project offers an opportunity to coastal countries in sub-Saharan Africa, working in partnership with the project, to receive technical support from FAO for the development of national and regional frameworks for the implementation of Ecosystem Approach to Fisheries management and to acquire additional knowledge on their marine ecosystems for their use in planning and monitoring. The project contributes to building the capacity of national fisheries management administrations in ecological risk assessment methods to identify critical management issues and in the preparation, operationalization and tracking the progress of implementation of fisheries management plans consistent with the ecosystem approach to fisheries.

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STRENGTHENING THE KNOWLEDGE BASE FOR AND
IMPLEMENTING AN ECOSYSTEM APPROACH TO
MARINE FISHERIES IN DEVELOPING COUNTRIES
(EAF-NANSEN GCP/INT/003/NOR)

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Accra, Ghana, 23–26 October 2007

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 2010

PREPARATION OF THIS DOCUMENT

As part of the initial activities of the EAF-Nansen project “Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries (EAF Nansen GCP/INT/003/NOR)”, a regional workshop on ecosystem approach to fisheries (EAF) was held in Accra, Ghana, from 23 to 26 October 2007.

The objectives of the workshop included introducing the participants to the principles and practice of EAF and identifying the activities to be carried out in the Guinea Current Large Marine Ecosystem (GCLME) area under the EAF-Nansen project.

This document gives the record of the workshop and the major outcomes. The input and support given by Merete Tandstad, Gabriella Bianchi and Marie-Thérèse Magnan, all of FAO, Rome, in the preparation, editing and production of this document is gratefully acknowledged.

FAO EAF-Nansen Project/ FAO, Projet EAF-Nansen.
Report of the Regional Workshop on Ecosystem Approach to Fisheries Management in the Gulf of Guinea and first Steering Committee Meeting. Accra, Ghana, 23–26 October 2007/Rapport de l'Atelier régional sur l'approche écosystémique à l'aménagement des pêches dans le golfe de Guinée et première réunion du Comité directeur. Accra, Ghana, 23-26 octobre 2007.
FAO EAF-Nansen Project Report/FAO, Rapport du Projet EAF-Nansen. No 1. Rome, FAO. 2010. 86p.

ABSTRACT

A regional workshop on ecosystem approach to fisheries (EAF) for countries in the Guinea Current Large Marine Ecosystem (GCLME) area was held in Accra, Ghana, from 23 to 26 October 2007 together with the first Steering Committee meeting of the EAF-Nansen project "Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries (EAF Nansen GCP/INT/003/NOR)".

The objectives of the workshop were to introduce participants to EAF and the EAF-Nansen project and to identify the activities to be carried out in the Gulf of Guinea under the project with focus on the year 2008.

The workshop was attended by a total of 30 participants from 12 GCLME countries, the Fishery Committee of the West Central Gulf of Guinea (FCWC), the Ministry of Fisheries and Marine Resources of Namibia and FAO.

In the introduction to EAF and the EAF-Nansen project, the need for applying an ecosystem approach to fisheries management, as reflected in the 2001 Reykjavik Conference on Responsible Fisheries in the Marine Ecosystem and in the Plan of implementation of the World Summit on Sustainable Development (WSSD), was highlighted. An overview of the key concepts and processes of the ecological risk assessment methodology was given and the experience gained and results obtained from the implementation of an EAF pilot project in the Benguela Current Large Marine Ecosystem area were presented. Based on a questionnaire that had been provided prior to the workshop, an overview of the main fisheries in the region (including their social and economic importance), existing institutional arrangements in support to fisheries management and perceived key challenges that managers of these fisheries face in relation to ecosystem sustainability were discussed.

For practical exercises the participants worked in three subgroups (northern, central and southern countries) with each group selecting a specific fishery (shrimp trawl fishery by the northern and southern groups, the beach seine fishery by the central group), defining its global and specific objectives and working through issue identification for the selected fishery. Participants found the workshop extremely useful, commented extensively on the novel approach to management that the EAF provides and suggested that the work of the subregional groups should concentrate first on the fisheries dealt with during the workshop. They asked that the EAF-Nansen project document be sent officially to the respective countries for information and as a means of asking for national support, including co-financing.

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APPENDIXES

1. INTRODUCTION

Within the framework of the FAO project "Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries (EAF Nansen GCP/INT/003/NOR)" a regional workshop was held in Accra (Ghana) from 23 to 26 October 2007, with the following objectives:

- introduce participants to concepts and principles relevant to the implementation of an Ecosystem Approach to Fisheries, based on the FAO guidelines on the EAF (FAO 2003 and 2005); and
- present the above project, its scope and objectives and identify overall activities to be carried out in the Gulf of Guinea and, more specifically in 2008, with the view of facilitating key processes and activities for the implementation of the EAF in this region.

The workshop was attended by a total of 30 participants including representatives from 12 Gulf of Guinea countries, the subregional Fishery Commission of the Western Central Gulf of Guinea, the Ministry of Fisheries and Marine Resources of Namibia and FAO. The list of participants and agenda are presented in Appendixes 1 and 2, respectively.

1.1 Opening

Mr E.K. Tapsoba, Officer in Charge of the FAO Regional Office for Africa, reminded the participants that FAO has the unique opportunity of setting the world agenda on fisheries issues because of its direct contact with the highest political and managerial levels of the fisheries sector worldwide, through mechanisms such as the Committee on Fisheries (COFI), various FAO technical consultations and the convening and supporting of high profile international conferences. It is through these contacts that FAO supported coastal Member States in the 1970s and 1980s to adapt and benefit from the changes derived from the adoption of the 1982 Convention on the Law of the Sea and other international agreements that followed.

He further informed them that FAO developed the 1995 Code of Conduct for Responsible Fisheries and promoted the Reykjavik Conference on responsible fisheries in the marine ecosystem which led to the 2001 Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem. This was followed by the formulation of technical guidelines on the ecosystem approach to fisheries in 2003.

In conclusion, he reminded them that the broadening of fisheries management under the ecosystem approach to fisheries (EAF) requires an expanded knowledge base and, in turn, the collection of new type of data and information, which are now largely unavailable. Therefore, attempts to operationalize the EAF are invariably hindered by lack of sufficient relevant data and information and this problem is particularly acute in most developing countries, including African countries. The full speech can be found in Appendix 3.

The Honourable Minister of Fisheries of Ghana, Ms Gladys Asmah, opened the workshop recalling the challenges that fisheries are facing, including overexploitation and degradation of the marine environment due to uncontrolled human activities that have induced catastrophic global environmental changes as well as the depletion of the world's natural resources. She referred to the fact that greedy commercial activities such as irresponsible fishing practices have led to lower yields in almost all the world's fishing grounds, even in the most fertile and productive areas. The ecosystem approach to fisheries management offers an opportunity to consider all factors (environmental, biological, human and economic) that have an impact on the fisheries resources and to consider them holistically in the management of the fisheries resources. This is a clear departure from the conventional method of focusing only on biological factors in fisheries management.

She expressed gratitude towards the Norwegian Government and other donors for providing support for the project, "Strengthening the knowledge base for and implementing an ecosystem approach to marine fisheries", which addresses key issues such as providing support to policy formulation consistent with ecosystem approach to fisheries management (EAF), to fisheries managers to consider EAF in planning and implementation of fisheries management options and to build the capacity of countries in the region to adopt EAF.

In conclusion, she recognized the importance of the outcomes of the Workshop and the potential benefits for the fishing industries in the respective countries. Full text is in Appendix 4

1.2 Introduction to the project – Strengthening the knowledge base for and implementing an ecosystem approach to marine fisheries in developing countries

The need for applying an ecosystem approach to fisheries management is now globally accepted, as reflected in the Reykjavik Conference on Responsible Fisheries in the Marine Ecosystem (2001) and in the Plan of Implementation of the World Summit on Sustainable Development (Johannesburg 2002). There is also agreement as regards the urgency of integrating its principles in fisheries management. However, and despite progress made in some countries and regions, there is still a widespread perception that the EAF framework is very difficult, or even impossible, to implement in practice.

Based on experiences already made in this field, the FAO project "Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries (EAF Nansen, GCP/INT/003/NOR)" offers an opportunity to coastal countries around Africa to collaborate with FAO in developing national and regional frameworks for the implementation of EAF. The project has a five year time frame, which will allow implementing a series of key steps for the application of the EAF.

The long-term objective of this project is to strengthen regional and country specific efforts to reduce poverty and create conditions to assist in the achievement of food security through development of sustainable fisheries management regimes and specifically through the application of the ecosystem approach to fisheries in a number of developing countries at global level, with an early emphasis on sub-Saharan Africa.

The immediate objective is to provide staff of the fisheries research institutions and management administrations in the participating countries with additional knowledge on their ecosystems and on EAF principles for their use in planning and monitoring.

The project consists of several modules ranging from EAF-policy and management, ecosystem assessment and monitoring, support to regional research vessels, capacity building and dissemination of information, and thus covering a broad range of activities from the foundational science level, to management action through to policy level.

The project is executed by the Fisheries Management and Conservation Service (FIMF) of the FAO Fisheries and Aquaculture Department, and the core project staff is composed of an EAF Advisor (Project Coordinator), a liaison officer from the Institute of Marine Research (IMR, Bergen, Norway) responsible for the scientific services to the project, a project operations officer and a project assistant. The implementation arrangements are centered around four regional steering committees representing the four major areas of activities for the early phase of the project, namely Canary Current, Guinea Current, Benguela Current and the Aghulas and Somali current areas. The steering committees consist of representatives from each country (fisheries management and research), a representative of the LME projects, other relevant fisheries institutions or projects and FAO representatives.

1.3 Introduction to the EAF

This presentation had the main objective of creating a common understanding among the workshop participants as regards the basic principles that characterize the EAF, their development in relevant international instruments and progress made so far worldwide in their actual application.

While the EAF became formally accepted in fisheries in connection with the Reykjavik Conference on Sustainable Fisheries in the Marine Ecosystem in 2001, followed by its adoption by the Committee on Fisheries in 2003, the principles that are the foundations of the approach can be traced in earlier international instruments, some as far back as the 1982 UN Law of the Sea Convention (UN, 1983).

The main challenge of the past years, following the Reykjavik Declaration, has been the actual implementation of EAF. Apart from the difficulty in translating high level policy goals into practical fisheries management, there has been uncertainty in member countries as well as within fisheries management organizations on what an ecosystem approach actually implies.

It was noted that in 2006 two important events had taken place at the international level, the meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea (UNICPOLOS) (Anon. 2006) and the Bergen Conference on "Implementing the Ecosystem Approach in Fisheries" (Bianchi *et al.*, in press). Both conferences concluded that the EAF was being demystified. Furthermore, examples of applications at the national and regional levels are available showing that pragmatic approaches can be adopted to deal with multiple and complex issues.

A number of typical statements regarding the EAF were listed that reflected scepticism towards the approach, usually due to lack of understanding of what the approach really implies, of what its guiding principles are and of the available guidance for how it can be implemented in practice.

The EAF was also put in relation to other similar approaches that seem to differ in definition and emphasis, such as for example ecosystem-based fisheries management (EBFM), integrated ocean management (IOM), integrated coastal area management (ICAM), etc. It was noted that while most of these approaches share overall objectives and key principles, they form two distinct categories: the approaches at the cross-sectoral level and those that are sectoral. The cross-sectoral approaches deal with goals for sustainable development in a given region/ecosystem including all sectors (e.g. fisheries, mining, shipping, tourism, etc.). At this level appropriate institutional mechanisms are in place to allocate rights to different user groups, reconcile conflicts and set standards and global objectives to which all sectors should comply with (ecosystem base management, EBM, IOM, large marine ecosystem, LME and, ICAM). Sectoral approaches deal with goals and intentions for Sustainable Development within a given sector and make sure that there is consistency with the framework provided by the global strategy (example: EAF and EBFM).

There is evidence that the process of evolution from conventional management towards an ecosystem approach has started and is gaining momentum and that valuable experience is already available. The implementation of EAF can only be incremental and adaptive. However, broadening the scope of fisheries management will also require a process of re-prioritization.

Although guidance and assistance can be provided by FAO and other institutions, the actual application of EAF can only take place with the main actors on the ground taking responsibility for the needed changes and in a way relevant to a given context.

Implementing EAF means realizing the principles of Sustainable Development. Reconciling short term economic and social gains with long-term sustainability may still prove to be a major challenge.

1.4 General discussion

The discussion mainly dealt with clarification of key concepts presented, including the extent to which the application of EAF would require extended knowledge and the extent to which the approach would be applicable in practice. It was noted that while information needs will expand under an EAF, knowledge gaps should not be used as an excuse not to take action on issues that posed high environmental or social risk. Management measures can be revised as increased knowledge becomes available. Not taking action on issues perceived as important but for which limited information is available, bears the implicit assumption that the issue is in fact not important. With reference to the many myths around the application of the Ecosystem Approach, such as the non applicability of this framework, the lack of guidance in its application, and others, one of the participants asked whether the often expressed opinion that developing countries will not be able to implement an ecosystem approach because of the institutional limitations may also be classified as a myth. This observation was consistent with a widespread perception at the international level that while the principles and global objectives of the EAF should be reflected in national policies, their application does not necessarily need to follow a given format but should be adapted to local conditions and needs. In this sense the non-applicability of this approach in developing countries is a myth. On the other hand, it could be argued that situations of extreme poverty inevitably lead to failure in reaching long-term sustainability objectives consistent with mainstream belief that for poor countries to develop, environmental concerns have to be sacrificed, or is a luxury to address once poverty is alleviated.

2. THE ECOSYSTEM APPROACH TO FISHERIES: FROM PRINCIPLES TO APPLICATION

2.1 Impressions and perceptions in the region on the EAF

The session started with a brief introduction by the workshop participants on their impressions and perceptions as regards the ecosystem approach to fisheries, and what they felt would be the main challenges for implementation.

The comments highlighted some of the key challenges experienced in the region in fisheries management that would be relevant also under an ecosystem approach framework. Some key points that emerged included:

- Participation. The need for real stakeholder participation in the decision-making process was emphasized, together with the challenges associated with it. These include, for example, the difficulty of sharing academic knowledge with illiterate fishing communities, on the one hand, and the incorporation and consideration of traditional knowledge in fisheries management, on the other. Cultural believes in local communities can also be very important for the successful implementation of management measures and these should be taken into consideration.

- The need for harmonization of approaches at various levels was emphasized, noting that developing countries are often committed to various international instruments and these are not always consistent, in terminology and approaches to each other. Harmonization is needed at the international level (in terms of instruments and relative approaches and policies), between various environmental and management institutions at the international and national levels, within different stakeholders including the political, management and academic levels.

- The relationship between the Code of Conduct for Responsible Fisheries (CCRF) and other instruments with the Ecosystem Approach was also discussed and the meeting recognized that the EAF aims at operationalizing the principles of the CCRF and it is therefore its extension, not an alternative to it.

- It was noted that support through the EAF-Nansen project in taking initial steps to implement the ecosystem approach in the Gulf of Guinea region should initially be at the

regional/subregional level, not at the national level. This would ensure harmonization in policies within the region.

- Progress on issues relevant to the EAF has already been made in some countries of the region, as for example reduction of sea turtles by-catch in the shrimp fisheries, the application of vessel monitoring systems (VMS) and utilization of geographic information systems in fisheries management.
- Other important issues such as poverty, lack of financial means, insufficient capacity, poor data and information supporting the decision-making process were also raised.

It was noted that the ecosystem approach to fisheries cannot solve all fisheries management problems. The process involved in planning under an ecosystem approach can help in developing a common vision as regards objectives and how these can be achieved. Furthermore, and more importantly, it can provide means of structuring and prioritizing problems thus allowing fisheries management to become more focused.

2.2 The FAO guidelines to the application of the EAF

Most of FAO's work is relevant and consistent with the principles that are at the base of the EAF and a number of guiding documents have been produced that can directly or indirectly support its application (e.g. Indicators of sustainability [FAO, 1999]; Conservation and management of sharks (FAO, 2000), Ecolabelling [FAO, 2005b]). Following a recommendation from the Reykjavik Conference on Sustainable Fisheries in the Marine Ecosystem, FAO also produced guidelines for the ecosystem approach to fisheries (FAO, 2003). The presentations showed the main steps suggested for developing and implementing fisheries management plans under an EAF. It was noted that while the steps would be similar to the process of planning under conventional fisheries management, a key difference is that under an EAF participation of stakeholders would be considered a key element of the process of planning and implementation. Another key element is a thorough and systematic analysis of the impacts of fisheries on the environment, the socio-economic and governance implications. The guidelines provide guidance of how, using the hierarchical tree framework, key issues related to a fishery can be identified and priorities set following a semi-quantitative risk analysis process that largely relies on participants experience, knowledge and perception of their importance.

The above assessment allows fisheries administrations to focus on priorities, i.e. issues that because of the risk they pose need urgent attention. Participation of stakeholders in this process increases the probability of successfully implementing appropriate management action.

2.3 Examination of case studies of progress in the application of EAF

Mr Iitembu, from the Ministry of Fisheries and Marine Resources of Namibia, provided a summary of the overall process and results obtained through the implementation of the FAO/BCLME project "Ecosystem Approach to Fisheries (EAF) Management in the BCLME". The project included Angola, Namibia and South Africa and had as objective to investigate the feasibility of EAF in the BCLME region through examining the existing issues, problems, needs related to EAF and considering the different management options to achieve sustainable management of resources at an ecosystem level.

The project set up had: (a) steering committee, consisting of representatives from each of the countries and FAO representative/s; (b) national task groups that comprised various stakeholders in the fisheries within each country; and (c) a science and modelling group that consisted of expert in modelling representing each country. The project started with the preparation of target resources oriented management (TROM) reviews of major fisheries, followed by the identification and prioritization of issues per selected fisheries in each country resulting in the development of preliminary performance reports for the high to extreme risk category issues.

Broad objectives of selected fisheries incorporating the high level policy goals and any specific, detailed issues where determined in various workshops. Issues identified were split into what were deemed either EAF or single species approaches (SSA) resulting in consolidation of EAF issues (where possible), into logical groupings that could potentially be addressed by common management measure/s. Benefit-cost analyses of management actions proposed per issue groupings were done considering the broad objectives for the fishery. Figure 1 shows the main steps undertaken for the feasibility study.

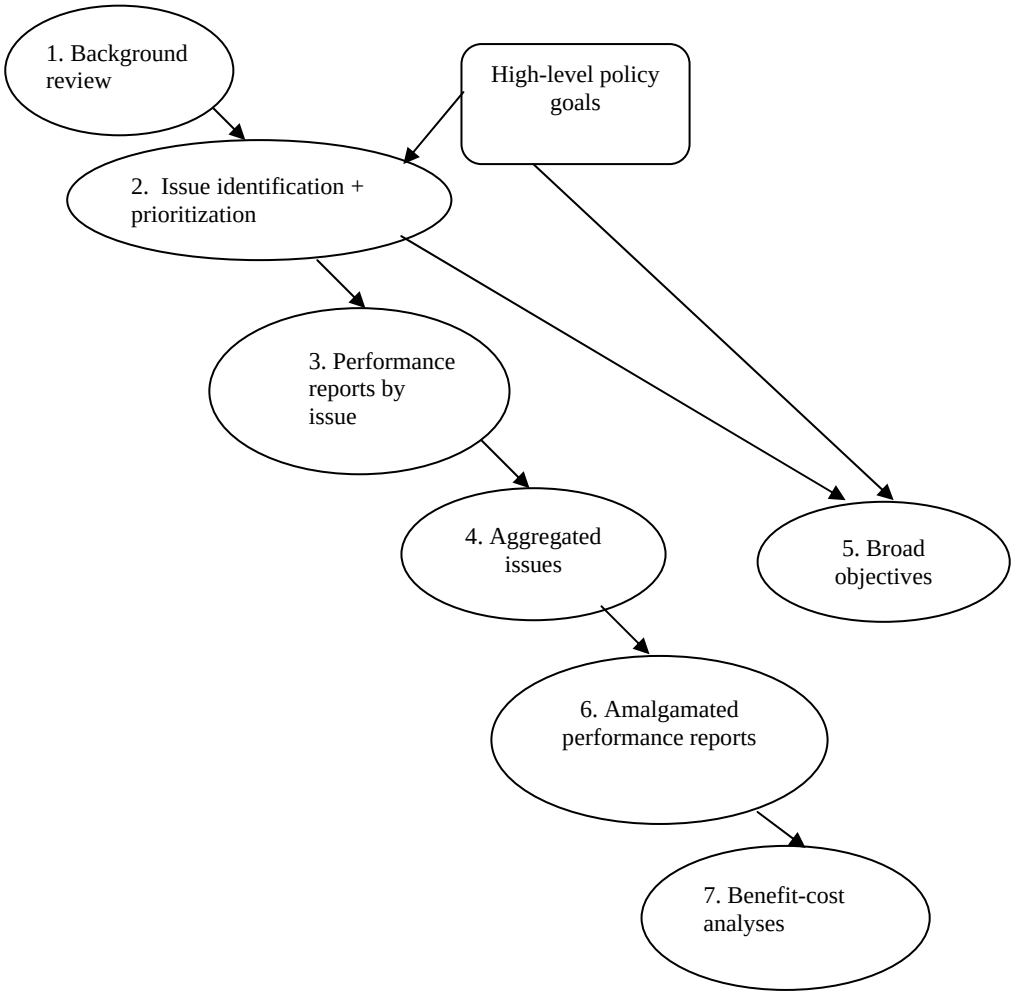


Figure 1: Main steps of the feasibility study on the application of EAF in the BCLME region

The FAO/BCLME project presented participating countries with a starting point to review and prioritize their research requirements to address existing limitations of knowledge of the ecosystem.

It was concluded that further focused scientific assessments and validation of the project findings should be undertaken and hence the need for a second phase of the project.

Comments by Workshop participants regarded the organizational structure of the FAO/BCLME EAF project, and in particular how stakeholders had been selected to participate in the regional workshops and in the national task groups. It was explained that identification of stakeholders had been based on the national institutions knowledge and experience. However, reference was also made to the existence of more formal ways of "mapping" relevant stakeholders and that FAO would be trying to look at best practices in this area as part of the process of developing a "toolbox" for the application of EAF that will take place early next year. Another question raised was the degree of acceptance by stakeholders of decisions taken by management. It was noted that participation of stakeholders in the decision-making process was instrumental to increase the probability of compliance.

Some participants had difficulty in understanding on what basis ecological, social and economic considerations could be handled simultaneously by the process that had been described. It was explained that, through the EAF planning process, the various issues are systematically identified through the hierarchical tree analysis (issue identification). Prioritization takes place through a risk analysis and the implications of different management measures are assessed through cost-benefit analyses. The principles of these methods are described in Section 3, below.

3. THE ECOSYSTEM APPROACH TO FISHERIES: FROM PRINCIPLES TO APPLICATION IN THE GULF OF GUINEA

3.1 Overview of main fisheries and ecosystem issues associated with them

The main objective of this session was to get an overview of the main fisheries in the region, including of their importance in social and in economic terms, of existing institutional arrangements in support to fisheries management and of the perceived key challenges that these fisheries are meeting in relation to ecosystem sustainability. The overview was based on countries' presentations following a questionnaire that had been provided prior to the workshop (Appendix 5).

The review confirmed the importance that the fisheries sector has in this region, particularly in social and economic terms. For some countries, such as Guinea-Bissau and Sierra Leone, the contribution of fisheries to the State budget and to GDP is substantial. Most countries have management objectives that aim at increasing the contribution of the fisheries sector to social and economic development, while promoting/ensuring sustainable utilization of the resources. Despite this, and the existence of fisheries laws and regulations, most countries reported poor stock status and a number of key conflicts such as the one between industrial and artisanal fisheries. Of fishery-related ecosystem impacts, discards, lost fishing gear, mangrove cutting for smoking fish, use of toxic products, destruction of bottom habitat, use of beach seines and occurrence of Chinese vessels (pair trawling) in nearshore areas, were considered as key ecosystem concerns.

A summary of key information provided by the countries is presented in Appendix 6.

3.2 The generic component tree and identification of EAF issues

A procedure for identification of key issues to be dealt with by fisheries management under an EAF framework was presented. It consists of systematically analyzing the main issues of a fishery by working through three main categories, i.e. the issues related to ecological-well being, to social and economic well-being and to the ability to achieve (governance and external drivers) (Figure 2).

This method was developed in Australia for the application of ecological sustainable development (ESD) (Fletcher *et al.*, 2002) and also adopted by the FAO guidelines for the implementation of EAF (FAO, 2003; 2005).

Some examples were provided on issues related to each main category. It was noted that each of the seven generic categories can be further unpacked into sub-categories. The selection of categories is specific to a given case. The Australian manuals provide examples of detailed component trees for each of the generic categories. These were however not used at the workshop.

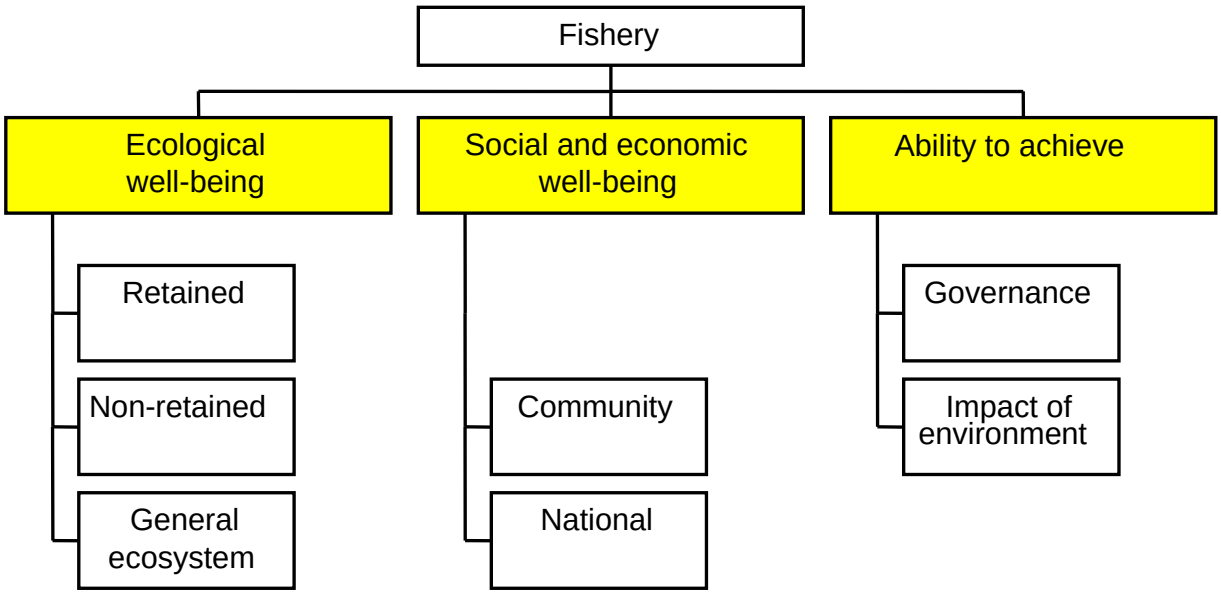


Figure 2: Generic component tree including the main categories utilized to analyse key issues associated with a given fishery

Ecological well-being

Retained species: These are the target species and all non-target species that are caught in the fishery. These species/stocks although not necessarily targeted, are considered valuable and are therefore kept and used. Issues related to this category include species abundance and sustainability of present management practices. These considerations are often based on detailed stock assessment models. In many fisheries, particularly in diverse tropical subtropical systems, fisheries are typically multispecies. In these cases the assessment of the state of the resource may be more difficult and models that deal with the fish community as a whole may be more appropriate than attempting single stock assessment models on individual species.

Non-retained species: This group includes all those species that are impacted by the fishery either directly and/or indirectly but are not used. Also included in this category are vulnerable and/or protected species such as sea turtles, sea birds and cetaceans. Often juveniles, also of commercially important species, may be discarded and not reported, thus leading to growth overfishing. Often these catches are not reported, which affects the reliability of the assessments for that species. In developing countries the amount of discards tends to decrease because of the increased utilization of bycatch both for use by small-scale fishermen or for use in the production of aquaculture feeds. A key issue related to bycatch and discards is that they largely escape registration in fishery statistics and are largely not regulated.

General ecosystem: Includes all impacts, both direct and indirect of the fishery on the ecosystem. Impact of the gear on the habitat (e.g. bottom trawling on benthic communities), impacts on the ecosystem trophic structure, community structure (e.g. diversity), the impacts of lost gear (ghost fishing). Also included in this category is other potential damage caused by fishing such as waste disposal, oil spills (from fishing vessels).

Social and economic well-being

Community: Issues related to this category are all those that are relevant to the communities directly or indirectly associated with that fishery. Typical issues include overall conditions of the people associated with the fishery, income, employment, safety at sea, post harvest losses etc.

National: The importance of the fishery at the national level will be considered in this category, as well as issues that result from the activity and their implications at the national level.

Ability to achieve

This category includes those issues related to the ability of the governance system to achieve established fisheries management objectives, also including external factors such as climate change and other non-fisheries related impacts.

Governance: This category includes all the administrative procedures, management processes and arrangements needed to assist implementing management measures to achieve established objectives. This analysis includes issues such as availability of adequate legislation to regulate fishing activities, international treaties (e.g. in the case of shared stocks), formulation of a management plan, compliance/monitoring and control. The existence of adequate mechanisms for consultation with industry and community stakeholders should also be dealt with here.

Other factors: The ability to achieve may be hampered by factors that are external to the fisheries sector and that therefore fisheries management cannot deal with directly. These factors include environmental degradation due to climate change or other human activities such as pollution or habitat destruction. Having become aware of these issues, fisheries management can try to interact with the other sectors and/or with the government to deal with the issue.

3.3 Trial identification of EAF issues and priorities in the Gulf of Guinea (workshop participants) according to fisheries (or habitat type)

During this session participants split up into three groups; North, Central and South. The countries participating in each group are shown in Table 1. Each group selected a specific fishery and defined global objectives for the fisheries sector and more specific objectives for the fishery identified. The fishery selected by the northern and southern groups was the shrimp trawl fishery whereas the central group selected the beach seine fishery (Table 1).

The issues identified are existing “problems” that hinder achievement of the global and more specific objectives that have been established for the fishery sector and for that fishery. The generic component tree (Figure 2) was used to structure the analysis and identification of the issues.

The main issues by category as identified by the three groups are shown in Appendix 8 and the main issues identified are further described in Section 3.4.

3.4 Prioritizing the issues – Risk analysis and the risk analysis process

Methodology

This session aimed at presenting and applying a methodology that allows prioritizing the issues identified in the previous session. This step is very important as it provides a way of focusing on those issues that are perceived as most pressing/important.

An introduction to very basic principles of risk analysis was provided. The presentation only dealt with qualitative and semi-quantitative risk analysis, as described in the Australian manual that can be downloaded from the following internet address:
www.fisheries-esd.com/a/pdf/RiskAssessmentProcessV3_2.pdf.

Table 1: Overview of group composition and objectives for the selected fisheries

Group	Countries	Fishery	Global objective	Specific objectives
Northern	Guinea-Bissau, Guinea, Liberia, Sierra Leone	Shrimp trawl fishery	Promote responsible fishing practices, which will enhance sustainable fisheries development and economic growth for present and future generations	Increase employment opportunities; enhance socio-economic status of people in the fisheries, with particular emphasis on women; increase export earning from the industry; enhance capacity building in fishing communities and ensure rational management of the fisheries based on sound scientific information
Central	Côte d'Ivoire, Ghana, Togo, Benin	Beach seine fishery	To support livelihoods, create employment and reduce poverty, whilst sustaining the resource	Ghana: To support livelihoods of fishers for sustainability; Benin: Contribute to food security; Togo: Poverty reduction and employment; Côte d'Ivoire: Promotion of sustainable management of fishery resource
Southern	Nigeria, Cameroon, Congo, Gabon	Shrimp trawl fishery	Improve the fishery sector performance by maximizing the income generated by the shrimp	Manage shrimp resources sustainably

The reason for carrying out this risk assessment is because, the number of potential issues that may be identified for any fishery can be large and their importance may also vary. It is therefore necessary to prioritize these issues so that resources and effort can be put on those that are considered to pose the highest risk in relation to the broad objectives that have been set by the fishery management authority and by society (such as sustainability, maintenance of biodiversity or improving social and economic well-being of fishing communities). High-priority issues will be those that will require a more attentive management response, as compared to low priority issues.

Each of the issues identified are assessed in terms of the level of impact (potential consequences) for a given issue, and the likelihood (how likely) these will occur, based upon the collective wisdom of the participants. Values associated with different levels of impact and of likelihood, and relative descriptions, were made available to the participants to make sure that, as far as possible, there was consistency in translating the perception/knowledge into a given value. Each table included six categories (0 to 5 for the impact level and 1 to 6 for the likelihood).

The risk level was then calculated by simply multiplying the level of impact by the likelihood of that happening:

$$\text{Risk value} = \text{consequence} \times \text{likelihood}$$

and the range of resulting values were from 0 to 30.

The consequence, likelihood and risk values with relative suggested management response and reporting requirements are shown in Appendix 7.

Only issues of sufficient risk (moderate, high and extreme) need to have full performance reports completed. For low or negligible risk issues, there will still be a requirement for documenting the justifications for why the issue was considered to pose a low risk.

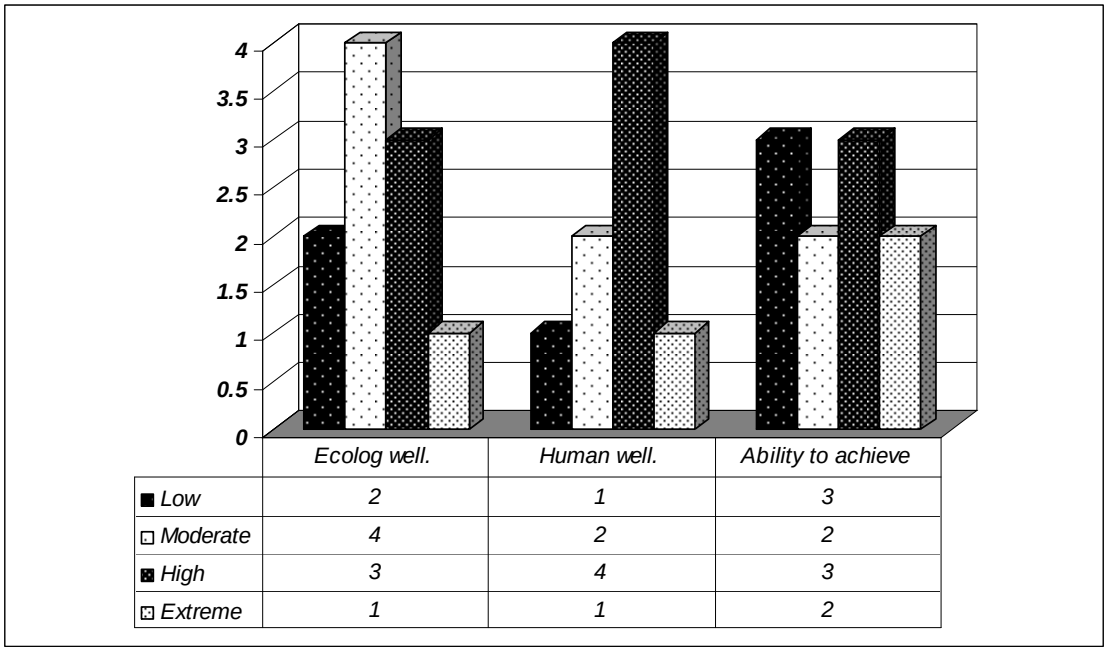
Table 2: Suggested risk rankings, likely management response and reporting requirements[1]

Risk rankings	Risk values	Likely management response	Likely reporting requirements
Negligible	0	Nil	Short justification only
Low	1–6	none specific	Full justification needed
Moderate	7–12	Specific management needed	Full performance report
High	13–18	Possible increases to management activities needed	Full performance report
Extreme	>=19	Likely additional management activities needed	Full performance report

Risk analysis applied to identified issues

Figure 3 shows a summary of the frequencies of risk values by category (ecological and human well being and ability to achieve) for the shrimp trawl fisheries analysed by the northern group of countries. Issues were distributed fairly evenly among the three categories. Within the category "ecological well-being", extreme risk values were attributed to habitat degradation by trawl gears, knowledge gap concerning target stocks, high bycatch rates and high juvenile mortality of valued demersal species. Revenue declines as a result of decline in catches and illegal, unreported and unregulated (IUU) fishing, low fish supply in local communities, artisanal/industrial conflicts (net destructions), limited access to financial resources and livelihood problems associated with population increase in coastal communities were issues of high to extreme significance for human well-being. As regards ability to achieve, i.e. governance or impacts on the fishery system from outside the system itself, the group assessed lack of political will to enforce fisheries regulations, weak economic equity, inadequate funding to implement and enforce fisheries regulations, inadequate funding for research and capacity building, and habitat destructions arising from mining and coastal development as high to extreme categories.

[1]From: Fletcher, W., Sainsbury, K., Chesson, J., Hundloe, T., Fisher, M. and Smith T. 2001. The Risk Assessment Process, Wild Capture Fisheries, Version 3.2



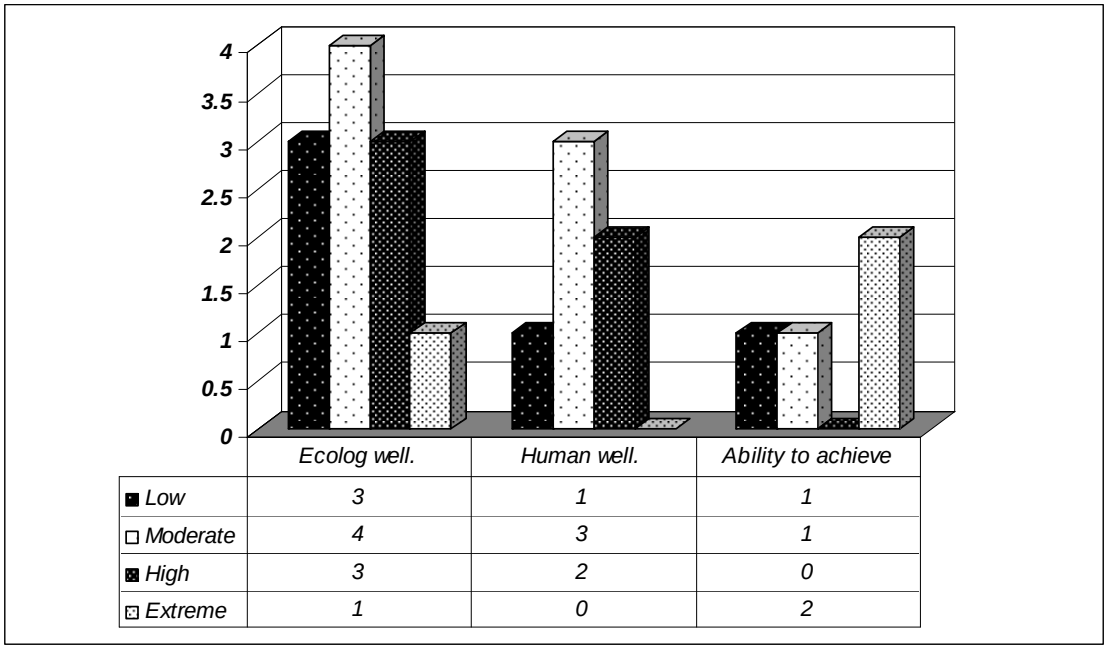
	Ecolog well.	Human well.	Ability to achieve
Low	2	1	3
Moderate	4	2	2
High	3	4	3
Extreme	1	1	2

Figure 3: Summary of the risk analysis for prioritizing issues for the shrimp trawl fishery, northern group (Guinea-Bissau, Guinea, Liberia, Sierra Leone)

The central group selected the beach seine fishery. The largest number of issues to require management attention was related to the ecological well-being (Figure 4). Considerations were related to the negative impact of this fishery on recruitment of all species whose juveniles have nursery grounds in shallow waters, the fact that high fishing pressure as lead to overexploitation, and destruction of nursery grounds. The highest level of risk was however considered to be associated with the existing weak institutional framework for decision making and poor co-ordination as regards monitoring, control and enforcement. Furthermore, the fact that government policies in other sectors are often in conflict with fisheries objectives (e.g. tourism) was considered very serious.

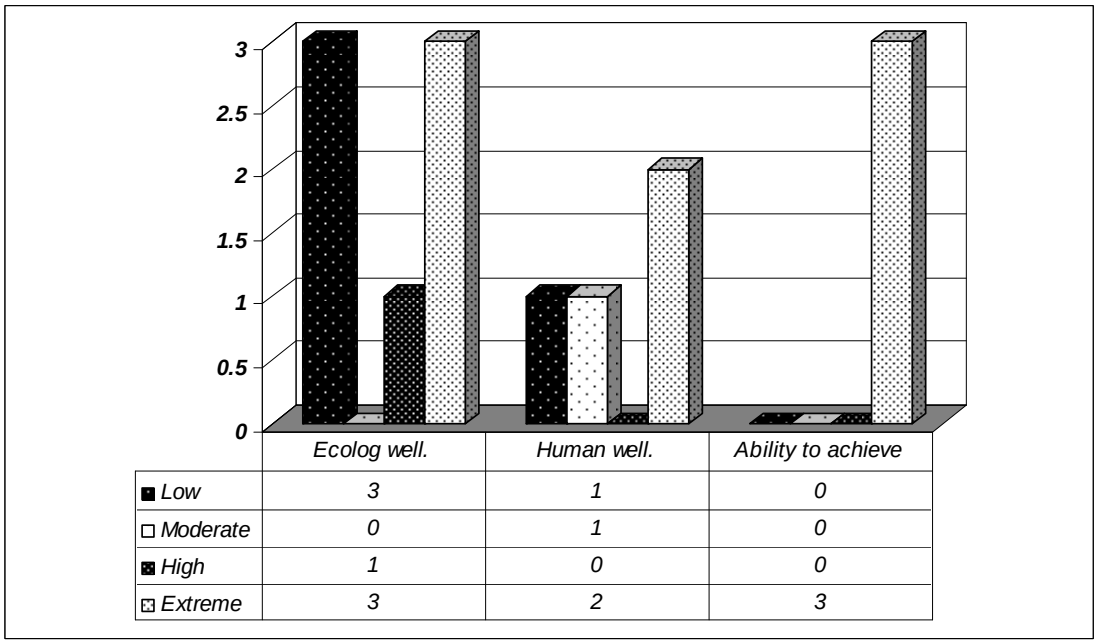
As regards the southern group, most concerns were related to the ecological well-being, and very similar to those identified by the northern group: destruction of bottom habitats by trawling, limited knowledge of the resources and their habitat, poor selectivity of the gear.
As regards the level of risk posed by the various issues, extreme levels were found in the three categories (Figure 5). In addition to the issues mentioned above, of great concern was the fact that most of the capital of fishing companies is managed outside the countries where the fisheries take place. The limitations posed by sanitary conditions and ecolabelling initiatives were also seen with great concern. The issue with the highest risk value was related to pollution from oil activities and the so-called “oil tides”. Lack of fisheries management plans was also considered as very serious.

Detailed results of the issues identification and risk analysis exercise are presented in Appendix 8.



	Ecolog well.	Human well.	Ability to achieve
Low	3	1	1
Moderate	4	3	1
High	3	2	0
Extreme	1	0	2

Figure 4: Summary of the risk analysis for prioritizing issues for the beach seine fishery, central group (Côte d'Ivoire, Ghana, Togo and Benin)



	Ecolog well.	Human well.	Ability to achieve
Low	3	1	0
Moderate	0	1	0
High	1	0	0
Extreme	3	2	3

Figure 5: Summary of the risk analysis for prioritizing issues for the shrimp trawl fishery, southern group (Nigeria, Cameroon, Congo and Gabon)

Although the exercise already offered a good overview of key issues, it should be noted that this was only an introduction to the EAF. An in-depth analysis will be carried out with participation of all relevant stakeholders, in connection with ad-hoc sub regional meetings.

3.5 Developing a road map to facilitate implementation of the EAF in the Gulf of Guinea

While this workshop had provided an opportunity to introduce the EAF concepts and relevant methods, including an approach for issue identification and risk analysis, the overall process of developing fisheries management plans is not limited to these activities but entails additional steps and considerations. For example, a few basic requirements should be satisfied, including:

1. Policy documents should be consistent with EAF principles and vision as described in various international instruments such as the CCRF (FAO, 1995) and in the Guidelines for Implementing the Ecosystem Approach to Fisheries (FAO, 2003). Should this not be the case, a revision of policy documents may be required before embarking in more detailed EAF planning.
2. Conservation and management policies should be harmonised, to avoid conflicts and/or duplications. Given that under an EAF fisheries management will also deal with conservation of non-target species and habitats, it is extremely important that any policy related to them is consistent with other existing environmental policies.
3. Prior to initiating the planning work (steps described below), national task groups should be identified, consisting of representatives of different stakeholder groups, i.e. scientists (covering various disciplines related to fisheries, marine ecosystems and social sciences), fishermen, NGOs, fisheries and environment administrations. National task groups will be responsible to coordinate activities at the national level, be represented in regional activities and for producing expected outputs.

The steps below represent the main activities of the overall information gathering, analysis and planning under an EAF framework. However, this should be considered as a rough outline to be adapted to any given situation. Furthermore, the list is not exhaustive. In particular, research activities and reviews, not described here, are usually required at various stages in support to the planning and performance evaluation process.

Main steps for developing fisheries management plans under an EAF:

1. Scoping: The main objective of this step is to develop an understanding of EAF principles and vision, identify main operational units (e.g. fisheries) and determine the scope of the assessment. A desk study should provide background information on the operational units identified (TROM review). A workshop should be organised with the broad participation from fisheries admin., researchers, fishermen, non-governmental organizations (NGOs) with the aim of understanding and sharing EAF principles and vision, identifying those operational units (fisheries) to be given priority, with reference to global objectives and policies of the fisheries sector.

2. Issue identification: Using the hierarchical tree framework, key issues in need of attention for the given operational unit are identified in a workshop environment. The generic component tree framework can be used as an aid to systematically review the issues by the main categories of ecological, socio-economic and ability to achieve. Broad stakeholder participation is needed also in this case. Care should be taken to include expert groups from the three main branches of the generic component tree to ensure that all key issues will be addressed. The workshop environment contributes to create a shared vision of issues to be dealt with for a given operational unit in the context of implementing an EAF. This step results in a report on the process and list of the issues identified.

3. Risk analysis: Using qualitative, semi-quantitative or, where possible, quantitative risk analysis techniques, assess which of the issues identified under step 2 poses highest risk and therefore requires special attention. This step is also carried out through a workshop (possibly jointly with workshop under step 2). Where no quantitative risk analysis is possible, a qualitative risk analysis can be performed based on participants perceptions. It is extremely important that participants have relevant knowledge and experience and in the case of qualitative risk analysis participation of key and well selected stakeholders is essential. Care should be taken to include expert groups from the three main branches of the generic component tree (ecological, socio-economic and governance) to have a balanced perception of the risk. The output of this step consists of a report describing the process and the result of the risk analysis, including list of priority issues to be dealt with.

4. Setting operational objectives and performance measures: For priority issues identified as a result of steps 2 and 3, a full report will have to be prepared including, among others, operational objectives and associated indicators, which will allow monitoring fisheries management performance. Actions required if performance is not satisfactory should also be identified at this stage. The output of this step is a comprehensive management report, prepared by the national task group.

5. Assessing the costs and the benefits of alternative management scenarios: Based on quantitative, semi-quantitative or qualitative information, assess the costs and the benefits of different management options in relation to operational objectives and long-term goals. This can be done in a workshop environment with the national task group and key experts/resource persons. This process helps understanding the full implications of management decisions and results in a document summarizing for each priority issue, the costs and the benefits of different management alternatives.

6. Preparation of full EAF document for the given operational unit: Based on the information and reports resulting form the above steps, a full management report is prepared for the given operational unit. This document will form the basis for the management plan under an EAF. The national task group prepares a comprehensive report document comprising the information produced through steps 1 to 5.

7. Preparing for implementation: Revision or new formulation of fisheries management plans based on outcomes and outputs of the EAF planning process, including revision of regulatory measures, as required, and revision of institutional arrangements both in relation to participation, as well as where integrated approaches may be necessary (e.g. multiple uses in coastal areas).

The actual implementation of EAF management plans will be the responsibility of the relevant management administration. Furthermore, attention should be given to creating an environment that facilitates the application of EAF, through, for examples, incentives of various natures.

4. PLANNING PROJECT ACTIVITIES FOR 2008

The main components of the EAF-Nansen Project were briefly introduced to the participants to facilitate the identification of activities to be carried out in 2008 (Figure 6).

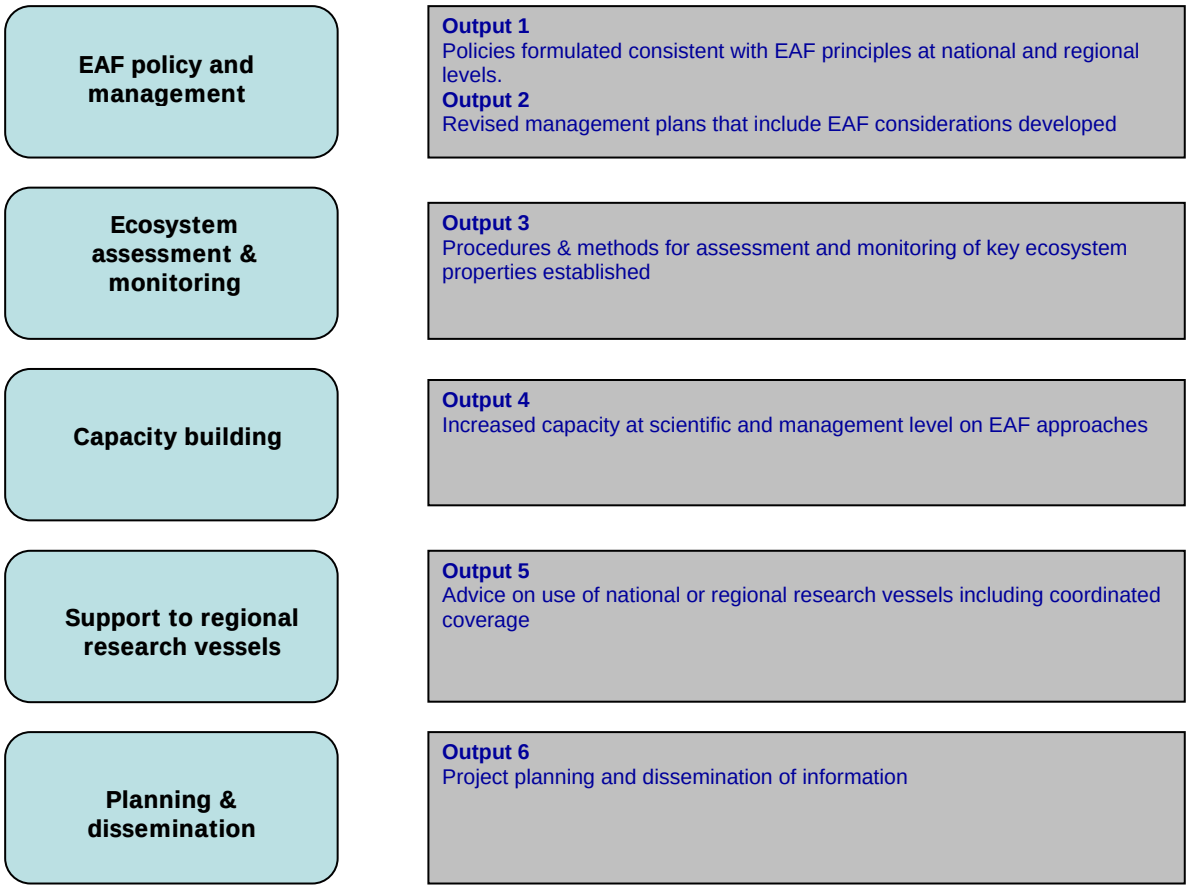


Figure 6: Main modules of the EAF Nansen project

General discussion and selection of regional, subregional and national case studies to be considered by the project

General

- Participants asked that the project document be sent officially to the respective countries. Countries could be asked to provide a national contribution to cover costs and personnel needed for the activities at the national level (collection of information, interaction with stakeholders, etc.).
- A general discussion dealt with the issue of how the regional work should be carried out in terms of the composition of subregional groups. While some felt that groups should reflect the sub-regional commissions, to facilitate implementation and harmonization, it was noted that sub-regional commissions are unfortunately, in some cases, not yet well established and that it may be more appropriate to continue with the groups as in the workshop, considering that they are technical groups and the results of their work could be used by any of the sub-commissions.
- It was also suggested that the work of the subregional groups should concentrate first on the fisheries dealt with during the workshop.
- Prior to a more in depth analysis of the fisheries, a review of the fishery itself, including area of operation, status of target stocks, history of fisheries management of relevance to the given fishery, etc., should be prepared.

- A national task group (NTG) should be established in each of the countries. In addition to being responsible for the preparation the above fishery review, the NTG will also be responsible for carrying through the EAF planning process and represent the country in the subregional and regional activities. FAO will make available detailed terms of reference (TORs) for the NTG.

- Participants were informed that as part of the project annual cycle, a meeting was arranged with all partners in the project, the Annual Forum, to discuss issues of common interest related to the fisheries sector and its management. In connection with this meeting, a Steering Committee meeting for the project is also held to monitor progress made and plan new activities within the project framework. Participants will be informed in due time on proposed time and venue for this meeting.

Suggested project activities

Output 1. Policies formulated consistent with EAF principles at national and regional levels

- Participants were informed of a desk study currently being carried out by a FAO consultant, to review fisheries policies in various coastal African countries. The draft desk study will be sent to relevant countries in the region for their comments and for revision.

Output 2. Revision of management plans

- To follow-up on the issue identification and risk analysis carried out in connection with this workshop, three workshops will be held at the subregional level, with a broader participation of stakeholders (dates to be decided).

Output 3. Procedures and methods for assessing and monitoring of key ecosystem properties

- A workshop on survey data analysis was announced for early 2008. The acting fisheries officer of the GCLME informed the participants that the Guinea Current Large Marine Ecosystem Project (GCLME) was planning to organize a workshop on the use of ECOPATH with ECOSIM and it was suggested to try to coordinate the two Workshop, and if possible organize the survey analysis before the ECOPATH workshop.

Output 4. Capacity building
Main areas identified were the following:

- Collection of fishery statistics, including bio-economic data

- Training of trainers (also species identification)

- Support to installation of bycatch reduction devices (BRDs)

- Training in mapping stakeholders and in participatory approaches to fisheries management

- Support to survey planning and survey techniques (both demersal and acoustic)

Output 5. Support to regional research vessels

- Specific support to a country (Guinea) for use of research vessels (techniques) was suggested

Output 6. Planning & dissemination

- Representatives from the region to participate in the Annual Forum and Steering Committees meetings.

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APPENDIX 1

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APPENDIX 2

WORKSHOP OBJECTIVES AND AGENDA

1. Background

The need for applying an ecosystem approach to fisheries management is now globally accepted, as reflected in the Reykjavik Conference on Responsible Fisheries in the Marine Ecosystem (2001) and in the Plan of Implementation of the World Summit on Sustainable Development (Johannesburg 2002). There is also agreement as regards the urgency of integrating its principles in fisheries management. However, and despite progress made in some countries and regions, there is still a widespread perception that the EAF framework is very difficult, or even impossible, to implement in practice.

Based on experiences already made in this field, the FAO project "Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries (EAF Nansen, GCP/INT/003/NOR)" offers an opportunity to coastal countries around Africa to collaborate with FAO in developing national and regional frameworks for the implementation of EAF. The project has a five year time frame, which will allow implementing a series of key steps for the application of the EAF. This workshop was planned to introduce both the EAF principles and the EAF Nansen FAO project to the region, and plan future activities in this field.

2. Main workshop objectives

Within the framework of the FAO project "Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries (EAF Nansen GCP/INT/003/NOR)" a workshop will be organized with two main objectives:

1. introduce participants to concepts and principles relevant to the implementation of an ecosystem approach to fisheries, based on the FAO guidelines on the EAF (FAO, 2003 and 2005) and
2. present the above project, its scope and objectives and identify overall activities to be carried out in the Gulf of Guinea and, more specifically in 2008, with the view of facilitating key processes and activities for the implementation of the EAF in this region.

Countries invited are the coastal countries from Angola in the South to Guinea-Bissau in the North. Representatives of regional or subregional commissions, such as the Interim Guinea Current Commission (IGCC) and the Sub-Regional Fisheries Committee for the Western Central Gulf of Guinea. Regional representatives of NGOs such as International Union for Conservation of Nature (IUCN) and World Wide Fund for Nature (WWF) are also welcome.

The workshop will be in English and French.

This workshop is intended to provide an opportunity to discuss, at a regional level, the concept and practice of EAF and to consider the way forward in implementing EAF in the region.

3. Draft Agenda

Tuesday 23 October – Introduction to the EAF	
Morning *9:00–12:30*	1. Introduction • Welcome • Workshop objectives/Agenda, adoption of Agenda • Introduction to the project: Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries • Introduction to the EAF • General Discussion
Afternoon *14:00-17:00*	2. The ecosystem approach to fisheries: from principles to application • The FAO guidelines to the application of the EAF • Examination of case studies of progress in the application of EAF • General discussion
Wednesday 24 October – The ecosystem approach to fisheries: from principles to application in the Gulf of Guinea	
Morning *9:00-12:30*	3. Overview of main fisheries and ecosystem issues associated with them (participants to inform, based on questionnaires provided prior to the meeting)
Afternoon *14:00-17:00*	4. The hierarchical tree and identification of EAF issues 5. Trial identification of EAF issues and priorities in the Gulf of Guinea (workshop participants) according to fisheries (or habitat type)
Thursday 25 October – The ecosystem approach to fisheries: from principles to application in the Gulf of Guinea (cont.)	
Morning *9:00-12:30*	6. Prioritizing the issues: risk analysis and the risk analysis process • Introduction • Application to the issues identified under agenda item 5 • Summary and follow-up
Afternoon *14:00-17:00*	7. Developing a road map to facilitate implementation of the EAF in the Gulf of Guinea 8. General discussion and selection of regional, subregional and national case studies to be considered by the project

Friday 26 October – Planning project activities for 2008	
Morning *9:00-12:30*	9. Planning the 2008 activities (EAF Nansen GCP/INT/003/NOR)
Afternoon *14:00-16:00*	10. Planning the 2008 activities (EAF Nansen GCP/INT/003/NOR) (cont.) 11. Closure

APPENDIX 3

STATEMENT BY THE FAO REGIONAL REPRESENTATIVE FOR AFRICA

Mr Chairman,
Honourable Minister
Dear Participants
Ladies and Gentlemen,

I am very pleased to welcome you all on behalf of the Director-General of the Food and Agriculture Organization of the United Nations, Dr Jacques Diouf, at this regional workshop on ecosystem approach to fisheries (EAF) management for African coastal countries from Namibia to Guinea-Bissau.

Mr Chairman,

Direct contact with the highest political and managerial levels of the fisheries sector worldwide, through mechanisms such as the Committee on Fisheries (COFI), various FAO technical consultations and the convening and supporting of high profile international conferences, gives FAO a unique opportunity of setting the world agenda on fisheries issues. FAO has a long-term commitment and involvement in fisheries issues at all levels because of its mandate to facilitate and secure the long-term sustainable development and utilization of the world's fisheries and aquaculture. Consequently, it has provided policy advice and direct support on fisheries resources evaluation and management to countries in the Africa region for decades.

In the late 1970s and early 1980s, FAO supported coastal Member States in adapting to and benefiting from the changes derived from the adoption of the 1982 Convention on the Law of the Sea and other international agreements that followed. More recently, FAO developed the 1995 Code of Conduct for Responsible Fisheries and promoted the Reykjavik Conference on responsible fisheries in the marine ecosystem which led to the 2001 Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem.

Following the 2001 Reykjavik Declaration, FAO convened an Expert Consultation on Ecosystem Based Fisheries Management in 2002, which facilitated the formulation of technical guidelines on the ecosystem approach to fisheries in 2003. These guidelines include the precautionary approach, ecosystem management and biodiversity considerations while focusing on human well-being and equity.

The broadening of fisheries management under the ecosystem approach to fisheries management (EAF) requires an expanded knowledge base and, in turn, the collection of new type of data and information, which are now largely unavailable. Therefore, attempts to operationalize the EAF are invariably hindered by lack of sufficient relevant data and information and this problem is particularly acute in most developing countries, including African countries.

While the signatories to the Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem agreed that *and I quote* "there is a clear need to immediately introduce effective management plans with incentives that encourage responsible fisheries and sustainable use of marine ecosystems", *end quote*, they also recognized that it is very important to advance the existing limited knowledge of how ecosystems function, if EAF was to be effective in achieving the desired ecological, social and economic objectives.

Mr Chairman, Honourable Minister, Ladies and Gentlemen,

Some Member States of FAO are already addressing several aspects of the EAF: impact of fishing on associated species, effectiveness of spatial and temporal closures, stakeholder involvement in fisheries management, and restoration of critical habitats. However, some African countries, among many developing countries, expressed their concern that increased costs and difficulty in incorporating ecosystem considerations in fishery management would contribute to a broadening of the gap between developing and developed countries. They, therefore, appealed to the international community for technical assistance.

The Government of Norway responded to the appeal of FAO on behalf of these countries by funding a five year project (2006–2011). At the end of this assistance project, it is expected that targeted cooperating countries will have developed broad strategies for incorporating ecosystem considerations in fisheries management, founded on a knowledge base that the project will have provided through the sea going activities. Project sponsored capacity building initiatives will enable countries to become proficient in the mechanisms needed to translate high level policy goals into operational objectives to monitor management performance and have the capacity to monitor and interpret trends in key ecosystem features.

This project has made it possible for you to be here to learn the concepts and principles relevant to the implementation of an ecosystem approach to fisheries, based on the FAO guidelines on the EAF and know the scope and objectives of the project.

Mr Chairman, Honourable Minister, Ladies and Gentlemen,

I am pleased to also learn that you will identify overall activities to be carried out in the Gulf of Guinea area in 2008 to facilitate critical processes required for the effective implementation of the EAF in the region. Moreover, carrying out the activities will actually respond to the concerns raised in the 2002 World Summit for Sustainable Development (WSSD) Declaration on fisheries and oceans. The results, Mr Chairman, will contribute to reversing the depletion of fish stocks and improve well-being of the numerous populations that depend on fisheries for their livelihood.

I wish you a successful workshop and thank you for your kind attention.

APPENDIX 4

OPENING ADDRESS BY THE HONOURABLE MINISTER FOR FISHERIES OF GHANA

Mr Chairman
FAO Country Representative
Executive Secretary of the Interim Guinea Current Commission
Directors of Fisheries
Delegates from Norway
Distinguished Scientists and Participants
Invited Guests
Ladies and Gentlemen

Good Morning to All of You.

It is indeed a great pleasure for me to be invited to deliver an address at the opening of the Regional Workshop on Ecosystem Approach for Fisheries (EAF) Management in the Gulf of Guinea this morning.

Mr Chairman, Ladies and Gentlemen, over the years, fishery resources globally have been subjected to unrelenting exploitation to the point of imminent total depletion. All of us gathered here are in no doubt aware that fishery resources, like other renewable natural resources, are a common heritage which is to be held in trust for our children and children's children yet unborn.

Overexploitation and degradation of the marine environment due to uncontrolled human activities have induced catastrophic global environmental changes as well as the depletion of the world's natural resources. Greedy commercial activities such as irresponsible fishing practices, have led to lower yields and in almost all the world's fishing grounds, even in the most fertile and productive areas.

Mr Chairman, Today Fishermen are catching less than they once did. The global approach to fisheries management has shifted since the introduction of exclusive economic zones (EEZs) with the adoption of the United Nations Convention on the Law of the Sea in 1982. This Convention was necessary but still insufficient steps towards effectively managing and sustaining fisheries resources persists.

Mr Chairman, the Code of Conduct for Responsible Fisheries adopted in 1995 provided a framework to ensure principles and standards applicable to the conservation, management and development of all fisheries. Based on this framework, and recognizing that fisheries is a dynamic entity involving people, fishermen, the environment, living marine resources, the focus of late in dealing with fisheries management issues is based on the ecosystem approach.

The cardinal objective of using the ecosystem approach to fisheries Management is to plan, develop and manage fisheries in a manner which addresses the multiple needs and desires of societies without jeopardizing the options for future generations to benefit from the marine ecosystems.

Mr Chairman, my understanding of the ecosystem approach to fisheries Management concept is that all factors (environmental, biological, human and economic) that have an impact on the fisheries resources should be considered holistically in the management of the fisheries resources.

This is a clear departure from the conventional method of focusing only on biological factor in fisheries management.

I am told the concept would enable us assess the impact on the fishers for any management option taken.

The ecosystem as we are aware apart from its use in the fisheries sector (e.g. as food) is also used for other purposes such as conservation (e.g. wetlands), forestry (e.g. mangroves), agriculture (e.g. floodplains) and human settlements (e.g. coastal areas). Unfortunately, ecosystems are also, most often, the ultimate recipients of the pollution produced by human settlements and industrial activities.

Even the most remote areas (e.g. deep ocean) are now affected, seriously putting in question the sustainability of present practices and the present ecosystems resources to future generations.

Mr Chairman, it is gratifying to note that the project, "strengthening the knowledge base for and implementing an ecosystem approach to marine fisheries" has come at a time when most of our fishery resources has been overexploited due to adopting poor management practices. I am particular happy that the project will among others:

- Support policy formulation consistent with ecosystem approach to fisheries management (EAF).
- Support fisheries managers to consider EAF in planning and implementation of fisheries management options.
- Build the capacity of countries in the region to adopt EAF.

It is my hope and expectation that at the end of the project, the capacity of countries in the region be build to use EAF, resulting in the recovery of the depleted fisheries resources and reduction of poverty in the fishing communities.

It is in this regard, Mr Chairman, that FAO is collaborating with coastal African countries in developing national and regional frameworks for the implementation of EAF through a Norwegian Government support.

We are most grateful to the Norwegian Government and other Donors who are supporting this project which would run for the next five years.

Mr Chairman, invited guests, ladies and gentlemen, I will like to assure you that I will follow with keen interest, the progress made at this workshop and the project to be based on its out come; I will not on my part hesitate to offer any assistance that will be required from my Ministry to ensure the success of the project.

It is my fervent hope and expectation that each participant will bring his or her knowledge and experience accumulated over the years to bear on the practical issues to be discussed at this workshop which relate to the failure to strengthen the inter-relationships between the various facts of Ecosystem Approach to the Management of the world's fishery resources.

Mr Chairman, distinguished Ladies and Gentlemen, In conclusion, I wish you a most fruitful and rewarding workshop and believe that its outcome will immensely benefit the fisheries industry in our respective countries.

Mr Chairman, on my own behalf and on behalf of the Ministry of Fisheries and the FAO, I have great pleasure to declare this workshop officially opened.

Thank you very much for your patience and your attention.

God Bless Us All.

APPENDIX 5

OUTLINE FOR NATIONAL REPORTS ON THE FISHERIES AND MAIN ISSUES RELATED TO THEM IN REGARD TO THE ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT

In preparation of the workshop to be held in Accra (Ghana) from 23 to 26 October 2007 background information for every major fishery type within each country of the Gulf of Guinea should be compiled. Each country should provide a summary report (6–8 pages) outlining the major fisheries in that country, the management system for the fisheries and explaining any important impacts of the fishery on the ecosystem or the ecosystem on the fishery that is not currently being satisfactorily addressed by management. Based on this information, ***participants are expected to present highlights (about 5 to 10 minutes each are available for this) under agenda item 3 (on Wednesday 24 October)***.

Contents of the national report

1. Outline, list or tabulate the major fisheries, the fishing methods used in each, target species and the social (e.g. employment) and economic (e.g. landed value) importance of each fishery.
2. The stated or *de facto* objectives for the fisheries sector.
3. Major management measures in place for each fishery and comment on how effectively they are being implemented.
4. Current estimated status of the major stocks and recent trends in the stocks.
5. Direct interactions with other fisheries (e.g. competing for same target species, target species taken as bycatch in another fishery, bycatch in this fishery affecting another fishery, etc.)
6. Direct interactions with the ecosystem (impact on sea bottom, pollution caused by the fishery, impacts on protected and/or endangered species, etc.)
7. Existing or potential threats to the ecosystem from human activities other than fishing (e.g. oil, mining, coastal zone development, land-based pollution, etc).
8. Any other comments relevant to an ecosystem approach to fisheries.

APPENDIX 6

SUMMARY OF NATIONAL REPORTS ON MARINE FISHERIES – GULF OF GUINEA

	Guinea-Bissau	Guinea	Sierra Leone	Liberia	Côte d'Ivoire	Ghana
Importance of the fishery	35% of the state budget and 4% of the GDP	Around 2% of the GDP. Mean total catch (1995–2005) of 103 000 tonnes	9.4% of GDP. Total fish production 132 000 tonnes	3.2% of GDP (2002). Average annual production: 15 000 tonnes.	About 1.5% of GDP; Total production about 70 000 tonnes (small pelagics most important)	About 4.5% of GDP. About 2.1 million people employed in fisheries
Main fisheries, fishing methods, target species	Shrimps; cephalopods, demersal fish (trawlers), small pelagics and tuna (seines and longliners)	Shrimps, cephalopods, demersal fish (bottom trawl); small pelagics (trawl) and tuna (seines and longliners)	● Industrial marine fisheries (foreign trawlers, shrimpers – China, Korea (Rep.of), Spain, Greece); ● Artisanal (marine), ● Inland fisheries and aquaculture. Artisanal and industrial target same species	● Industrial (45 vessels using demersal and mid-water trawls, targets demersal and pelagic fish); ● Shallow-water and deep-water shrimp fisheries (mainly foreigners); ● Artisanal fishery (3 500 canoes using different traditional gears, targeting pelagic and demersals, lobsters and crabs, 7 700 tonnes in 2004); tuna not yet developed, interests from EU to develop	Two main groups: artisanal (gillnet, longline, seine) and industrial (tuna with seines and line gear, shrimp, demersal and small pelagics). Artisanal very important (25% of total production)	● Artisanal (12 000 canoes, pelagic and demersal species, various gears), ●Semi-industrial (inshore-pelagic, purse seiners trawl, 250, small pelagics), ● Industrial (trawlers for demersals and cuttlefish, 116, shrimp trawlers,2, tuna, pole and line and purse seining, 38, skipjack yellowfin and bigeye)
Social and economic importance				Around 33 000 fishing population (mainly artisanal; 693 persons involved industrial sector); A socio-economic and livelihood survey conducted for the artisanal sector	70 000 directly employed, indirect 400 000	Export earnings US$ 95 million

	Guinea-Bissau	Guinea	Sierra Leone	Liberia	Côte d'Ivoire	Ghana
Management objectives	Increase economic output, maintain biodiversity, responsible fisheries; guarantee the resource sustainability; sanitary conditions to access European Union markets	Improved management and sustainable development of resources, respect ecosystem and benefits to future generations; Maximize economic and social benefits specifically in relation to food security, fight against poverty, integration of the sector in the national economy, creation of job opportunities, improve national finances	Promote responsible fishing practices for sustainable development and economic growth	Contribute to the socio-economic development through the provision of employment, protein diet and enhance revenue from trade	Sustainable development: increase trade at national level; increase institutional capacity; promote sustainable use	Increase production, create employment, alleviate poverty in fishing communities
Legal/management measures	General Fisheries Law including regulations for the industrial and the artisanal fisheries; annual management plan; coastal zones reserved for artisanal fisheries; marine protected areas in Bissagos Islands; limits on bycatch; monitoring and control	Law L/95/13/CTRN related to the marine fisheries code; Regulations for the artisanal fisheries; Bycatch and zoning regulations; annual management plan; inspections for sanitary conditions of fish and fish products	National fisheries policy (2003). Fisheries Management and Development act (1994); Fisheries regulations (1995). Effort control limitations (limitation of access through licence), input control (mesh size and gear restrictions); area limitations (inshore exclusion zone); landing import and export limitations; biological control. Enforcement (monitoring, control and surveillance [MCS] and penalties).	New fisheries law being developed. Licensing (both artisanal and industrial vessels), mesh size regulations; demarcation of fishing zones (coastal zone for artisanal fisheries only); observer programme.	Fisheries law outdated, needs to review it; zoning, MCS; VMS.	Fisheries Act 625. Minimum mesh size regulations for various gears (gillnets, seine nets bottom trawl and shrimp trawl); limited entry for industrial trawlers; prohibition to use explosives and poison; restrictions of size and areas of operation. Effectiveness: weak enforcement, lack of political will, lack of equipment surveillance

	Guinea-Bissau	Guinea	Sierra Leone	Liberia	Côte d'Ivoire	Ghana
Stock status	Based on the Mauritanian surveys (2004 and 2006) total biomass of 440 000 tonnes (2006). There has been an increase in the shrimp and cephalopods and decrease in sharks	Reduction of mean catch rates in coastal zones. Resources considered to be fully to overexploited (CECAF 2003)	Based on recent surveys total biomass of 300 000 tonnes (pelagic fish dominating). Artisanal catches increasing, industrial decreasing (probably because of the civil war). The resources considered to be in good state; shrimp fully exploited (CECAF, 2003)	Surveys (Nansen). Biomass estimates 25 000–27 000 tonnes (2006–2007) compared to 180 000 t in 1982. Frame survey for SSF (2007)	Important stocks of demersal fish overexploited. Shrimps probably overexploited.	CPUE inshore pelagics decreasing (*S. aurita* overexploited); demersals: sizes decreasing, possibly overexploited, catches decreasing; tunas stable, with the exception of bigeye
Fisheries interactions	Interactions between small scale and industrial fisheries, each entering the other's zone; discards; bottom impacts	Industrial fishing fleet entering zone reserved for artisanal fleet	Interactions between small scale and industrial fisheries (destruction of fishing nets, of fishing boats). Competing for same resources. High bycatch (see below)	Conflicts between artisanal fisheries and industrial trawlers; catch by artisanal fisheries reduced by the activity of industrial trawlers; bycatch of industrial fisheries includes species targeted by artisanal fisheries; poaching by illegal vessels and illegal fishing by licensed vessels	Interactions between industrial and SSF, with loss of fishing gear; industrial not respecting area limitations; discards contribute to increase of macrophages; artisanal fishing gear; piracy and illegal fishing	Canoe, semi-industrial and industrial fisheries competing for the same resource at 30–50 metres depth; conflicts between canoes and merchant vessels, gear damage; discards from tuna and industrial fleet sold to canoes (seiko fishing)
Fisheries impacts on ecosystems	Discards, lost fishing gear, bottom impacts	Discards, lost fishing gear, bottom impacts	High bycatch and discards (also sea turtles), about 1:3	Chinese pair trawlers and shrimp trawlers affect the bottom; discards by trawlers; bycatch of sea turtles, sharks and dolphins and other species. Mangrove cutting for smoking fish	Overexploitation; bottom trawling effects on the bottom; species introductions; use of toxic products	Destruction of habitat (by trawlers); mangrove destruction; dumping of waste; illegal mesh sizes in estuaries

	Guinea-Bissau	Guinea	Sierra Leone	Liberia	Côte d'Ivoire	Ghana
Other ecosystem concerns	Transhipment of fuel in fishing zones, development of tourism (erosion); agriculture and effluents from the rivers; development of rice culture in the coastal area.	Transhipment of fuel in the fishing zone, plastic waste (bags, bottles etc) especially around Conakry, tourism development, demographic pressure on the coastal zone, cutting of mangrove forest; development of rice culture in the coastal area, ship disposal system	Coastal constructions around wetlands; mangrove cutting and coastal development, sand mining; appearance of jellyfish; alteration of marine food chain.	Mangrove destruction, pollution; filling of mangroves for urbanization; offshore oil exploration	Oil exploitation; extraction of sand and minerals; coastal development, effluents; land-based pollution; eutrophication; development of hydropower plants; deforestation	Garbage, mangrove destruction, pollution from oil companies and vessels, ballast water, sand winning, predation on turtles, effluent algal blooms, erosion
Institutions responsible for FM and main concerns	Ministry of Fisheries; Centro de Investigação Pesqueira Aplicada (CIPA) Main concerns: Capacity	Direction de la pêche maritime, Ministère de la pêche et de l'aquaculture; Centre national des sciences halieutiques Boussoura (CNSHB)	Ministry of Fisheries and Marine Resources; Main concerns: Capacity, enforcement, weak infrastructure (support services), low participation of fisher folk, weak extension work, poor integration with other sectors and policy formulation and planning	Bureau of National Fisheries (Ministry of Agriculture). Main concerns: Weak institutions/capacity. Low capability to conduct research to enhance management	Fisheries management is under the responsibility of the Ministry of Animal and Marine Production; fishery research is conducted by the Centre de recherche océanographique (CRO) (Ministry of Research); Other relevant Ministries: Ministry of Environment; Ministry of Defence, Ministry of Transport; Main concerns: increase management capacity; enforcement, monitoring and control. Poor communication between science and management	Marine Fisheries Research Division, Ministry of Fisheries

	Togo	Benin	Nigeria	Cameroon	Gabon	Congo
Importance of the fishery	4% of GDP	About 3% of GDP.28 mill CFAs	3–4% of GDP; Artisanal sector contributes to 80% of fish supply	About 2% of GDP. Total catch 110 000 tonnes	1.5% of GDP	About 3% of GDP
Main fisheries, fishing methods, target species	Artisanal important (400 pirogues, catch both pelagics and demersals, various types of gears), industrial less important, 2 to 3 trawlers and 2 to 6 lineboats (fish demersals, deep-water sharks, swordfish, sailfish)	Marine fisheries (industrial and artisanal). Industrial only 10 vessels, mainly bottom trawlers for demersal fish and shrimp; artisanal about 800 pirogues, 10 different types of gears, 60% small pelagics	Artisanal, various gears and target species (small pelagics, Sciaenidae, sharks, crabs, crayfish, catfish, muscles); Industrial bottom trawl, shrimp and fish both demersal and some pelagics	Industrial (trawlers for fish and shrimp, mainly foreign owned, from Nigeria, China and Greece, 700 people employed) and artisanal (most important in terms of employment and contribution to the national economy), with continuous increase in the fleet, particularly in the shrimp sector, 24 000 fishermen, total 200 000 people, uses various gears, 93 000 tonnes) targeting both pelagic and demersal fish and small shrimp. Shark fishery. Semindustrial fisheries (mainly Ghanaian and Nigerian); sports fishing	Four fishing areas: inland fisheries; from coast to 3 miles artisanal; from 3 to 6 national industrial; 6 to 12 industrial foreign. Industrial: crab, shrimp and fish. About 11 000 tonnes (17% shrimp); Artisanal marine about 22 500 tonnes	Artisanal, industrial and inland fisheries; small pelagics, sardinella and ethmalosa (utilized by artisanal and industrial), demersal fish (artisanal but mainly trawling that is on the increase), sharks (artisanal fisheries and as bycatch in the industrial fisheries), cephalopods (cuttlefish, not targeted, only bycatch in the trawl fleet), tunas (fisheries closed, only small tunas taken by the artisanal fleet), crustaceans (peneid shrimp and lobster, utilised by the industrial fleet); strong seasonal variations; sardinellas are shared with Gabon and Angola
Social and economic importance	150 000 people in total live of fishing activities, of which 10 000 fishers and 12 000 traders. Marine fisheries have 6 000 to 10 000 fishermen. The value is 5 billion CFA Francs and the added value 10 billion CFA Francs	4 345 fishermen, mostly from Benin, but also from Ghana; 5 150 fish traders. Fishing involves 15% of active population, more than 600 000 jobs; export shrimp to France and Belgium	80 000 employed; landed value US$ 68 million;1.2 million people in the SSF	200 000 people employed (including inland), directly and indirectly)	Export value industrial fisheries 9.3 billion CFA; value artisanal 6.2 billion CFA; Women participate in post harvest activities	

	Togo	Benin	Nigeria	Cameroon	Gabon	Congo
Management objectives	Intensify and diversify production to improve food security; improve nutritional equilibrium; fight against poverty; ensure sustainable agriculture growth; increase income and job opportunity; increase export; enable fisheries administrations to implement the management plan	Guarantee responsible fisheries to improve social and economic benefits to improve food security and for the preservation of the aquatic environment	To achieve self-sufficiency in fish production consistent with sustainable development; reduce post-harvest losses; improve earnings from fish export; poverty reduction through employment, increase food security	Sustainable exploitation of resources, increase food security, maintenance of biodiversity, reduction of poverty in fishing communities	Plan sustainable management of marine resources; protect natural resources; satisfy the sector market requests nationally; facilitate involvement of Gabonese in fishing activities; support organization of fishermen; capacity building	Improve the performance of the fishing sector with the aim to better contribute the realization of the Millennium Development Goals; increase the contribution to the state budget of fisheries and aquaculture, promote research
Legal/management measures	Fisheries law N 98 012 on fishing regulations; fisheries regulations include size of vessels, zoning	Fisheries management plan developed in 1997, in 1998 a project has financed a master plan for fisheries, neither are operational. Regulations forbidding industrial trawlers to operate within 5 miles from the coast, catch any species of turtles and marine mammals, number and size limitations of vessels, size limit for lobster, size limit for shrimp; taxation of fish landings	Sea Fisheries Act 71 (1992) and related regulations, licensing, including not fishing with 5 nm, vessel size and mesh regulations; installation of TEDs and BRDs mandatory	Fisheries law 94/01 (1994); probably outdated, FAO assisting to revise this law. Regulations have been attempted to limit size at first capture, scientific observers (not in place); co-management experiment initiated but needs to be consolidated. Free access; monitoring and control system recent (national brigade); development of national action plans (IIU fishing); closed season (not operational); Turtle excluder devices (TEDs) and bycatch reduction devices (BRDs) implemented	2005: Code of fishing and aquaculture; establishment of VMS; radars along the coast; monitoring by national defence; protection of certain species/periods (repos biologique) avoiding to catch during the period of reproduction	Fisheries Law 2 2000. Management measures for the industrial fisheries: access regulations through quotas
Stock status	Decrease in demersal stocks, stable for pelagics	Overexploitation of resources , both pelagic and demersals	Assumed to be largely overfished	Catches have been decreasing despite the increase in effort; also network for illegal fishing and export that is not recorded (mainly to neighbouring countries); artisanal fisheries important; surveys since the 1960s (Obango, Fiolent, Nansen); shrimp overexploited	Decrease in the production of SSF, more stable for the industrial	Sharks targeted by SSF and overexploited. Demersal species are overexploited. Sardinella is a regional stock

	Togo	Benin	Nigeria	Cameroon	Gabon	Congo
Fisheries interactions	Bycatch of juveniles of sardinella in the anchovy fishery; also beach seines catch juveniles of both demersal and pelagic species	Bottoms between 35 and 100 m are rough and cannot be easily accessed. Most fisheries take place in the shallow waters	Between SSF and industrial competing for the same resource and area; conflicts between fishing communities; piracy; poaching by foreign vessels; shrimping catches juveniles of other species	Trawlers entering the 3 miles coastal zone; bycatch and effects on the bottom; use of explosives and poison; artisanal fishermen getting bycatch from trawlers	Conflicts between SSF and industrial; conflicts on areas. Bycatch utilized by SSF	Trawlers in the coastal zone, competition for the resource, also between artisanal groups (shrimp, sciaenids and sardinella); Chinese vessels and the type of gears they use
Fisheries impacts on ecosystems	Use of beach seines destroys the habitat of the coastal species; use of mobile gear and chemicals destroy the habitat.		Trawling impacts bottom habitat; small meshes used by the shrimp fisheries; violation of trawlers of non permitted areas; poaching	Destruction of mangroves (by SSF), for wood; Chinese vessels fishing close to estuaries where many juveniles occur; discards		
Other ecosystem concerns	Use of explosives, hydroelectric plants, coastal erosion, mining, production an disposal of phosphate (pollution); gas pipes; cetaceans	Coastal erosion, pollution, effluents including phosphate from Togo, tourism, sand mining	Oil exploitation/ exploration/sismic activity; pipelines; gas flaring; mining; coastal development; pollution (solid, organic; oil) destruction of mangroves; urbanization; introduction of exotic species; piracy	Oil exploitation/exploration; effluents from land-based activities	Sea turtles, cetaceans, impact on the bottom by trawling; unplanned utilization of the mangroves	Oil exploitation; land-based activities; sand extraction; cutting trees in the coastal area; impact of climate on the variability of the resources

	Togo	Benin	Nigeria	Cameroon	Gabon	Congo
Institutions responsible for FM and main concerns	Ministry of Agriculture, livestock and fisheries; Directorate aquaculture and fisheries, several regional directorates, training institute, social professional organizations, various organizations, including NGOs (sea turtles)	Directorate of Fisheries, National Council for Fisheries and the Permanent Inter-ministerial Technical Commission are part of the management system; decentralized structures with legal (Merchant Navy). The CRHOB is under the CBRST, Benin University and National Oceanographic Committee. The INRAB deals with all aspects linked with research and management. Main concerns: Expensive fishing gear, lack of manpower, poor monitoring and control, poor participation of stakeholders	Federal Department of Fisheries; Nigerian Institute of Oceanography and Marine Research (NIOMR)	Responsibilities are dispersed in several different ministries. Fisheries management relies on the capacity of the Fisheries and Aquaculture Division of the Ministry of Livestock, Fisheries and Animal Industry. Research is carried out by the Institute of agricultural research for development (IRAD), at Limbe and Kribi, under the Ministry of Research.	General directorate of fisheries and aquaculture (Ministère de l'Économie Forestière, des Eaux, de la Pêche et des Parcs Nationaux). Main concerns; Coastal erosion, sand mining, need to improve the understanding of ecosystems, enhance synergies between different administrations; development of a subregional strategy and of a management plan	General Directorate for Fisheries and Aquaculture (Ministry of Marine and Inland water fisheries). Main concerns: Coastal erosion, degradation of habitat, oil pollution, effluents and solid pollution, sand mining and dredging, urbanization, coastal deforestation, expansion of ecotourism

APPENDIX 7

RISK ASSESSMENT AND PRIORITIZATION OF ISSUES

Consequence definitions

LEVEL	GENERAL
Negligible (0)	Very insignificant impacts. Unlikely to be even measurable at the scale of the stock/ecosystem/community against natural background variability.
Minor (1)	Possibly detectable but minimal impact on structure/function or dynamics.
Moderate (2)	Maximum appropriate/acceptable level of impact (e.g. full exploitation rate for a target species).
Severe (3)	This level will result in wider and longer term impacts now occurring (e.g. recruitment overfishing).
Major (4)	Very serious impacts now occurring with relatively long-time frame likely to be needed to restore to an acceptable level.
Catastrophe (5)	Widespread and permanent/irreversible damage or loss will occur – unlikely to ever be fixed (e.g. extinctions).

Likelihoods definitions

LEVEL	GENERAL
Remote (1)	Never heard of, but not impossible.
Rare ((2)	May occur in exceptional circumstances.
Unlikely (3)	Uncommon, but has been known to occur elsewhere.
Possible (4)	Some evidence to suggest this is possible here.
Occasional (5)	May occur.
Likely (6)	It is expected to occur.

Risk matrix

Risk value = consequence x likelihood

CONSEQUENCE							
		Negligible	**Minor**	**Moderate**	**Severe**	**Major**	**Catastrophic**
Likelihood		0	1	2	3	4	5
Remote	1	0	1	2	3	4	5
Rare	2	0	2	4	6	8	10
Unlikely	3	0	3	6	9	12	15
Possible	4	0	4	8	12	16	20
Occasional	5	0	5	10	15	20	25
Likely	6	0	6	12	18	24	30

Suggested risk rankings and outcomes

Risk rankings	**Risk values**	**Likely management response**	**Likely reporting requirements**
Negligible	0	Nil	Short justification only
Low	1-6	none specific	Full justification needed
Moderate	7-12	Specific management needed	Full performance report
High	13-18	Possible increases to management activities needed	Full performance report
Extreme	>=19	Likely additional management activities needed	Full performance report

APPENDIX 8
RESULTS OF THE ISSUE IDENTIFICATION AND RISK ANALYSIS

Northern Group: Guinea-Bissau, Guinea, Liberia, Sierra Leone (Namibia)

Group members: Victorino A. Nahada, Sebastiao Periera; Deng Alkaly, Cheik Ahmed K. Bangura; Yevewuo Z. Subah, Alvin S. Jueseah;Sheku Sei, Ibrahim Turay

Fishery: Shrimp trawl fishery

Management objectives

Global objective: To promote responsible fishing practices, which will enhance sustainable fisheries development and economic growth for present and future generations.

Other objectives:

To increase employment opportunities; to enhance the socio-economic status of people in the fisheries sector with particular emphasis on women; to increase export earning from the fishing industry; to enhance capacity building in fishing communities and ensure rational management of the fisheries based on sound scientific information.

Category		Issue	Impact	Likel.	Risk Value
Ecological well-being					
Target species					
Shrimps (mainly Penaeidae: *P. notialis, P. kerathurus, P. longirostris*)	1	Knowledge gap concerning the stock	4	4	16
	2	High juvenile mortality of shrimps and decline in population	2	4	8
Non target species					
Lobsters (*Palinurus* spp.)	3	High bycatch rates	4	4	16
Sparidae (*Dentex* spp.)	4	High juvenile mortality of valued demersal species	4	4	16
Lutjanidae (e.g. *L. dentatus, L.aegenes, L.fulgens*)	5	Knowledge gap concerning bycatch	2	4	8
Sciaenidae (e.g. *Pseudotolithus* spp.)	6	High juvenile mortality of shrimps and valued demersal fishes	2	2	4
Haemulidae (e.g. *Pomadasys* spp.)					
Cephalopods (cuttlefish, squids)					
Cynoglossidae					
Polynemidae					
General ecosystem	7	Habitat degradation by trawl gears	3	6	18
	8	Overexploitation of the mangrove vegetation by fisherfolks	2	4	8
	9	Removal of large predators leading to trophic cascades and distortion in ecosystem functioning	2	4	8
	10	Pollution and eutrophication from discards	1	2	2
Human well-being					
Local community	11	Limited knowledge concerning stock status	2	4	8
	12	Low fish supply in local communities	4	4	16
	13	Competition among local fishers and migrant fishers for same resource and for space	2	2	4
	14	Artisanal /industrial conflicts for net destructions	4	4	16
	15	Limited access to financial resources	4	4	16
National	16	Livelihood problems associated with population increase in coastal communities	4	4	16
	17	Revenue declines as a result of decline in catches and IUU fishing	4	6	24
	18	Limited knowledge on stock status	2	4	8
Ability to achieve					
Governance	19	Lack of political will to enforce fisheries regulations	4	6	24
	20	Inadequate funding to implement and enforce fisheries regulations	4	4	16
	21	Inadequate funding for research and capacity building	4	4	16
	22	Inadequate stakeholder involvement in resource governance	3	3	9
	23	Weak economic equity	4	6	24
	24	High tax rates	2	4	8
Impact of the environment	25	Pollution from petroleum importation and potential oil exploitation	1	2	2
	26	Habitat destructions arising from mining and coastal development	4	4	16
	27	Effect of climatic variations	2	2	4
	28	High rate of inflation in the economy	2	3	6

Central group	Ivory Coast, Ghana, Togo, Benin
Group members:	
Fishery:	The Beach Seine fishery within the West Central Atantic countries
Management objectives	
Global objective:	To support livelihoods, create employment and reduce poverty, whilst sustaining the resource
Broad Objective	Ghana: To suppport livelihoods of fishers for sustainability Benin: Contribute to Food security Togo: Poverty reduction and employment Ivory Coast: Promotion of sustainable management of fishery resource

Category		Issue	Impact	Likel.	Risk Value
Ecological well-being					
Retained species	1	Limited information on stock levels	3	4	12
Engraulis encrasicolus	2	Majority of juveniles caught	3	5	15
Sardinella maderensis	3	Overexploited	3	5	15
Sardinella aurita	4	High fishing pressure	3	5	15
Selene dorsalis					
Ilisha africana					
Chloroscombrus chrysurus					
Brachydeuterus auritus					
P. atlanticus					
P. monodon					
Trichurus lepturus					
Galeoides decadactylus					
Sphyraena spp.					
Scomberomorus spp.					
Caranx spp					
Pseudotholitus spp.					
Non retained species	5	Endangered species, such as turtles, are negatively impacted	1	4	4
General ecosystem	6	Affect average trophic level of the ecosystem and biodiversity	3	3	9
	7	Seine nets distrupt migration to spawning grounds	2	4	8
	8	Jellyfish indicates a possible reduction in trophic level	3	2	6
	9	Destruction of nursery grounds	3	4	12
	10	Have a negative impact on recruitment	4	5	20
	11	Destruction of bottom habitat	2	3	6
Human well-being					
National	12	Conflicts amongst fishermen during fishing operations	1	2	2
	13	Low level of education	4	4	16
	14	No alternative livelihood	4	3	12
	15	High cost of fishing inputs (Nets)	2	4	8
	16	High birth rate	3	4	12
	17	Open access	4	4	16
ABILITY TO ACHIEVE					
Governance	18	Low priority of fisheries sector by Government	2	3	6
		Weak institutional framework for decision making and poor coordination as regards monitoring, control and			
	19	Enforcement	4	6	24
	20	Lack of involvement of stakeholders	2	4	8
Impact on Environment	21	Government policies at conflict with fisheries objectives (e.g. tourism impacts on fishing communities)	4	5	20
	22	Various impacts due to other human activities (e.g. sand Winning, coastal pollution, domestic waste, etc.)			

Southern Group: Nigeria, Cameroun, Congo, Gabon
Group members:
Pêcherie: La pêcherie industrielle crevettière
Objectifs
Objectif global: Amélioration des performances du secteur des pêches pour une maximisation des revenus issus de la crevette
Objectifs spécifiques: Gérer durablement la ressource crevèttiere

		Problèmes	Consequence	Probab.	Valeur du risque
Bien-être écologique:					
Espèces cibles					
Penaeus notialis	1	Insuffisance de connaissances sur les stocks et les habitats	4	6	24
Penaeus monodon	2	Baisse de rendement par unité d'effort	4	4	16
Parapenaeopsis atlantica	3	Non selectivité des engins	4	6	24
	4	Pourcentage élevé des captures accessoires	1	6	6
Sciaenidae					
Haemulidae					
Sphyraenidae					
Cynoglossidae					
Sharks and rays					
Cephalopods					
Lobsters					
Crabs					
Espèces non retenues					
Tortues					
Juvéniles					
Céphalopodes	5	Absence de marché	1	5	5
Ensemble de l'écosystème					
	6	Impact de l'urbanisation dans les zones côtière, destruction des zones de mangrove	1	4	4
	7	Destruction des fonds marins par le chalutage de fond	5	5	25
Bien-être humain					
Communaute locale					
	8	Intrusion des pêcheurs industriels dans la zone interdite au chalutage (destruction des engins de pêche des artisanaux)	2	5	10
	9	Approvisionnement des communautés par les prises accessoires			
	10	Non accessibilité de la crevette dans l'alimentation des communautés locales (prix de la crevette trop élevé pour le niveau local)	1	5	5
Niveau national					
	11	Création d'emploi (direct pour le Congo et le Nigéria, indirect pour le Gabon et le Cameroun)			
	12	Contrainte à l'exportation (la mise aux normes sanitaires et ecolabel)	5	4	20
	13	Apport des devises (forte valeur ajoutée à l'export)			
		La majorité du capital des entreprises de pêche est à dominance étrangère (plus de 60% des capitaux sont gérés à l'extérieur)	4	5	20
Capacité de réalisation					
Gouvernance					
	14	Insuffisance des crédits budgétaires alloués au secteur de la pêche			
	15	L'accès des nationaux au crédit est difficile			
	16	Absence de plan d'aménagement des pêcheries crevettières	4	6	24
	17	Absence de stratégie intégrée de gestion des pêcheries			
	18	Surexploitation des pêcheries crevettières Insuffisance de données (insuffisance de suivi statistique des débarquements)	4	5	20
	19	Faiblesse du cadre réglementaire Non respect de la réglementation Inadéquation des taxes par rapport au profit realisé par les armateurs (taxe sur les licences de pêche (faible)	4	5	20
Effet d'environnement					
	20	Restriction des zones de pêche (activités pétrolières offshore) Pollution (marée noire)	5	6	30