

Report of the

ANNUAL FORUM OF THE EAF-NANSEN PROJECT

**THEME: THE ECOSYSTEM APPROACH TO FISHERIES –
OPPORTUNITIES FOR AFRICA**

Rome, 16 December 2008



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.

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

Report of the
ANNUAL FORUM OF THE EAF-NANSEN PROJECT
THEME: THE ECOSYSTEM APPROACH TO FISHERIES –
OPPORTUNITIES FOR AFRICA

Rome, 16 December 2008

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

All rights reserved. FAO encourages reproduction and dissemination of material in this information product. Non-commercial uses will be authorized free of charge. Reproduction for resale or other commercial purposes, including educational purposes, may incur fees. Applications for permission to reproduce or disseminate FAO copyright materials and all other queries on rights and licences, should be addressed by e-mail to:

copyright@fao.org

or to the

Chief, Publishing Policy and Support Branch
Office of Knowledge Exchange, Research and Extension
FAO, Viale delle Terme di Caracalla, 00153 Rome, Italy

PREPARATION OF THIS DOCUMENT

This is the final report of the First Annual Forum 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)” which was held at FAO headquarters in Rome, Italy, on 16 December 2008 under the theme: **The Ecosystem Approach to Fisheries – Opportunities for Africa**. The project is funded by the Norwegian Agency for Development Cooperation (Norad). The EAF-Nansen project is grateful to all participants of the Forum and the presenters for their valuable inputs and to Dr Johann Augustyn of the Department of Environment Affairs and Tourism, South Africa, who chaired the Forum and also contributed to the preparation of the report.

FAO EAF-Nansen Project/Projet EAF-Nansen.

Report of the Annual Forum of the EAF-Nansen Project. Theme: The Ecosystem Approach to Fisheries – Opportunities for Africa. Rome, 16 December 2008/Rapport du forum annuel du projet EAF-Nansen. Thème: L'approche écosystemique des pêches – Opportunités pour l'Afrique. Rome, 16 décembre 2008.

FAO EAF-Nansen Project Report/FAO, Rapport du Projet EAF-Nansen. No 5. Rome, FAO. 2010. 51p.

ABSTRACT

The first EAF-Nansen project Annual Forum was held at FAO headquarters in Rome, on 16 December 2008 under the theme: **The Ecosystem Approach to Fisheries – Opportunities for Africa**. It was attended by 35 persons made up of national experts, representatives of partner projects, the Institute of Marine Research in Norway, Norad and FAO. The agenda was made up of presentations on the EAF-Nansen project, results of some of the project activities and case studies.

The Annual Forum is for progress reporting, dissemination of experiences, identification of best practices and discussion of strategies. The objectives of the 2008 Forum were to provide the platform to exchange views on the EAF-Nansen project implementation and on proposals for future collaborative activities that will speed up understanding and uptake of the principles of EAF and most importantly its implementation to ensure more effective management of fishery resources in Africa.

The keynote presentation on Global Perspective and Applicability of EAF in Africa made reference to the World Bank/FAO report entitled “The Sunken Billions: The Economic Justification for Fisheries Reform” and highlighted the need for change in fisheries management that involves improving human well-being and equity, applying the precautionary approach, developing adaptive management systems, ensuring compatibility of management measures and broadening stakeholder participation among others.

Other presentations were on the ecosystem surveys conducted by the R/V DR. FRIDTJOF NANSEN in African waters and some of the results obtained, legal aspects of EAF and the development of a Communication Strategy and the GIS component for the EAF-Nansen project. The case studies were from Norway, Australia, Mozambique and the EAF pilot project in the Benguela Current Large Marine Ecosystem area involving Angola, Namibia and South Africa. The opportunities that the EAF-Nansen project offers as building blocks to putting EAF into practice were outlined.

There was an observation that the human dimension aspects of the EAF-Nansen project are relatively weak and the need for greater involvement of economists in the project was highlighted. It was suggested that political support is required to realize the benefits to be gained from implementation of the new management approach.

CONTENTS

1. INTRODUCTION	1
1.1 Opening and background	1
1.2 Objectives of the annual forum	1
2. ECOSYSTEM APPROACH TO FISHERIES – GLOBAL PERSPECTIVES AND APPLICABILITY IN AFRICA	2
3. IMPLEMENTING THE ECOSYSTEM APPROACH TO FISHERIES – CASE STUDIES	4
3.1 The Sofala Bank (Mozambique) Shallow Water Shrimp Fisheries Management Plan (2009–2013)	4
3.2 The Benguela Current Large Marine Ecosystem (BCLME) in the context of EAF... 5	5
3.3 An example of EAF implementation in Australia.....	6
3.4 Management of Norwegian fisheries – towards an ecosystem approach	7
4. THE EAF-NANSEN PROJECT	9
4.1 An overview	9
4.2 Trends and options for EAF implementation in national legislation	10
4.3 Ecosystem surveys in the context of EAF	11
4.4 GIS and EAF: opportunities and challenges	12
4.5 Development of a communication strategy for the project.....	13
4.6 Putting EAF into practice – The building blocks and the EAF-Nansen project	14
5. DISCUSSIONS AND RECOMMENDATIONS	16
6. CLOSING	18

APPENDIXES

1. List of participants.....	19
2. Provisional agenda	22
3. Outputs and activities of the EAF-Nansen Project	23

1. INTRODUCTION

1.1 Opening and background

The first EAF-Nansen project Annual Forum was held at the Lebanon Room, FAO headquarters in Rome, on 16 December 2008 under the theme: **Ecosystem Approach to Fisheries – Opportunities for Africa**. Opening the Forum Dr Kevern Cochrane, Chief of the FAO Fisheries Management and Conservation Service welcomed all participants to Rome and to this first Forum of the project.

The Forum was attended by 35 persons made up of national experts, representatives of partner projects, Institute of Marine Research, the Norwegian Agency for Development Cooperation (Norad) and FAO. The list of participants is shown in Annex A. The agenda (Annex B) was made up of presentations on the project, results of some of the activities, case studies and lessons from outside the Africa region. The Forum was chaired by Dr Johann Augustyn, Chief Director, Research and Development of the Marine and Coastal Management Department of South Africa.

The keynote presentation was on “Ecosystem Approach to Fisheries – Global Perspective and Applicability in Africa”. Participants were informed about the surveys conducted by the R/V DR. FRIDTJOF NANSEN in African waters and the changes that have taken place in the objectives of these surveys; namely from identification of new fishery resources, through assessment to monitoring under an ecosystem approach. The Forum was also appraised with work that has been started on the development of the GIS component of the project and the development of a Communication Strategy for the project.

As shown in the Agenda, seven presentations were made in addition to the four case studies. The full PowerPoint presentations will eventually be placed on the Web site of the EAF-Nansen project. Thus, only summaries are presented in this report.

1.2 Objectives of the annual forum

After the opening the Forum kicked off with a presentation on its objectives. The EAF-Nansen Coordinator who made the presentation pointed out that in spite of the theme, the 2008 Forum was not intended to give an overview of EAF in Africa, nor was it intended to teach participants what to do in its implementation. On the contrary, the Forum was intended to provide participants with the opportunity to see what is possible in implementation of EAF in Africa and the initiatives taken so far in sub-Saharan Africa, to learn about what has been done elsewhere, and be informed about the activities undertaken to date in the EAF-Nansen project.

The 2008 Forum ...

- provides us the opportunity to see what is possible
- provides us the opportunity to listen to what has been done elsewhere
- provides us the opportunity to listen to the potential of EAF in Africa and the initiatives taken so far in Africa
- examines some of the activities carried out under the EAF-Nansen project

According to the EAF-Nansen project document, an Annual Forum is to meet once a year. Members of the Forum will be all project partners involved in implementation of EAF related projects and partner countries of these projects. The Forum is for progress reporting, dissemination of experiences, identification of best practices and discussion of strategies.

In summary, the Coordinator said that the 2008 Forum was to provide the platform to exchange views regarding the “past” of the EAF-Nansen project implementation and on proposals for future collaborative activities that will speed up understanding and uptake of the principles of EAF and most importantly its implementation to ensure more effective management of fishery resources in Africa.

2. ECOSYSTEM APPROACH TO FISHERIES – GLOBAL PERSPECTIVES AND APPLICABILITY IN AFRICA

The keynote presentation was given by Gabriella Bianchi of FAO who started by citing a report recently published by the World Bank and the FAO entitled “The Sunken Billions: The Economic Justification for Fisheries Reform”. The report calculates the lost benefits (as the difference between the potential and actual net benefits) from Fisheries with 2004 as base year. It concluded that the economic losses in marine fisheries which add up to a conservative estimate of about US\$50 billion per year result from poor management, inefficiencies, and overfishing. This does not include losses to recreational fisheries and marine tourism, and does not consider overall loss of goods and services from the marine ecosystem. Taken over the last three decades, these losses total over US\$2 trillion.



Consequently Gabriella re-echoed the need for change in fisheries management that involves:

- Improving human well-being and equity.
- Applying the precautionary approach.
- Developing adaptive management systems.
- Ensuring compatibility of management measures (across jurisdictions).
- Broadening stakeholder participation.
- Using incentives.
- Promoting sectoral integration.
- Improve research to better understand ecosystems in all its components.

She said that conservation and management decisions should be based on the best available knowledge. She said that the use of generic trees as an analytical tool in ecosystem approach to fisheries management enhances consistency of the approach, makes sure that all important features are considered, minimizes “missing issues“ at first pass, and gives good visual description of issues.

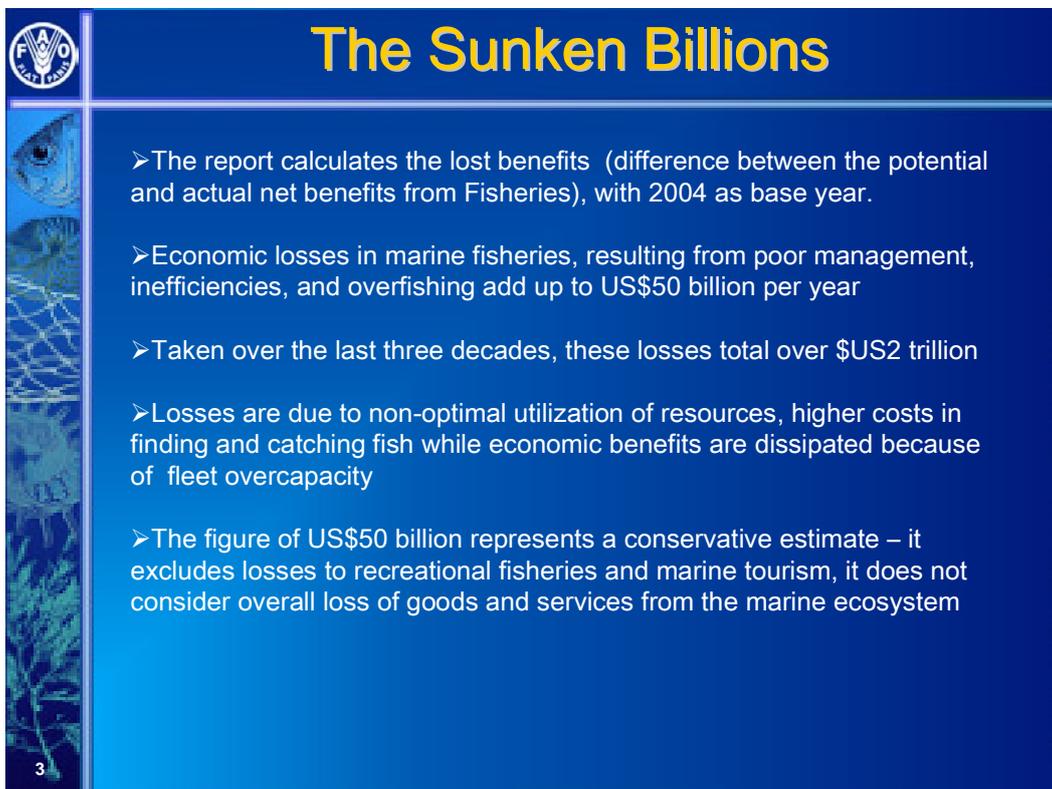
Gabriella also recalled other approaches that have been proposed in the context of sustainable development and management of aquatic ecosystems including:

- Ecosystem-based fisheries management (EBFM)
- Ecosystem-based management (EBM)
- Ecosystem approach (EA)
- Integrated coastal zone (or area) management (ICZM, ICAM)
- Integrated ocean management (IOM)

- Community-based fisheries management (co-management)
- Large Marine Ecosystems (LME)
- Territorial user rights for fisheries (TURFS)
- Marine protected areas (MPAs)
- Sustainable Livelihood Approach (SLA)

Gabriella said that the ecosystem approach to fisheries:

- Takes into account the lessons learnt from conventional management practices.
- Takes into account the advances in science (to consider the broad range of effects of fishing on target, non-target species and habitats, food chain and biodiversity and the environmental effects on fishery resources).
- Responds to increasing public awareness of the negative impacts of fishing on the marine environment and of its poor state.
- Recognizes the wide range of societal interests in marine ecosystems.



The Sunken Billions

- The report calculates the lost benefits (difference between the potential and actual net benefits from Fisheries), with 2004 as base year.
- Economic losses in marine fisheries, resulting from poor management, inefficiencies, and overfishing add up to US\$50 billion per year
- Taken over the last three decades, these losses total over \$US2 trillion
- Losses are due to non-optimal utilization of resources, higher costs in finding and catching fish while economic benefits are dissipated because of fleet overcapacity
- The figure of US\$50 billion represents a conservative estimate – it excludes losses to recreational fisheries and marine tourism, it does not consider overall loss of goods and services from the marine ecosystem

On what is FAO doing in the area of EAF, Dr Bianchi listed the following:

- Development of a toolbox to facilitate implementation
- Documentation of best practices
- Work on the human dimensions (social, economic and institutional considerations)
- Development of spatial tools to facilitate implementation of the EAF (GIS for EAF)
- Assisting member countries with implementation

She listed the challenges as including:

- lack of coherence between economic, social and environmental policies;
- globalization and international trade;
- development of appropriate institutional frameworks across sectors and stakeholders;
- and

- the nature of existing governance systems (transparency and a vision of fairness, equity and sustainability objectives shared among the various stakeholders and within society).

3. IMPLEMENTING THE ECOSYSTEM APPROACH TO FISHERIES – CASE STUDIES

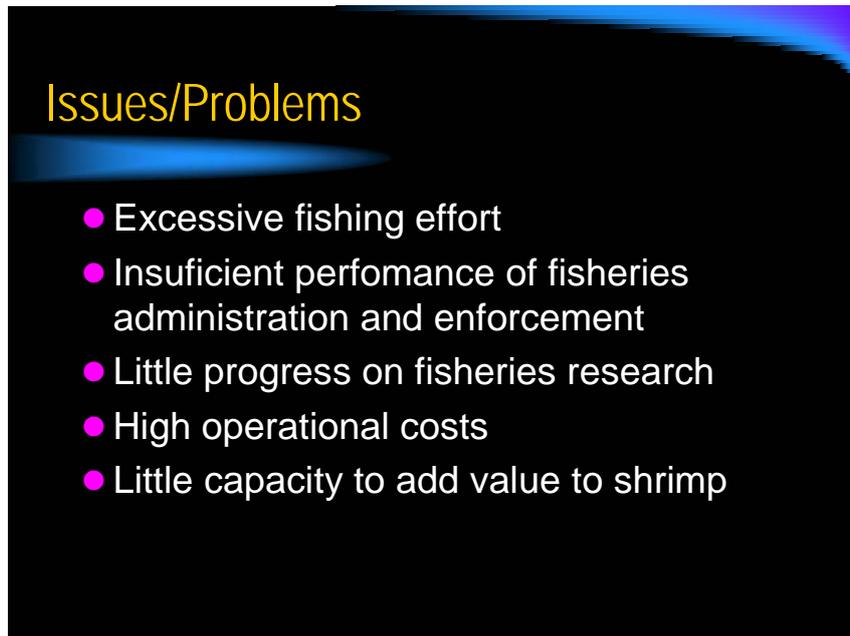
Four case studies were presented on experiences with EAF in Africa and elsewhere and came from Mozambique, the Benguela Current area, Australia and Norway.

3.1 The Sofala Bank (Mozambique) Shallow Water Shrimp Fisheries Management Plan (2009–2013)

Dr Domingos Gove of the National Fisheries Research Institute presented the case study of the development of a management plan for the Sofala bank shallow water shrimp fishery in Mozambique. He gave the rationale for the plan as:

- significant decrease in profits as a result of high fuel prices, low market prices for shrimp, etc., that the fishing industry is facing presently;
- overfishing of shallow water shrimp (need to reduce fishing effort by 40%);
- need to promote development of shallow water shrimp fisheries to maximize economic and social benefits.

The issues being addressed are listed below:



The general objective of the plan is to allocate the global benefit from the fishery (financial, economic and social) to the society to reduce poverty, within a framework of sustainability of the resource, in particular, and the aquatic ecosystem, in general. There are specific objectives in the plan for the industrial, semi-industrial and artisanal fisheries. The plan indicates that before establishing a medium-term management plan, it is necessary that equilibrium in the fishery is restored through reduction of fishing effort, strengthening the capacity of fisheries administration for enforcement, increasing the knowledge on the resource and of the fisheries, and other aspects related to fisheries organization.

3.2 The Benguela Current Large Marine Ecosystem (BCLME) in the context of EAF

Dr Hashali Hamukuaya, Executive Secretary of the Benguela Current Commission (BCC) made a presentation on the EAF pilot programme that was undertaken by the BCLME and the follow-up activities to be undertaken by the Benguela Current Commission. The Global Environment Fund (GEF)-assisted BCLME project covered the three southwestern Africa countries of Angola, Namibia and South Africa. He gave highlights of the achievements of the BCLME programme towards the implementation of EAF and the role of the Benguela Current Commission as a vehicle for the implementation. He noted that one of the key policy actions in the Benguela Current LME Strategic Action Programme is to develop ecosystem approach to fisheries management (EAF). This was done in collaboration with FAO and WWF under the Trans-boundary Fisheries Management component of the project.

Strategic Action Programme Some Key Policy Actions

- **Joint surveys and assessments of shared fish stocks**
- **Develop ecosystem approach to fisheries management (EAF)**
- **Develop early warning system for extreme events**
- **Develop capacity for monitoring harmful algal blooms**
- **Assess impacts of oil and gas / diamond mining**
- **Guidelines of water quality / responsible seabed mining**
- **Assess land based sources of marine pollution**
- **Develop contingency plans (HAB's, oil spills)**
- **Establish regional management structure (BCC)**



Dr Hamukuaya noted that the mandate of the Benguela Current Commission includes making recommendations to governments on ecosystem-based management, transboundary fish stock management and monitoring, control and surveillance (MCS). In conclusion, he informed the Forum that Norway is providing substantial support to implement BCC Science Program for the next five years while Iceland is supporting capacity building. The GEF has agreed in principle to fund implementation of the Strategic Action Programme (SAP) with support to the Commission and its various structures at the regional and national level and, assisting with realignment of policy, legislation and management procedures in support of a more transboundary ecosystem approach to fisheries (EAF).

3.3 An example of EAF implementation in Australia

The case study was presented by Dr Gabriella Bianchi of FAO based on work done by the Australian Fisheries Management Authority (AFMA) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Division of Marine and Atmospheric Research of Australia.

Dr Bianchi said that in Australia, the AFMA is responsible for managing fisheries that fall within the jurisdiction of the Australian Government (fisheries beyond 3 nautical miles of the coast) and fisheries within 3 nm of the coast are generally managed by the relevant State and Territory governments.

Australia embarked on Ecologically Sustainable Development (ESD) across all areas of Government since the early 1990s. This led to the development of legislation (Fisheries Management Act 1991; the Environment Protection and Biodiversity Conservation Act 1999) which require that all federally managed fisheries and coastal fisheries that export must be strategically assessed. Nevertheless, there was a lack of scientific tools to effectively implement the legislation. Consequently, a number of tools were developed including the ecological risk assessment which has been carried out for 31 Commonwealth managed fisheries. Dr Bianchi noted that the Ecological Risk Assessment methodology used by FAO has been adopted from the work done in Australia.

Ecological Risk Assessment

- comprehensive, covering all aspects and components of each fishery
- rigorous and scientifically defensible
- it uses a hierarchical approach to risk assessment, involving three assessment levels;
- this approach is cost and time efficient, screening out lower risks
- cost efficient through making use of existing data and information;
- precautionary in approach
- flexible because it can apply to all types of fisheries
- transparent, with all steps in the process being openly documented
- understandable to stakeholders; and
- informs management responses to assist better decision making.

The main programmes of work included:

- Developing a management process to reduce ecosystem impacts to an acceptable level, both for target stocks and the ecosystem that supports them.
- Undertaking ecological and stock assessments to inform management.
- Putting in place an information and data collection to support the assessments.
- Undertaking education and capacity building to bring the fishing industry and other key stakeholders along in the process.

Gabriella concluded that the ecosystem approach to fisheries is a recommendation at the global level and as such African countries have an obligation to adopt it for implementation. She further acknowledged the assistance that Norad is providing the participating countries in this respect through the EAF-Nansen project and appealed to all countries in the project area to take the opportunity that the project provides them with to achieve the world goals on the implementation of the EAF.

3.4 Management of Norwegian fisheries – towards an ecosystem approach

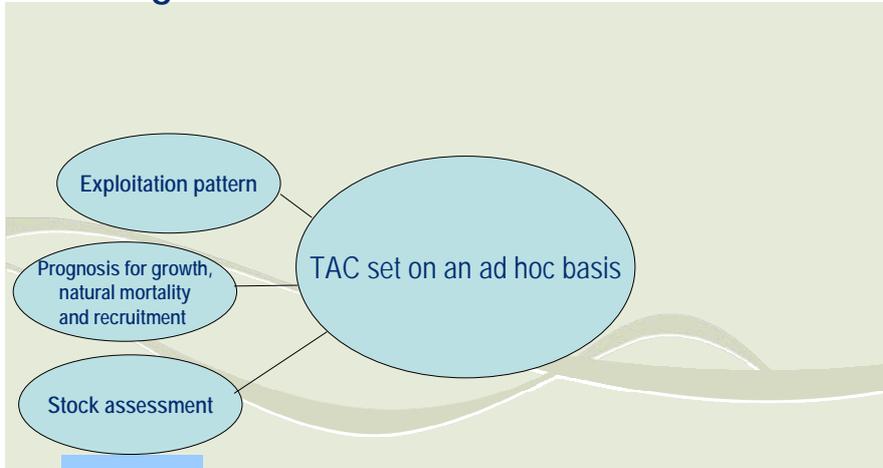
The case study from Norway was presented by Dr Peter Gullestad of the Norwegian Directorate of Fisheries. He started by saying that the Norwegian fisheries management regime consists of four elements – research, regulatory measures, control and sanctions. He traced the trends in catches, number of fishers and catch per fisher over a period of about ninety years (1915–2007).

Dr Gullestad spoke about the programme that put in place measures to improve gear selectivity and exploitation pattern which involved:

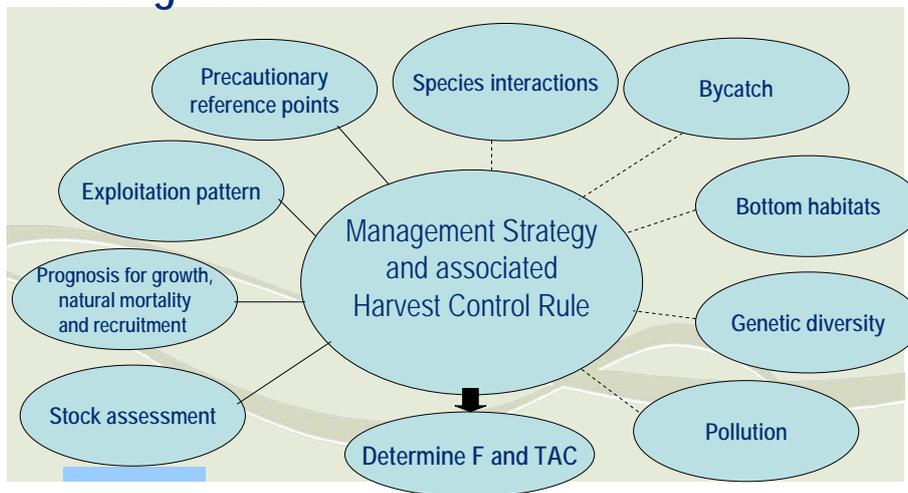
- Increases in mesh size and minimum sizes of fish (1978–1983).
- Programme for real time closures of fishing grounds when the intermixture of small fish is too high (developed since 1984).
- Ban on discards of commercially important species starting with cod and haddock in 1988.
- Development of grid sorting technology – mandatory in shrimp trawl from 1991 and in bottom trawl from 1997.
- Ghost fishing – program for retrieval of lost gill nets started in 1982.

He looked at the strategy that was used to move from single species management to ecosystem-based management and explained the decision rules that were used (depicted below).

From single species to ecosystem based management



From single species to ecosystem based management



Touching on the importance of international cooperation in EAF, Dr Gullestad gave the example of the management strategy for Northeast Arctic Cod as agreed by the Joint Norwegian – Russian Fisheries Commission in 2003. In this agreement, the Parties agreed on a management strategy which emphasises the following elements:

- Aiming at a high, long-term yield from the stock.
- Giving priority to a high degree of stability in total allowable catch (TAC) from one year to another.
- Consecutively utilizing the newest information available on stock development.

Dr Gullestad ended by stating the shift in management philosophy between 1975 and 2008 as “from maximizing short term yield of individual stocks, without an immediate high risk of stock depletion” to “optimizing the long-term economic yield of important stocks (representing 85–95 % of annual first hand value) and at the same time protecting biodiversity, vulnerable habitats and the functioning of ecosystems”. The key message that he left participants with is that it took nearly thirty (30) years for managers and politicians in Norway to identify the problem and its solution.

4. THE EAF-NANSEN PROJECT

4.1 An overview

Dr Kwame Koranteng, the EAF-Nansen Coordinator gave a brief overview of the EAF-Nansen project. He said that the defunct Norad-funded Nansen Programme (NP) which carried out fisheries resources and environment surveys in developing countries in Africa, Asia and Latin America was the genesis of the project. He said that from 1974 the NP carried out surveys using the vessel R/V DR. FRIDTJOF NANSEN operated by the Institute of Marine Research of Bergen, Norway, in partnership with FAO.

He recalled that the international fisheries management agenda has changed dramatically over the past few years with new management approaches developed from concerns that weaknesses in present marine fisheries management practices have generally led to impoverished stocks, dissipation of the resource rent, and increasing conflict between various user and interest groups. Furthermore there is a growing environmental awareness of the wider effects of fishing on the ecosystem, on the one hand, and of the influence of other human activities and of the marine environment on fisheries, on the other.

The Coordinator said that with compelling need to expand fisheries management objectives to include ecosystem considerations, and the FAO Committee on Fisheries’ (COFI) endorsement of EAF as the appropriate framework for fisheries management, the Norad approved the EAF-Nansen project (GCP/INT/003/NOR). The immediate objective of the project is “to provide the fisheries research institutions and management administrations in the participating countries with additional knowledge on their ecosystems for their use in planning and monitoring and, to further the acceptance of the key principles of the EAF”.

The project is executed by the Fisheries Management and Conservation Service (FIMF) of the FAO Fisheries and Aquaculture Department. The project components, major outputs and activities are given in Annex 3.

The Coordinator gave the expected outcome of the project as follows:

- Participating countries will have developed processes and strategies for incorporating ecosystem considerations into fisheries management, and formulated fisheries policies consistent with the EAF principles.
- It is expected that the countries will be in a position to play a leading role within each region and become a reference for other countries as regards the implementation of EAF.
- 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.

4.2 Trends and options for EAF implementation in national legislation

The presentation is on a legal study being undertaken by the project in collaboration with the Development Law Service (LEGN) of FAO. Anniken Skonhøft of LEGN gave the objective of the study as to guide the development or amendment of national legislation relating to EAF and to assist countries to incorporate the EAF concept in relevant national legislations. The findings of the study will also provide feedback to COFI on implementation of EAF in national legislation.

First, Ms Skonhøft gave a brief introduction to the international legal framework of relevance to EAF, including the UN Law of the Sea Convention (LOSC), the UN Fish Stocks Agreement (UNFSA), the Convention on Biological Diversity (CBD), and the FAO Code of Conduct for Responsible Fisheries (CCRF). On implementation of EAF at national level, Ms Skonhøft said that legal instruments for 14 countries have been reviewed. These are Angola, Cameroon, Gabon, Ghana, Kenya, Morocco, Madagascar, Mauritius, Mozambique, Namibia, Senegal, Seychelles, South Africa and Tanzania. The primary source of information for the study is the FAO Legal database, FAOLEX (<http://faolex.fao.org/faolex>) which is an electronic collection of national laws and regulations on food, agriculture and renewable natural resources.

National implementation

- Implementation in national legislation essential
- The challenge: how to make EAF operational
- Identify legislative options and components that will make it operational
- Carry out a legal review of fisheries and sector-specific legal frameworks (aquaculture, water, mining, oil, environmental protection etc.)
- Integrate EAF into existing fisheries management regimes
- Ensure implementation and enforcement

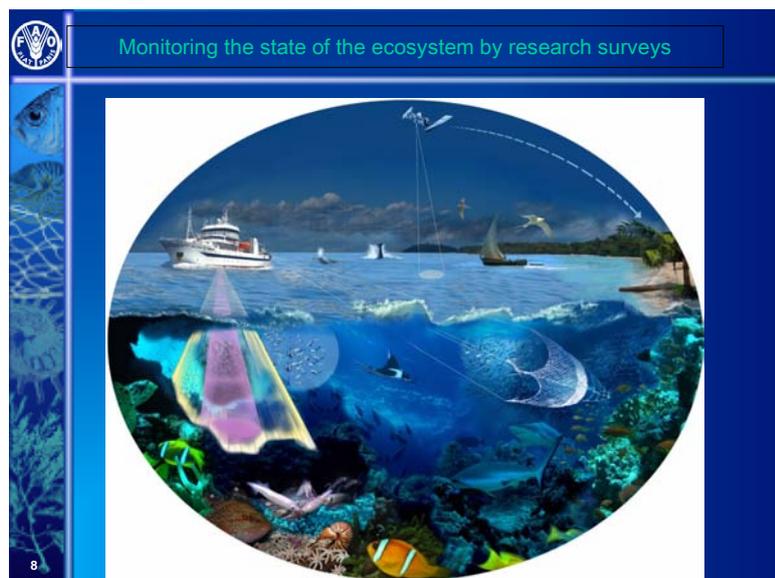
With respect to national implementation, she presented a suite of legislative options and components that can make EAF operational. The first step in EAF implementation would be to carry out a legal review of fisheries and sector-specific legal frameworks (aquaculture, water, mining, oil, environmental protection, etc.). EAF should, however, build on existing fisheries management regimes. She listed the following as some of the legislative components that are important to address in fisheries legislation in order to ensure implementation of the EAF:

- Scope of law and management objectives supportive of EAF.
- An institutional framework with roles and duties clearly defined.
- Provisions promoting international cooperation in the management of shared resources (fish stocks, water bodies).
- Mechanisms for integration and coordination with affected government bodies and participation of relevant stakeholders in decision-making.
- Adoption of management plans.
- Allocation of and access to fisheries resources (TAC, quotas, user rights).
- Fishing gear and methods.
- Spatial and temporal controls on fishing, habitat and species protection.
- Monitoring, surveillance and enforcement.

The report of the study is yet to be finalized but preliminary results show that many good examples of provisions relevant to the implementation of EAF exist in the legislation of the countries in the study, but implementation remains a challenge. However, in many countries a more thorough revision of the legal framework would be required in order to implement EAF.

Ms Skonhøft stressed that the project has very limited funds for providing legal assistance at the country level, but that countries that would like FAO assistance could solicit funds from the regular FAO programme. This would require a formal request from the government.

4.3 Ecosystem surveys in the context of EAF



The presentation was made by Merete Tandstad of FAO and Tore Strømme, Science Coordinator of the EAF-Nansen project. A brief outline of some key EAF principles as well as the EAF framework and methodology was provided, highlighting implications for information requirements with special emphasis on information collected at sea by fishery independent means. The surveys are for the monitoring of the state of the ecosystem, assessment of pelagic fish

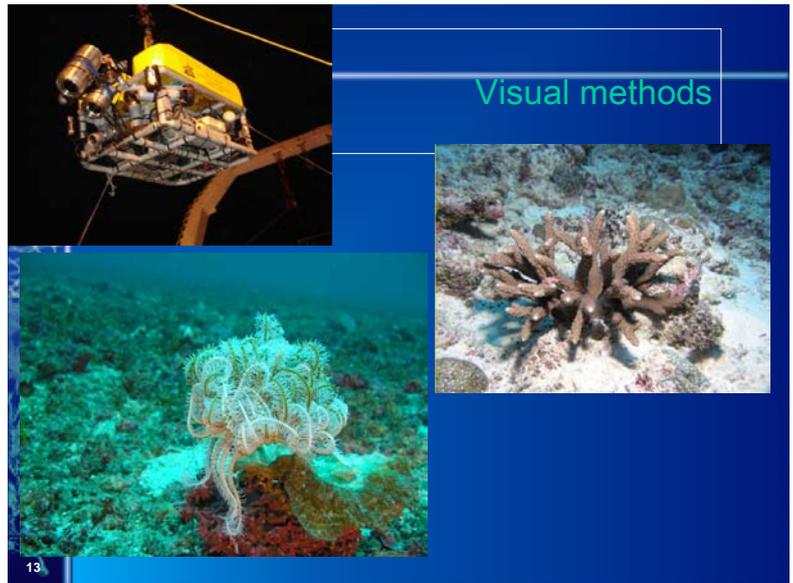
resources by acoustic methods and demersal fish resources by bottom trawls. The methods and equipment used in these surveys were described and/or explained.

Examples of survey results of relevance to EAF were presented, including abundance, time series and distribution of hake stocks in Namibia (1990–99), shared sardinella stocks off Angola-Gabon (2005), sardinella stocks off North West Africa (1995–2006), biomass estimates of sardine stocks south of Cape Bojador (1995–2006) and main events in the Dakhla sardine stocks (1995–2006). The distribution of biomass by length classes for the same period was also presented to demonstrate the dynamics in recruitment and in the more gradual rebuilding of the adult stock after a stock collapse in 2007. It was pointed out that the surveys were able to pick the stock collapse during 1997, the gradual recovery during 1998–2004 and

the strong decline from 2006 while the poor fisheries data from the same period could not detect the same events.

A more in-depth analysis of the survey data indicates that a concentration of the sardine population in shallow waters started in 1995 and peaked in 1996, one year prior to the collapse. The concentration was probably due to a warm water anomaly over several years leaving the sardine to occupy a small upwelling cell close to the coast for an extended period.

The presentation also demonstrated the use of conceptual models in study of life cycles as a tool to sum up the knowledge derived from marine surveys.



4.4 GIS and EAF: opportunities and challenges

Mr Fabio Carocci of FAO handled this agenda item. He noted that the FAO Fisheries and Aquaculture Department has developed a wide range of experience on GIS in fisheries and aquaculture which, although not developed specifically for EAF, are of relevance either directly or indirectly to EAF and the EAF-Nansen Project.

Mr Carocci listed the main thematic areas for marine fisheries GIS as including:

- habitat mapping, e.g. for sediments, morphology, depth, benthos, etc.;
- species distribution and abundance;
- fisheries oceanographic modelling, e.g. explaining relationships between fish and their environment;
- fishing activities; and
- fisheries management, e.g. location of Marine Protected Areas (MPA), ocean zoning, allocation of quotas by areas.

It was noted that GIS could support the various steps of the EAF implementation cycle (see section 2.6) as follows:

- scoping – e.g., mapping regulations, species habitat and distribution, fishing activities, human pressures, etc.;
- setting operational objectives – e.g. mapping ecosystem services and indicators;
- formulation of rules – e.g. mapping human activities-resources interactions, assessing management measures and their impact etc such as e.g. generating options for locating MPAs; and
- monitoring, review and assessment – e.g. visualizing new data and models, promoting and communicating objectives and results.

Mr Carocci informed the participants about the expert meeting on GIS for EAF that was held in Rome in September/October 2008. The meeting concluded that:

- The data collected in EAF-Nansen project activities, especially the ecosystem surveys, will serve as the basis for case studies to explore the use of GIS and spatial analysis in support to EAF.
- A step-by-step approach was recommended to develop a spatial analytical management tool based on the data collected by the EAF-Nansen project and expanding to other tools and datasets.

This tool should be further developed to include also socio-economic factors. Eventually the tool will:

- identify common issues in different areas and find existing patterns to identify best strategies;
- be flexible to allow working in different architecture (i.e. laptop vs. network);
- address poor data situations, raise awareness, and assist in communicating objectives and results.

4.5 Development of a communication strategy for the project

In her presentation for this Agenda item, Ms Nicoletta DeAngelis of FAO made the observation that communication is a major component of a successful project. She noted that it is important to communicate information about the project in a consistent way hence a communication strategy for the project should clearly define the specific objectives that need to be achieved and should include a clear understanding of the needs of the stakeholder communities.

She gave the Goal of the communication strategy as “To market the EAF-Nansen project as widely as possible to ensure that all intended beneficiaries and stakeholders understand the project, its objectives and expected outcomes”. The objectives are as follows:

- To increase the awareness on the importance of the EAF application in promoting responsible fisheries and sustainable use of marine ecosystems.
- To raise public awareness and understanding of the EAF-Nansen project during its implementation.
- To create synergies and develop collaborations among research institutions, fisheries management administrations and other key stakeholders on EAF.
- To ensure information flow within project components and partners.

Identification of the Target Audiences

The target audiences are the groups or individuals at the local, regional, national, or international level with whom we need to collaborate and share information

- ◆ National, Regional and Local Government officials, IGOs
- ◆ Research Institutes, Teaching and training institutions
- ◆ Fisheries Industry, Fishing Companies, Artisanal Fishermen, Local communities
- ◆ Regional Fisheries Organisations
- ◆ Environmental and conservation non-governmental organisations (NGOs)
- ◆ Media
- ◆ Funding agencies
- ◆ General Public



Ms De Angelis informed the Forum that the development of the Communication Strategy is being done through a participatory process whereby an enquiry was sent to all partners and people who have participated in EAF-Nansen project workshops to ask their views, thoughts and ideas on how best to communicate the principles and implementation of EAF to scientists and decision makers. She said that FAO received very good information and suggestions from the respondents and that these have helped in the development of a draft strategy. The draft strategy clearly identifies the target audience, the key messages to deliver and the communication channels and tools to use in the delivery. The key messages are on management of fisheries, on fish stocks and the marine environment and the perception and attitudes of stakeholders. Also identified are communication channels, tools and methods of delivery (print document, website/list server, meetings and workshops, video, audio and theatre).

She noted that the strategy would be finalized by the end of January 2009 and will include an action plan which will summarise the products (outputs) to develop and by who (FAO, partner projects and countries) and the anticipated costs.

4.6 Putting EAF into practice – The building blocks and the EAF-Nansen project

The EAF-Nansen project Coordinator made a short presentation on the building blocks of EAF as an introduction to some of the other activities being carried out under the EAF-Nansen project. He said that the main purpose of EAF is to plan, develop and manage fisheries in a manner that addresses the multiple needs and desires of societies, without jeopardizing the options for future generations to benefit from the full range of goods and services provided by marine ecosystems.

The Coordinator recalled Principle 11 of the CBD which states that “the ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices”. Principle 12 also states that “the ecosystem approach should involve all relevant sectors of society and scientific disciplines”.

He said that EAF seeks to address both ecological (conserving the structure, diversity and functioning of ecosystems) well-being and human (satisfying societal and human needs for food and economic benefits) well-being and that to implement EAF it is necessary to translate the principles into operational objectives and actions. The steps are as follows:

- identify broad objectives relevant to the fishery (or area) in question;

- break these objectives down into smaller priority issues and sub-issues that can be addressed by management measures;
- set operational objectives;
- develop indicators and reference points;
- develop decision rules on how the management measures are to be applied; and
- monitor and evaluate performance.

- EAF seeks to address both ecological and human well-being
 - ecosystem management aims at conserving the structure, diversity and functioning of ecosystems through management actions that focus on the biophysical components of ecosystems (e.g. introduction of protected areas).
 - fisheries management, aims at satisfying societal and human needs for food and economic benefits through management actions that focus on the fishing activity and the target resource.



The Coordinator noted that the EAF-Nansen project is facilitating these through the various activities of the project. He gave examples of the activities under each step. For identification of broad objectives relevant to the fishery and breakdown into smaller priority issues and sub-issues the results of the familiarization workshops in Accra (September 2007), Casablanca (July 2008) and Durban (June 2008) and the Ecological Risk Assessment workshop in Freetown were noted. Related to this and in respect of relevant national policy to support implementation is the legal study being undertaken by the FAO Legal Office (LEGN) (see section 4.2).

On development of indicators and reference points mention was made of the work on the development of EAF Baseline reports (EAF-BLR, ex-TROM reviews). Participants were reminded that the EAF-BLR is an agreed baseline for the fishery before introducing EAF in the management of the resource in question. It is a reference material for EAF planning and should provide reference points for monitoring and evaluation of EAF activities and management actions.

Also cited is the expert meeting on indicators for EAF to be held in Rome in March 2009. The objectives of the expert meetings were given as to:

- identify suitable indicators for fisheries management, as required for the application of EAF;

- discuss the properties of these indicators such as relevance in relation to main subsets of management objectives, data availability, practicality, etc.
- provide advice on methodologies for deriving indicators and on methodologies for integration/aggregation and visualization of indicators.

The work on indicators, development of a Toolkit for EAF, and work of the Regional and National Task Groups are linked to the development of decision rules on how the management measures are to be applied. The RTGs, for example, are to propose suitable incentive measures to achieve EAF at the regional level, the barriers to implementation and appropriate means to overcome them.

The Coordinator added that additional data and information on the ecosystems are being collected through the R/V DR. FRIDTJOF NANSEN surveys (see section 4.3).

5. DISCUSSIONS AND RECOMMENDATIONS

After the presentations, participants asked questions that either sought for clarification of issues raised in the presentations or for advice on how to handle certain EAF-related issues back in their countries. Many participants expressed the desire to get a copy of the *Sunken Billions* report that had been referred to during the meeting. They were directed to the Web sites of FAO and The World Bank.

On the legal study (2.4) a participant wanted to know how EAF can be incorporated in national fisheries Policy or Act, especially Policies or Acts that have recently been revised or written and that do not take EAF into consideration. The response was that although putting in place a holistic EAF framework requires legal review, in many countries much can be achieved through amending existing laws or through addendums. For countries with conflicting sectoral policies, however, systematic and comprehensive reforms may be necessary. It was noted that there has to be political will to implement the EAF and that the required amount of change in national legislation to do this, depends on how ambitious the country wants to be.

On implementation of legislations developed at a regional level, as presented in the case study from the Benguela Current Commission (BCC), it was clarified that such legislations need to be incorporated in national legislation to be binding. The Forum was informed that the Benguela Current Commission (BCC) assists countries in this aspect and has a budgetary provision for this. The participants from Cameroon, Kenya, Madagascar, Morocco, Senegal and Sierra Leone informed the Forum about initiatives in their countries that could be relevant for this process. In Sierra Leone for example, an EU-funded capacity building project is assisting the country to review its fisheries policy and legislation. Stakeholder consultations have already taken place and two national forums have been held. The Kenyan parliament has just approved a new fisheries policy for the country. This paves the way for the revision of the fisheries act and it would be appropriate to take EAF into consideration from start and the Kenyan delegation asked for FAO's support with this.

It was generally accepted that it would be difficult to put EAF in place without the appropriate legal framework. However, since many countries recently revised their laws to be in line with the FAO Code of Conduct for Responsible Fisheries (CCRF) it may be difficult to get them to change again in a foreseeable future. The Forum was informed that FAO assisted about 100 countries to revise their laws to be in tune with the CCRF. Anniken Skonhøft of FAO-LEGN informed the participants that it is possible to ask for legal support from FAO's regular programme for such a review.

The recommendations arising from the presentation on the legal study were:

- The project has to contact the countries to ask what they are doing now in terms of legal issues on fisheries.
- The project needs to find out which countries are contemplating or undertaking policy/legislation changes and engage with them with a view to bringing the new instruments in line with EAF and ensuring regional harmonization of such relevant legislations.
- Countries should look at environment laws that can be adapted and used for EAF.
- Fisheries departments could partner with environment departments to change environment laws as necessary for the application of the EAF (this may be an easier option).
- Use regional/international instruments as the backing and reason to argue for a change of national legislation.

The negative impact of industrial shrimping on biodiversity, especially the high incidence of bycatch, was raised by a participant who also wanted to know how gear selection is being taken into account in the management plan for the Sofala Bank shrimp fishery. Responding, Dr Gove said that this is being addressed and the use of turtle excluder device (TED) in shrimp trawls will be mandatory from 2009.

The Forum was informed that the EAF-Nansen project has started discussions with the Mozambican authorities to explore the possibility of the project getting more involved in the finalisation of the shrimp fishery management plan and the development of other management plans.

On surveys with R/V DR. FRIDTJOF NANSEN, the uncertainty surrounding the surveys in the Guinea Current Large Marine Ecosystem (GCLME) area due to the decline in activities of the GCLME project was raised. The EAF-Nansen Coordinator informed the Forum that the GCLME project is back on implementation and that at a recent meeting with the Officer-in-charge of the GCLME there has been an agreement to collaborate with the EAF-Nansen project in most of their fisheries-related activities. The EAF-Nansen project will partner with the GCLME project in a workshop for the judiciary on harmonisation of fisheries legislation in the GCLME region, on the application of GIS in the mapping of spawning areas and in the workshop on Ecopath with Ecosim. The GCLME project is also planning a legal review for fisheries; this activity would complement the study carried out under the EAF-Nansen project.

Clarification was sought about the composition and terms of reference of the EAF Task Groups. The Forum was informed that the Regional Task Groups (RTGs) will be a forum for learning and exchange of ideas and advice in relation to EAF in a given region. The National Task Groups (NTGs) will be responsible for overall coordination of in-country activities of the project. Draft terms of reference of the RTGs and NTGs have been prepared and were discussed at the Gulf of Guinea RTG meeting held in Freetown in October 2008. Participants recommended that FAO comes up clearly with required profile of persons to be included in these groups.

There was an observation that the human dimension aspects of the project are relatively weak. It was suggested that it would be good to know the cost of implementation of the EAF, as well as an assessment of the political support and the benefits to be gained from

implementation of the new management approach. It was noted that all these require greater involvement of economist in the EAF-Nansen project.

Responding to a question on the areas of immediate use of GIS in the EAF-Nansen project, with special reference to the information available in to the Nansis, Mr Carocci said that developing a GIS application for EAF in the Nansis system will require:

- incorporation of the environmental data collected during the surveys including benthos and plankton data;
- more advanced query systems, including spatial queries;
- development of spatial analytical tools, including analysis of the interactions between environmental and biological parameters; and
- development of spatial tools in support of decision-makers as more advanced mapping outputs, reports, time series analysis, etc.

Communication and outreach is an important part of the EAF-Nansen project. Generally, the participants were happy with the work on the Communication Strategy as presented at the Annual Forum but a point was made to the effect that the draft strategy does not cater for bottom-up communications, especially from stakeholders (particularly fishers and fisher's associations) to FAO through the national set up. The Coordinator agreed with this observation and promised to have it addressed.

It was suggested that a real political support is required and that it is important to effectively market the benefits of adopting the approach.

6. CLOSING

The chairman brought discussions to a close when no more questions were coming forward. He thanked the participants for their contribution and patience for a long day's work.

The EAF-Nansen Coordinator thanked all who had made presentation and indicated that the project management had learnt lessons from the Forum. He informed the participants that the next Forum will be held in the project area in Africa and expressed the hope that we would have more lessons to share from implementation of the project at national level. He said that because of this the next Forum would be for more than a day. He wished all participants safe journey back home and promised to send the report of the meeting as soon as possible.

APPENDIX 1

LIST OF PARTICIPANTS

- Amaral, Carlos A.
 Alternate Permanent Representative to FAO
 Embassy of the Republic of Angola
 Via Druso 39
 00184 Rome, Italy
 Tel.: +39 06 77254299
 E-mail: carlosamaral@tiscalinet.it
- Augustyn, Johann
 Chief Director
 Research Antarctica and Islands Branch
 Department of Environmental Affairs
 and Tourism
 Marine and Coastal Management
 Private Bag X2, Rogge Bay 8012
 Cape Town, South Africa
 Tel.: +27 082 829 3911
 E-mail: augustyn@deat.gov.za
- Bencherifi, Salah
 Chef
 Département des ressources halieutiques
 Institut national de recherches halieutiques
 (INRH)
 2 rue Tiznit
 20000 Casablanca, Morocco
 Tel.: +212 (0)22 22 02 45
 Fax: +212 (0)22 26 88 57
 Mob.: +212 61 22 28 44
 E-mail: benchrifi@inrh.org.ma
 bencherifis@yahoo.fr
- Bjordal, Asmund
 Director
 Centre for Development Cooperation in
 Fisheries (CDCF)
 Institute of Marine Research
 PO Box 1870 Nordnes
 N-5817 Bergen, Norway
 Tel.: +47 55 23 86 90
 Mob.: +47 90 69 67 01
 E-mail: aasmund.bjordal@imr.no
- Eriksen, Jan
 Senior Adviser
 Private Sector Development and
 Environment Department, NUMI
 Ruseløkkeveien 26
 Postboks 8034 Dep
 0030 Oslo, Norway
 Tel.: +47 22 24 20 30
 E-mail: Jan.Eriksen@norad.no
- Garcia, Serge
 Via Perdasdefogu, 14
 00050 Aranova
 Roma, Italy
 Tel.: +39 06 61705228
 Mob.: +39 3348531223
 E-mail: garcia.sergemichel@gmail.com
- Gove, Domingos
 Mozambique National Fisheries Research
 Director (IIP)
 Caixa Postal 4603
 Maputo, Mozambique
 Tel.: +258 82-3075280
 E-mail: domingosgove@moziip.org
- Gullestad, Peter
 Senior Advisor
 Resource Management Department
 Directorate of Fisheries
 Bergen, Norway
 E-mail: pegul@fiskeridir.no
- Hamukuaya, Hashali
 Executive Secretary
 Benguela Current Commission
 Feld Street No. 47
 Windhoek, Namibia
 Tel.: +264-61-246948
 E-mail: hashali@benguelacc.org
- Imende, Susan
 Ministry of Fisheries Development
 PO Box 58187
 Nairobi, Kenya
 Tel.: +254 722827208
 E-mail: susanimende@yahoo.com

Katonda, Kaitira
Interim Regional Executive Secretary
South West Indian Ocean Fisheries Project
c/o Kenya Marine & Fisheries Research
Institute
PO Box 81651-80100
Mombasa, Kenya.
Tel.: +254 20 8023924
E-mail: kikatonda@yahoo.co.uk

Kazungu, Johnson M.
Director
Kenya Marine & Fisheries Research
Institute (KMFR),
PO Box 81651-80100,
Mombasa, Kenya.
Tel.: +254 20 8023924
E-mail: jkazungu@kmfri.co.ke

Ngoande, Salvador
Sous-Directeur de la pêche industrielle et
artisanale
Ministère de l'élevage, des pêches et des
industries animales
Direction des pêches et de l'aquaculture
Yaoundé, Cameroon
Tel.: +237 22316049
Mob: +237 9999 04 72
E-mail: sango_cam@yahoo.fr

Ntiba, Micheni
Permanent Secretary
Ministry of Fisheries Development
PO Box 58187
Nairobi, Kenya
Tel.: +254 733724710
E-mail: mjntiba@uonbi.ac.ke

Ould Souelim, Mohamed M'bareck
Directeur
Direction de l'aménagement des ressources
et de l'océanographique
Ministère des pêches et de l'économie
maritime (DARO)
Nouakchott, Mauritania
Tel.: +222 2421068
+222 6360131
E-mail: mbarecks@yahoo.fr

Quaatey, Samuel
Deputy Director of Fisheries
Marine Fisheries Research Division
Ministry of Fisheries
PO Box: BT 62
Tema, Ghana
Tel.: +233 22202346/208163412
E-mail: samquaatey@yahoo.com

Ramanantsoa, Mamy
DG Fisheries and Halieutics Resources
B.P. 1699
101 Antananarivo, Madagascar
Tel.: +261 202240652
+261 320248421
E-mail: ram_mamy1@yahoo.fr

Samb, Birane
Centre de recherches océanographiques
de Dakar-Thiaroye (CRODT)
PO Box 2241
Dakar, Senegal
Tel.: +221 33 832 8265
E-mail: bsambe@yahoo.fr

Turay, Ibrahima
Senior Fisheries Officer (Research)
Ministry of Fisheries and Marine Resources
Freetown, Sierra Leone
Tel.: +232 33454196
+ 232 22235135
E-mail: ibtee1264@yahoo.com

Vaz Velho, Filomena de Fátima
National Institute of Fisheries Research
(INIP), Ministry of Fisheries
Rua Murla Mohamed
2601 Ilha de Cabo, Angola
Tel.: +244 222 309405
E-mail: Filomenavelho@yahoo.com

FAO

Bianchi, Gabriella
Senior Fishery Resources Officer
Fisheries Management and Conservation
Service
Fisheries and Aquaculture Department
Rome, Italy
Tel.: +39 06570 53094
E-mail: Gabriella.Bianchi@fao.org

Carocci, Fabio
 Fishery Information Assistant
 Fisheries Management and Conservation
 Service
 Fisheries and Aquaculture Department
 Rome, Italy
 Tel.: +39 06570 55176
 E-mail: Fabio.Carocci@fao.org

Cochrane, Kevern
 Chief
 Fisheries Management and Conservation
 Service
 Fisheries and Aquaculture Department
 Rome, Italy
 Tel.: +39 06570 56109
 E-mail: Kevern.Cochrane@fao.org

De Angelis, Nicoletta
 Scientific Reviser
 Fisheries Management and Conservation
 Service
 Fisheries and Aquaculture Department
 Rome, Italy
 Tel.: +39 06570 56759
 E-mail: Nicoletta.DeAngelis@fao.org

Gueye, Ndiaga
 Chief
 International Institutions and Liaison
 Service
 Fisheries and Aquaculture Department
 Rome, Italy
 Tel.: +39 06570 52847
 E-mail: Ndiaga.Gueye@fao.org

Gumy, Angel
 Senior Fishery Planning Officer
 Development and Planning Service
 Fisheries and Aquaculture Department
 Rome, Italy
 Tel.: (390) 06570 56171
 E-mail: angel.gumy@fao.org

Harris, Aubrey
 Senior Fisheries Officer
 FAO Subregional Office for
 Southern Africa
 PO Box 3730
 Harare, Zimbabwe
 Tel.: +263 4 253655, 253657
 E-mail: aubrey.harris@fao.org

Koranteng, Kwame
 EAF-Nansen Coordinator
 Fisheries Management and Conservation
 Service
 Fisheries and Aquaculture Department
 Rome, Italy
 Tel.: +39 06570 56007
 E-mail: Kwame.Koranteng@fao.org

Skonhøft, Anniken
 Development Law Service
 Legal Office
 Rome, Italy
 Tel.: +39 06570 56897
 E-mail: Anniken.Skonhøft@fao.org

Strømme, Tore
 IMR (Institute of Marine Research)
 Project Coordinator
 Fisheries Management and Conservation
 Service
 Fisheries and Aquaculture Department
 Rome, Italy
 Tel.: +39 06570 54735
 E-mail: Tore.Stromme@fao.org
 tore.stroemme@imr.no

Tandstad, Merete
 Fishery Resources Officer
 Fisheries Management and Conservation
 Service
 Fisheries and Aquaculture Department
 Rome, Italy
 Tel.: +39 06570 52019
 E-mail: Merete.Tandstad@fao.org

APPENDIX 2

PROVISIONAL AGENDA

		Chair: Dr. Johann Augustyn
<i>Morning</i> 9.00–10.30	<p>Introduction</p> <ul style="list-style-type: none"> ○ Welcome ○ Agenda <p>Forum objectives</p> <p>The EAF-Nansen project</p> <p>Ecosystem Approach to Fisheries – Global Perspective and Applicability in Africa</p> <p>Discussions</p>	<p>Kevern Cochrane</p> <p>Kwame Koranteng</p> <p>Kwame Koranteng</p> <p>Gabriella Bianchi</p> <p>All</p>
10.30–11.00	Coffee Break	
11.00–13.00	<p>Trends and options for EAF implementation in national legislation</p> <p>Case studies</p> <ul style="list-style-type: none"> • Mozambique • Benguela • Australia • Norway <p>Discussions</p>	<p>Anniken Skonhoft</p> <p>Domingos Gove Hashali Hamukuaya</p> <p>Gabriella Bianchi Peter Gullestad</p>
13.00 – 14.00	Lunch	Chair: Dr Magnus Ngoile
<i>Afternoon</i> 14.00–15.30	<p>Putting EAF into Practice</p> <ul style="list-style-type: none"> • EAF – the Building Blocks • Ecosystem surveys in the context of EAF • GIS for EAF <p>General Discussion</p>	<p>Kwame Koranteng Tore Strømme/ Merete Tandstad</p> <p>Fabio Carocci</p>
15.30–16.00	Coffee Break	
16.00–18.00	<p>Communication</p> <p>Discussions, Recommendations and Wrap up</p>	<p>Nicoletta De Angelis/ Kwame Koranteng</p> <p>All</p>

APPENDIX 3

OUTPUTS AND ACTIVITIES OF THE EAF-NANSEN PROJECT

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

- Activity 1.1 Review available international instruments relevant to EAF and preparation of overview document as a guide to the development of country and regional policy
- Activity 1.2 Integration of EAF considerations into policy-making in selected partner countries through stakeholder consultations/Workshops
- Activity 1.3 Support for the development of policy documents consistent with EAF in selected partner countries

Output 2. Revised management plans that include EAF considerations developed

- Activity 2.1 Desk studies on main fisheries, including their socio-economic significance
- Activity 2.2 Workshops to identify EAF issues in main fisheries at national level (two Workshops each case)
- Activity 2.3 Risk analysis Workshops to prioritize issues and to develop operational objectives for these
- Activity 2.4 Analysis of management options to incorporate ecosystem considerations in fisheries management
- Activity 2.5 Assistance to revise management plans

Output 3. Procedures and methods for assessment and monitoring of key ecosystem properties established, (development of standardized data collections, sampling methods, appropriate scientific indicators)

- Activity 3.1 Standardization of data collection and reporting; development of data storage routines and analytical tools such as statistical modules, modules for spatial analysis (GIS approach) and time series analysis
- Activity 3.2 In close collaboration with other partners the organization of resources and ecosystem surveys using the R/V DR. FRIDTJOF NANSEN including onboard training
- Activity 3.3 Organization of Workshops on survey data analysis
- Activity 3.4 Establishment and/or strengthening of regional and international scientific working groups (inclusion of ecosystem considerations in WGs)
- Activity 3.5 Development of scientific indicators for ecosystem monitoring
- Activity 3.6 Identification of socio-economic indicators

Output 4. Increased capacity at scientific and management level in partner countries on EAF approaches

Activity 4.1 Training of personnel in fishery research institutes on methods that are appropriate to EAF, providing on site and on-vessel training

Activity 4.2 Training fisheries managers to include EAF considerations in the management process including in participatory methods

Activity 4.3 Building institutional capacity to develop information technology, distribution of data archives, emerging methodologies and an expanded knowledge base, etc., in furtherance of an EAF

Activity 4.4 Support to study tours in specific disciplines

Activity 4.5 Fellowships

Activity 4.6 Training Programme in key areas of EAF

Activity 4.7 Training programs for the continuation of vessel related activities beyond the life of the project

Output 5. Advice on use of national or regional vessels for research including coordinated regional coverage by local or other vessels

Activity 5.1 As and when necessary, provide on request, technical support for the running of acoustic instruments on local research vessels including training of national personnel

Activity 5.2 Provide technical assistance to local institutions in carrying out coordinated regional surveys using local research vessels (including on the job training of national personnel)

Activity 5.3 Coordinate regional surveys and related targeted research by local and international research vessels as well as other related research, through the establishment of planning groups in the 4 sub-Saharan African LME regions including the planning of the intercalibration between the R/V DR. FRIDTJOF NANSEN and local research vessels

Output 6. Project planning and dissemination of information

Activity 6.1 Organization of an Annual Forum

Activity 6.2 Organization of steering committees to assess the project progress, and formulate recommendations regarding requirements and priorities

Activity 6.3 Development of a project Web site

Activity 6.4 Development of Project information brochures and other means of communication

Activity 6.5 Broad dissemination of lessons learned through participation in other national, regional, and international fora/symposia as well as through sharing of project results, technical reports, and training material

Activity 6.6 Drawing on the FAO Technical Guidelines related to the Ecosystem Approach to Fisheries (FAO 2003) and experience gained, prepare field guidelines for implementation of EAF in developing countries (in English, French, and Portuguese)