



منظمة الأغذية  
والزراعة  
للأمم المتحدة

联合国  
粮食及  
农业组织

Food  
and  
Agriculture  
Organization  
of  
the  
United  
Nations

Organisation  
des  
Nations  
Unies  
pour  
l'alimentation  
et  
l'agriculture

Продовольственная и  
сельскохозяйственная  
организация  
Объединенных  
Наций

Organización  
de las  
Naciones  
Unidas  
para la  
Agricultura  
y la  
Alimentación

## COMMITTEE ON FISHERIES

### SUB-COMMITTEE ON AQUACULTURE

#### Fourth Session

Puerto Varas, Chile, 6 - 10 October 2008

### THE FAO FISHERIES AND AQUACULTURE DEPARTMENT'S EFFORTS TOWARDS IMPLEMENTING THE RECOMMENDATIONS AND PRIORITY AREAS IDENTIFIED BY THE THIRD SESSION OF THE COFI SUB-COMMITTEE ON AQUACULTURE

#### SUMMARY

This document contains a brief overview of the efforts made by the FAO Fisheries and Aquaculture Department, towards implementing the recommendations of the Third Session of the Sub-Committee on Aquaculture of the Committee of Fisheries, which was held in New Delhi, India from 4-8 September 2006.

#### INTRODUCTION

1. The third Session of the Sub-Committee on Aquaculture of the Committee on Fisheries (hereafter referred to as the Sub-Committee), was held in New Delhi, India from 4-8 September 2006, at the invitation of the Government of India. The report of the Third Session is provided as an information document, COFI/AQ/IV/2008/Inf.5<sup>1</sup>.

#### MAJOR RECOMMENDATIONS AND SUGGESTIONS OF THE SUB-COMMITTEE

2. On the basis of thorough discussion, facilitated by the technical documentation provided by the Secretariat, the Sub-Committee made a number of suggestions, comments and recommendations, towards achieving the full potential of aquaculture for national, regional and global food security, poverty alleviation and human development. The Sub-Committee identified several priority areas for future work by the Department of

<sup>1</sup> FAO. 2007. Committee on Fisheries. *Report of the third session of the Sub-Committee*. New Delhi, India 4-8 September 2006. FAO Fisheries Report. No. 816. FAO, Rome, 85p.

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Fisheries and Aquaculture (hereafter referred to as the Department). Details are provided in the Sub-Committee report COFI:AQ/IV/2008/Inf.5

3. **Issues arising from the implementation of the recommendations of the Second Session of the Sub-Committee**, the following points have been taken into consideration:
  - promotion of commercial aquaculture at all scales with particular effort to organize a meeting/conference on commercial aquaculture in Africa<sup>2</sup>;
  - continuing work towards the development of regional aquaculture networks with particular emphasis on Africa and the Americas;
  - continuing efforts to manage the use of alien species in aquaculture in a safe but flexible way; appreciation of the work carried out by FAO in developing both National Aquaculture Legislation Overviews (NALOs) and National Aquaculture Sector Overviews (NASOs).
4. **Based on progress on the implementation of the aquaculture related provisions of the Code of Conduct for Responsible Fisheries (CCRF)**, the following recommendations were made:
  - address the following issues under the overall umbrella of the CCRF: (i) introduction and culture of alien and/or genetically altered organisms; (ii) competition and potential conflicts between aquaculture and other users of aquatic resources; (iii) food safety and aquatic animal health; (iv) environmental sustainability and ecosystem approach to aquaculture; (v) risk assessment of aquaculture; (vi) stock enhancement; and (vii) education and training; and
  - organize an Expert Consultation to discuss recommendations regarding the development of harmonized shrimp farming standards and review certification procedures for global acceptance and transparency.
5. **Towards improving information on the status and trends in aquaculture development**, the following points have been taken into consideration:
  - recognition of the importance of developing national and international procedures for data handling, which should be consistent for easy comparison and interpretation, as well as methods for measuring major trends;
  - endorsement of the concept of establishing a Coordinating Working Party on Aquaculture Statistics to provide advice on matters related to information on aquaculture and to facilitate the establishment of standardized concepts, methodologies and software for use in data collections;
  - request for FAO to continue its quest on improving the annual questionnaire on aquaculture production, FishStat AQ, particularly looking towards enhancing its ease of use;
  - approval of the Draft Strategy subject to additional comments which could be provided at COFI. It is recommended that the document be translated into the official languages of the organization and submitted to COFI at its twenty-seventh session.
6. **Improving the socio-economic impacts of aquaculture**, the following points have been taken into consideration:
  - underscoring the importance of identifying and quantifying the socio-economic impacts of aquaculture in securing policy-makers' and financial support for the sector in member countries as well as in the formulation of suitable policies to help develop the sector into a mature and sustainable contributor to local and national economies and to the wellbeing of society;

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<sup>2</sup> However, it was emphasized that large-scale commercial aquaculture should not be at the expense of small-scale and artisanal producers. Careful consideration of this balance should be made according to national and regional needs and in order to continue the development of sustainable aquaculture.

- recommendation of an inter-sessional Expert Consultation on this issue (socio-economic impacts of aquaculture).
7. **Improving planning and policy development in aquaculture: opportunities and challenges**, the following points have been taken into consideration:
- organization of an Expert Consultation on improving planning and policy development in aquaculture;
  - request to organize a regional workshop for Association of Southeast-Asian Nations (ASEAN) member countries in order to strengthen the planning and development programme for aquaculture in the Asian region.
8. **Better management of aquaculture**, the following recommendations were made:
- strongly encouraged further emphasis on the establishment and development of farmer organizations to improve management of the aquaculture sector and empower producers to participate in decision making and self-regulation;
  - commented that the emergence of a wide range of certification schemes and accreditation bodies was creating confusion amongst producers and consumers alike; stated that there was a need for more globally accepted norms for aquaculture production, which could provide more guidance and serve as a basis for improved harmonization and facilitate mutual recognition and equivalence of such certification schemes; requested FAO to convene an Expert Consultation and/or workshops which would assist in elaborating norms and reviewing the diverse options and relative benefits of these approaches;
  - encouraged FAO to play a lead role in facilitating the development of guidelines which could be considered when national and regional aquaculture standards are developed.
9. **Prospective analysis of the future aquaculture development and the role of the Sub-Committee**, the following recommendations were made:
- agreed that high priority should be given to Africa (sub-Saharan Africa in particular) in future aquaculture development, and it called for the establishment of a special programme on aquaculture development in Africa, which would provide special assistance to three African countries to access financial services and markets, to boost investment in aquaculture as well as exchange knowledge and experience, particularly through South-South Cooperation;
  - emphasized the importance of prioritizing the work of FAO on future aquaculture development and recommended that priority be given to: (a) improving information on aquaculture and implementing the “Information Strategy”; (b) assisting countries in the preparation and implementation of aquaculture development policies and strategies, and preparing appropriate guidelines; (c) developing methodologies for planning and policy making in aquaculture; (d) studying the interactions between fisheries and aquaculture; (e) addressing the food safety and human health aspects of aquaculture production and consumption of aquaculture products, especially through the use of a risk-benefit analysis approach to seafood consumption recommendations; and (f) improving aquaculture education at all levels;
  - requested the setting-up of an expert group and/or conducting a workshop on reviewing certification of shrimp farming systems.
10. **Any other matters**
- The Sub-Committee reiterated the recommendation of the twenty-sixth session of the Committee on Fisheries, and the Commission for Inland Fisheries of Latin America (COPESCAL) at its tenth session, for FAO to assign an Aquaculture Officer to the FAO Regional Office for Latin America and the Caribbean.

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## **EFFORTS BY THE FISHERIES AND AQUACULTURE DEPARTMENT TOWARDS IMPLEMENTING THE ABOVE RECOMMENDATIONS**

11. Due to various constraints, financial, human resources and, in particular, time, it was not possible to implement all recommendations of the Sub-Committee. Nevertheless, owing to the significant efforts made by the Fisheries and Aquaculture Department, considerable progress has been made on the implementation, which is reported in this document.

### **Issues arising from the implementation of the recommendations of the 2nd Session of the COFI:AQ**

12. A user-friendly investment decision-making tool has been developed for small- and medium-scale farmers. It remains to be tested before its distribution to end-users.
13. Due to current budgetary constraints in the present biennium it is not possible to secure funds to hold a meeting on the promotion of commercial aquaculture in Africa.
14. The Fisheries and Aquaculture Department has been successful in promoting regional networks (NACEE<sup>3</sup>, ANA<sup>4</sup> and ANAF<sup>5</sup>) on aquaculture. The networks are at different levels of functioning and FAO has continued to provide necessary assistance towards reinforcing these networks.
15. During 2006 and 2008, the Aquaculture Management and Conservation Service (FIMA) provided technical, strategic, financial and policy support to NACEE. It facilitated the holding of the Fourth Meeting of NACEE Directors, held from 27-29 September 2007 in Galati, Romania with the attendance of 60 participants representing 12 countries and organizations including EC<sup>6</sup>, NACA<sup>7</sup>, EUROFISH and FAO. The meeting discussed structural, technical, collaborative and policy issues of relevance to present and future network development with major focus on fund raising and the formulation of successful joint RTD projects. NACEE continues to have minimal resources and limited financial support. However, NACEE's membership increased by 41 institutions. Expectations for FAO to further promote sustainable aquaculture development in Eastern Europe and to continue supporting the Network are high.
16. FAO has also been making efforts to enhance regional cooperation in aquaculture in Latin America and the Caribbean. There is an initiative underway in cooperation with the Xunta de Galicia, the executive body of the autonomous community of Galicia, Spain, to finance a programme to facilitate rural aquaculture development in Latin America through regional cooperation and networking.
17. Upon the request of some Central Asian Governments, FAO assisted the Central Asian region in the establishment of a regional fishery and aquaculture arrangement (network or fishery body) and a first meeting to develop a plan of action for its establishment will be hosted by the Government of Tajikistan, in Dushanbe in November 2008.
18. FAO continues to provide advice and technical assistance in managing alien species in fisheries and aquaculture, as well as developing projects based on the responsible use of alien species. With the assistance of the WorldFish Center, the private sector and NGOs, and the

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<sup>3</sup> Network of Aquaculture Centres in Central-Eastern Europe (NACEE).

<sup>4</sup> Aquaculture Network of the Americas (ANA)

<sup>5</sup> African Aquaculture Network (ANAF)

<sup>6</sup> European Commission

<sup>7</sup> Network of Aquaculture Centres in Asia-Pacific

financial support of the Government of Spain, FAO developed a multi-disciplinary project in the Volta Basin<sup>8</sup>. This project has a substantial training component in the countries of the basin. Although tilapia is native to the basin, the project will import from Asia genetically improved tilapia and develop new genotypes. FAO has also produced Technical Guidelines for Responsible Fisheries<sup>9</sup> which contains a chapter on the introduction and dissemination of alien species.

19. The Department has continued to publish National Aquaculture Legislation Overviews (NALOs) and National Aquaculture Sector Overviews (NASOs). NALOs, developed in cooperation with the Development Law Service, consist of a series of comparative national overviews of laws and regulations on aquaculture. The overviews reflect the multi-disciplinary character of aquaculture, the complex issues involved and the various regulations under a wide range of legislation governing the sector. Since 2003, 42 NALOs have been published and are available on the FAO website<sup>10</sup>. NASOs consists of concise and comprehensive products, providing a general overview of the aquaculture and culture based fisheries aspects at the national level for FAO member countries. As of May 2008, 91 NASOs have been published and are available on the FAO website<sup>11</sup>.
20. In 2003, the Fisheries and Aquaculture Department initiated the development of the Cultured Aquatic Species Information Programme (CASIP). The programme consists of the preparation of a series of fact sheets for the commercially important aquaculture species (fish, crustaceans and molluscs) and each fact sheet per species contains information on the practical aspects of aquaculture, ranging from seed supply and the principle of farming systems to the raising, harvesting and marketing of farmed species. As of May 2008, facts sheets for 50 species have been made available on the internet<sup>12</sup> in the official languages of the organization.
21. Further to supplement CASIP collections, the Fisheries and Aquaculture Department has initiated the development of an information system on aquaculture feed resources. This is a web-based information system designed to develop a comprehensive database of aquaculture feed and nutrient resources. Preliminary information on the nutritional profiles of ten selected aquaculture species has been completed and will be on the FAO website by the end of the year.
22. NALOs, NASOs and CASIP collections are being translated in five official languages of the organization (Arabic, Chinese, English, French and Spanish) and many of them are already available in several languages. These will be continuously updated and enriched with new fact sheets.
23. The Fisheries and Aquaculture Department has, wherever possible, completed the publication of a multidisciplinary aquaculture glossary containing, approximately 2 500 terms with definitions, synonyms, related terms, information sources and images. The glossary of aquaculture is available in five official languages of the organization (i.e., Arabic, Chinese, English, French and Spanish) both in hard copy and in CD-ROM and can be accessed on-line at the FAO website<sup>13</sup>.

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<sup>8</sup> GCP/RAF/417/SPA (Aquaculture Investments for Poverty Reduction in the Volta Basin: Creating Opportunities for Low-Income African Fish Farmers through Improved Management of Tilapia Genetic Resources)

<sup>9</sup> FAO 2008. *Aquaculture development. 5. Genetic resource management*. FAO Technical Guidelines for Responsible Fisheries. No. 5, Suppl. 2. Rome, FAO. 2008.

<sup>10</sup> <http://www.fao.org/fishery/nalo/search>

<sup>11</sup> <http://www.fao.org/fishery/naso/search>

<sup>12</sup> <http://www.fao.org/fishery/culturedspecies/search>

<sup>13</sup> <http://www.fao.org/fi/glossary/aquaculture/>

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**Progress on the implementing the aquaculture related provisions of the code of conduct for responsible fisheries (CCRF)**

24. The Fisheries and Aquaculture Department has worked with the FAO Commission on Genetic Resources for Food and Agriculture to create a multi-year programme of work on fish genetic resources for food and agriculture<sup>14</sup>; a report on the status and trends in fish genetic resources has also been prepared<sup>15</sup>. With the IDWG<sup>16</sup> on Biodiversity, the Department updated information in a biodiversity information folder that contains leaflets on inland and marine biodiversity and prepared a new leaflet on genetic biodiversity in aquaculture<sup>17</sup>.
25. To address the issue of “competition and potential conflicts between aquaculture and other users of aquatic resources” FAO has undertaken a number of related studies. FAO, jointly with WFT<sup>18</sup>, organized an Expert Workshop on “Comparative assessment of the environmental costs of aquaculture and other food production sectors” in Vancouver, Canada, in 2006 and published the proceedings of the workshop<sup>19</sup>. These proceedings include review papers describing methods for such comparisons taking into account environmental economics, energy accounting, material and environmental flows analysis.
26. To address the institutional conflict between different aquatic resource users, a review study entitled “Doomed delta: challenges to improved planning and mitigation measures in the Indus Delta” was undertaken and was presented at the International Delta 2007 Conference on managing the coastal land-water interface in tropical delta systems. The paper dealt with institutional conflicts in the Indus Basin Irrigation System of Pakistan regarding water allocation for multiple uses, and the consequences of this on the Indus Delta (environment and livelihoods). The full manuscript of this review will be published as part of the conference proceedings<sup>20</sup>.
27. Further, to address competition and conflict issues between aquaculture and other sectors such as irrigation and agriculture, an integrated programme on aquaculture and water resources management in Asia is planned to be formulated during the course of the 2008-09 biennium.
28. A number of regional and national TCPs<sup>21</sup> as well as regular programme-funded and extrabudgetary-funded projects are ongoing or have recently concluded. These projects are aimed at assisting participating countries in maintaining healthy aquatic production through regional and national biosecurity and aquatic animal health management strategies supported with appropriate capacity building.
29. Selected issues related to the environmental sustainability and ecosystem approach to aquaculture are being addressed under the project GCP/INT/936/JPN Towards sustainable aquaculture: Selected issues and guidelines: specifically through the Component 2 “Environmental Impact Assessment (EIA) and Monitoring in Aquaculture” and Component 5 “Developing an Ecosystem Approach to Aquaculture”. Component 4 reviewed existing EIA and environmental monitoring requirements and practices in aquaculture in Africa, Asia, Europe/North-America and Latin America, and commissioned one special case study on EIA

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<sup>14</sup> <ftp://ftp.fao.org/ag/cgrfa/cgrfal1/r11repe.pdf>

<sup>15</sup> <ftp://ftp.fao.org/ag/cgrfa/cgrfal1/r11w152e.pdf>

<sup>16</sup> Inter Departmental Working Group

<sup>17</sup> [http://www.fao.org/biodiversity/doc\\_en.asp#folder](http://www.fao.org/biodiversity/doc_en.asp#folder)

<sup>18</sup> World Fisheries Trust

<sup>19</sup> Bartley, D.M.; Brugère, C.; Soto, D.; Gerber, P.; Harvey, B. (eds). 2007. Comparative assessment of the environmental costs of aquaculture and other food production sectors: methods for meaningful comparisons. FAO Fisheries Proceedings. No. 10. Rome, FAO. 241p. (<http://www.fao.org/docrep/010/a1445e/a1445e00.htm>)

<sup>20</sup> Proceedings of the International Conference "Delta 2007: Managing the Coastal Land-Water Interface in Tropical Delta Systems", 7-9 November 2007, Bang Sean, Thailand.

<sup>21</sup> Technical Cooperation Projects

issues in salmon aquaculture and plan to organize a Technical Workshop towards the end of 2008, on the Use and Selection of Environmental Impact Assessment and Monitoring in Aquaculture. Component 5 initiated a proposal to look into the development and application of the EAA through internal brainstorming discussions followed by an expert workshop on “Building an Ecosystem Approach to Aquaculture: initial steps for guidelines” which took place in Palma de Mallorca in May 2007<sup>22</sup>. Definitions principles and scales were discussed in the workshop and outputs are being published as FI proceedings. Guidelines for the EAA are being prepared and will be finalized in an expert meeting to be organized in late 2008.

30. A desk study and an expert workshop<sup>23</sup> on Understanding and Applying Risk Analysis in Aquaculture Production examined seven risk sectors affecting aquaculture [pathogens, food safety and public health, ecological (marine invasive species and pests), environment, genetics, social and financial] which became the basis for a manual and workshop proceedings. The desk study and expert workshop recognized that risk analysis is a structured means to assess the risks to or from a sector and to communicate these risks in an orderly and timely fashion in order to guarantee a uniform and transparent process of decision making or regulatory control.
31. With the support of the Department, GESAMP<sup>24</sup> Working Group (31) on Environmental Impacts of Coastal Aquaculture a technical workshop was held in November 2006 on the environmental risk assessment and communication in coastal aquaculture, which was aimed at promoting better understanding and consistency in the treatment of environmental risk and uncertainty, and improved risk communication, in coastal aquaculture. GESAMP WG31 produced a study<sup>25</sup> which presents a set of objectives, goals, methodologies and checklists for the assessment and communication of environmental risks which may be associated with coastal aquaculture. The study is structured to improve risk communication and to ensure that risk assessment is a scientific exercise in predicting environmental change, and illustrates the use of the environmental risk assessment methodologies in coastal aquaculture.
32. The Department in collaboration with international experts and the World Fisheries Trust produced Technical Guidelines for Responsible Fisheries No. 5 Aquaculture, Supplement No. 2 which includes a chapter on genetic resource management in stock enhancement programmes and culture-based fisheries<sup>26</sup>.
33. The Department has been reviewing the reporting process for aquaculture and concludes that there is a need to improve the reporting mechanism and process to serve the immediate and important purposes of respondents i.e., Government agencies responsible for aquaculture. These include the immediate assessment of progress of specific initiatives, diagnosis of problems related to these initiatives, and a clear indication of what to do and how much it costs to effectively solve the problems. Among the improvements are a more specific set of questions under each of the three governance mechanisms, namely, command and control, market-based and voluntary; the expression of responses into numerical indicators; and a more focused set of questions to determine key areas of assistance.

### **Towards improving information on the status and trends in aquaculture development**

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<sup>22</sup> <http://www.fao.org/fishery/nems/36283/en>

<sup>23</sup> *FAO/NACA Expert Workshop on Understanding and Applying Risk Analysis in Aquaculture Production, June 7-11 2007 - Rayong, Thailand*

<sup>24</sup> IMO/FAO/UNESCO-IOC/UNIDO/WMO/IAEA/UN/UNEP Joint Group of Experts on Scientific Aspects of Marine Environmental Protection (GESAMP)

<sup>25</sup> GESAMP. 2008. Assessment and communication of environmental risks in coastal aquaculture. Rome, FAO. Reports and Studies GESAMP No. 76: 198 pp. (<ftp://ftp.fao.org/docrep/fao/010/i0035e/i0035e.zip>)

<sup>26</sup> FAO 2008. Aquaculture development. 5. Genetic resource management. FAO Technical Guidelines for Responsible Fisheries. No. 5, Suppl. 2. Rome, FAO. 2008.

34. The Strategy for Improving Status and Trend Reporting of Aquaculture, including a recommendation for FAO to consider establishing an inter-regional mechanism similar to the existing Coordinating Working Party on Fishery Statistics (CWP-FS) was endorsed by the 3rd session of the COFI-AQ (New Delhi, India, 2006) (see COFI:AQ/IV/2008/Inf.5) and was approved by the 27th Session of the FAO Committee on Fisheries (COFI- Rome, Italy, 5 - 9 March 2007). A workshop was held in January 2008 to address the need for data and information coordination in aquaculture and objectives, characteristics and structure suitable for the Coordinating Working Party on Aquaculture Statistics (CWP-AS). The Workshop recommended establishing the CWP-AS within the framework of the CWP-FS, but with its own Terms of Reference (TOR), rules of procedure and composition to reflect the specific needs of the aquaculture sector. The Workshop further developed a detailed proposal of functions and structure of such a body including TOR, composition and operational aspects (please refer to COFI:AQ/IV/2008/Inf.5).
35. FAO is seeking approval from the participating organization's of CWP-FS to establish CWP-AS as an Aquaculture subject group through communication. Subject to this approval, the first session of CWP-AS is scheduled to be held immediately prior to the COFI-AQ/IV. The primary task of CWP-AS is to review and revise aquaculture relevant sections of the CWP-Handbook for statistics which define standard concepts, terms, methodology and data needs for monitoring and sustainable management of aquaculture. The need for sustainability measures, socio-economic and environmental indicators for aquaculture were noted at the January workshop, which should be taken into consideration and incorporated into the CWP-AS Handbook. The implementation of the remaining part of the Strategy is being currently transformed into a draft project proposal for possible extra-budgetary assistance.
36. A project proposal entitled "Geographic Information Systems (GIS) and Remote Sensing for Aquaculture and Inland Fisheries Statistics" has been submitted for external funding. GIS and Remote Sensing provide opportunities to support the collection and analysis of statistics on fisheries and aquaculture in an efficient and cost-effective manner.

#### **Improving the socio-economic impacts of aquaculture**

37. A desk study was initiated to review methodologies available for the assessment of the social and economic impacts of aquaculture and to propose a participatory, livelihood-based method of identification and evaluation. This was complemented by the case study data collection on intensive salmon farming (Scotland), seaweed farming (Indonesia) and semi-intensive grouper and tilapia farming (Thailand).
38. An Expert Consultation on the evaluation of the socio-economic impacts of aquaculture held in Ankara, Turkey in February 2008 identified and agreed upon the socio-economic impacts of aquaculture and available methods for their assessment. The report of this Consultation will be made available for the 4<sup>th</sup> session of the Sub-Committee. The testing and evaluation of the proposed methods will be carried out during the course of the present biennium (2008-2009) under the project "Implementation of programme to implement methodology on socio-economic impact assessment and collect data in Asia (in collaboration with NACA), Latin America and Africa".
39. The Ecosystem Approach to Aquaculture considers the social and economic impacts of aquaculture as one of the pillars and the review papers published in the *FAO Fisheries Proceedings* on "Building an Ecosystem Approach to Aquaculture" are dealing with social and economic implications on EAA and will be taken into consideration when developing the guidelines for policy making.

#### **Improving planning and policy development in aquaculture: opportunities and challenges**



40. An Expert Consultation on improving policy and planning in aquaculture was organised in Rome, Italy, from 26 to 29 February 2008. The report will be made available at the 4<sup>th</sup> session of the Sub-Committee. The main output of the meeting was an outline for Technical Guidelines on Improving Policy Formulation and Implementation for Aquaculture Development which is included in the meeting report. A workshop on methods of policy formulation and implementation in ASEAN countries will be held towards the latter part of 2008.
41. A synthetic document on planning and policy formulation in aquaculture development has been produced, in draft form, and in 2007 was made available as a background document to experts attending the Expert Consultation on improving planning and policy development in aquaculture. This document will be revised in light of the consultation outputs and experts' comments in order to be published as a FAO Technical Paper.
42. The Department has developed national aquaculture development strategies, plans and legal and regulatory frameworks for five countries.
43. The FAO Fisheries and Aquaculture Library has continued to promote fisheries and aquaculture library networks at the regional and global level with the main objectives being a) sharing information resources and b) expertise, i.e. capacity development:
  - Strengthening national and regional aquaculture libraries and supporting information networks at the regional and global level to improve access to information;
  - Working with IAMSLIC<sup>27</sup> and NACA to develop the Aquatic Commons, a global digital repository for sharing aquaculture grey literature.

### **Better management of aquaculture**

44. FAO continued to work on the implementation of better management practices in shrimp aquaculture. Efforts are being made to implement the International Principles for Responsible Shrimp Farming in several countries. A Technical Cooperation Programme Project (TCP) is now being implemented in China where BMP for some species of carps is being developed.
45. Extension manuals with BMPs in aquaculture will be developed in 2008-2009 and published in Russian under the Central Asia Regional Programme for Fisheries and Aquaculture Development (FishDev – Central Asia), as part of the FAO Turkey Partnership Programme.
46. Several TCPs and UTFs<sup>28</sup> in Latin America and in the Mediterranean region have been assisting in the strengthening of the public sector and also interacting with farmer organizations (and their own organization) through participatory workshops and activities.
47. A regional TCP proposal on “Reducing the dependence on the utilization of trash fish/low value fish as feed for aquaculture of marine finfish in the Asian region” to be implemented in China, Indonesia, Thailand and Viet Nam has been requested for TCP funding. The project is expected to contribute to the development of better feed management practices in small-scale finfish farming which would contribute to improved efficiency of feeding practices and conformity to market related requirements.
48. Through an intensive transparent consultative process, draft Guidelines for Aquaculture Certification have been developed and are presented to the 4<sup>th</sup> session of the Sub-Committee for discussion and decision (see COFI:AQ/IV/2008/3 and COFI:AQ/IV/2008/Inf.7).

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<sup>27</sup> The International Association of Aquatic and Marine Science Libraries and Information Centers

<sup>28</sup> Unilateral Trust Fund Projects

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**Prospective analysis of the future aquaculture development and the role of the Sub-Committee**

49. In response to the Sub-Committee's recommendation that high priority should be given to Africa (Sub-Saharan Africa in particular) with regard to aquaculture development in the future, the Department has established a special programme on aquaculture development in Africa, SPADA. The programme, following closely the priorities set by NEPAD<sup>29</sup>, represents the Department's strategic approach to address aquaculture development in its member countries in Africa. SPADA's goal is to improve economic and rural development by enhancing fish supply and distribution as well as benefiting nutrition through increased aquaculture production; this goal can be achieved by promoting sustainable aqua-businesses at the national level including the necessary public and private support services.
50. Based on recommendations of CIFAA<sup>30</sup>, the Department prepared an African Water Resource Database (AWRD)<sup>31</sup>. The database is compiled of a set of data and custom-designed tools, combined in a GIS analytical framework aimed at facilitating responsible inland aquatic resource management with specific focus on inland fisheries and aquaculture in Africa.
51. As part of the FAO Fisheries and Aquaculture Development Planning Service (FIEP)'s work programme, formulation/adaptation of guidelines on good aquaculture governance for Africa will be carried out during the course of 2008-2009.
52. FAO has been leading GESAMP Working Group 36 on ecosystem approach to mariculture with emphasis on off-shore farming. A meeting of the working group was held in September last year and major environmental and socio-economic issues for offshore farming were identified. The group is working on the report with major recommendations for BMPs in offshore farming and monitoring, and EIA implementation.
53. The Department has published Fisheries Technical Paper No. 458 entitled "GIS, Remote sensing and mapping for the development and management of marine aquaculture". The objective of this document is to illustrate the ways in which Geographic Information Systems, remote sensing and mapping can play a role in the development and management of marine aquaculture. The perspective is global and the approach intended to employ example applications aimed at resolving many of the important issues in marine aquaculture.
54. The Department continues to link with international partners such as the World Fish Centre, NACA, the Mekong River Commission, NGO's, Inter-Departmental Working Groups within FAO and inter-governmental forum such as the Convention on Biological Diversity and the FAO Commission on Genetic Resource for Food and Agriculture to expand the scope of the prospective analysis of aquaculture. FAO hosted the SBSTTA<sup>32</sup> meeting of the Convention on Biological Diversity and is a key player in the WWF<sup>33</sup> aquaculture dialogues.
55. Work on developing national aquaculture strategy in countries of Africa, Asia and Latin America is continuing and specific assistance towards policy development in member countries is being provided. Several TCPs in different Sub-Saharan African countries and TCPs and UTFs in Latin American countries are on-going and/or have been completed. In Central Asian countries (e.g., Kyrgyzstan and Uzbekistan) FAO assisted the governments in

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<sup>29</sup> NEPAD (New Partnership for Africa's Development). 2005. The NEPAD Action Plan for the Development of African Fisheries and Aquaculture. NEPAD Fish for All Summit, Abuja, Nigeria, 23 August 2005. 29pp.

<sup>30</sup> Committee for Inland Fisheries and Aquaculture of Africa

<sup>31</sup> CIFA Technical Paper. No. 33, Part 1 and Part 2

<sup>32</sup> 13th meeting of the Subsidiary Body on Technical and Technological Advice held in Rome, 18 -22 February 2008

<sup>33</sup> World Wildlife Fund

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the formulation of fisheries and aquaculture sector policies and development and management planning in 2007/2008.

56. Within the activities of the GESAMP working group led by FAO on ecosystem approach to mariculture (offshore farming), one of the main issues being addressed is that of escaped farmed individuals and interactions with wild fish. Also the potentially positive effects of aquaculture on fisheries through nutrient inputs have been initially addressed.
57. The EIFAC Symposium on interactions between social, economic and ecological objectives of inland commercial and recreational fisheries and aquaculture (Antalya, Turkey, 21-24 May 2008) dedicated some of its sessions to the interactions between fisheries and aquaculture.
58. Of the five key thematic areas identified for targeted action under the project *Towards Sustainable Aquaculture: Selected Issues and Guidelines* (GCP/INT/936/JPN), Component 4 of the project addresses the issue of “Use of wild fish and/or other aquatic species to feed cultured fish and its implications to food security and poverty alleviation”. A workshop on this topic was convened in Kochi, India, from 16-18 November 2007. The workshop agreed on ten guiding principles from the perspectives of fisheries management considerations, ecosystem and environmental impacts, ethical issues and responsible use, aquaculture technology and development and statistics and information needs for management. The workshop concluded that the use of fish as feed is acceptable provided that such use is governed by the above guiding principles. The workshop also recommended a number of actions for FAO to undertake to address the issues raised. The workshop report is available for further details<sup>34</sup>. Two other documents: a) FAO Fisheries Technical Paper entitled “Fish as feed inputs for aquaculture and its implication to food security and poverty alleviation”; and b) FAO Technical Guidelines for Responsible Fisheries on the “Use of wild fish and other aquatic species as feed in aquaculture” are also being finalised.
59. During 2008-2011, issues relevant to aquaculture-fisheries interactions with particular reference to feed fisheries will be addressed. The work programme will (i) review and examine a number of case studies that should (a) provide better understanding of feed fisheries in terms of catch composition and catch trend; (b) evaluate the different uses and channels of disposal of feed fisheries to develop optimum allocation models under different scenarios, (ii) review and examine the socio-economic and environmental implications of the use of feed fisheries from global and regional perspectives, (iii) review potential use of other alternatives (plant and animal by-products of terrestrial origin) to feed fisheries and (iv) provide management measures, develop guidelines and recommend necessary policy changes.
60. Aspects of food safety are being highlighted during the development of the guidelines for Certification of aquaculture and a series of consultations with stakeholders are presently being held. Considering the importance of risk analysis based aquaculture development, a Manual based on an Expert Workshop on “Application of Risk Analysis in Aquaculture production” held in Rayong, Thailand in June 2007, is under preparation, in which Food Safety aspects are discussed. In view of increasing aquaculture of bivalve molluscs, a FAO/WHO Expert consultation on “Viruses in foods” held at Bilthoven, The Netherlands in May, 2007, deliberated on public health risk due to viruses in bivalve molluscs and data needs for risk assessment were identified. Work on risk assessment of *Vibrio parahaemolyticus* in raw oysters and finfish has been completed and a Joint FAO/WHO publication is under preparation. An Expert consultation on risks and benefits from fish consumption is foreseen to be held in 2009. The Expert Consultation on the use of chlorine in food processing was

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<sup>34</sup> FAO, 2008. Report of the FAO Expert Workshop on the Use of Wild Fish and/or Other Aquatic Species as Feed in Aquaculture and its Implications to Food Security and Poverty Alleviation, Kochi, India, 16-18 November 2007, FAO Report No. 867, Rome, FAO. 31pp.

held in May 2008 and the risks and benefits of chlorine usage in fish processing were discussed.

61. The 7th World Seafood Congress held in Dublin in September 2007 was co-organised by FAO. Health benefits of fish consumption were highlighted with keynote addresses and plenary lectures and special sessions on risk benefit communication.
62. In response to the recommendation of COFI-SCA:AQ III, FAO continues to provide assistance to its member countries in improving aquaculture education at all levels. This includes provision of access to research and educational information to the national and regional organizations. The FAO Fisheries and Aquaculture Library continues to digitize FAO's aquaculture information and produce selective CD ROMs for distribution to a wide audience - for the benefit of research, education, management and resource users.

**Any other matters**

63. A Fisheries and Aquaculture Officer post, mainly responsible for aquaculture, has been created in the FAO Regional Office for Latin America and the Caribbean. The vacancy announcement for the above position was issued and candidate selection is in progress.