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Report of the

WORKSHOP ON THE SOCIAL AND ECONOMIC ASPECTS OF FISHERIES IN THE RECOFI REGION

Manama, Kingdom of Bahrain, 22–24 April 2012

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
REGIONAL OFFICE FOR THE NEAR EAST AND NORTH AFRICA
Rome, 2012

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PREPARATION OF THIS DOCUMENT

This is the final report of the workshop on the Social and Economic Aspects of Fisheries in the RECOFI region that was held in Manama, Kingdom of Bahrain, from 22 to 24 April 2012.

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ABSTRACT

The RECOFI Workshop on Social and Economic Aspects of Fisheries in the RECOFI region was held in Manama, Kingdom of Bahrain from 22 to 24 April 2012, following the agreement at the sixth session of the Regional Commission for Fisheries held in Rome from 10 to 12 May 2011. The meeting was convened by the RECOFI Secretary. The meeting was attended by 18 delegates from four member countries and two observers, as well as the RECOFI Secretariat. The workshop discussed the social and economic aspects of fisheries in RECOFI, reviewed the availability of data on the socio-economic statistics, analysis work and other relevant research activities in member countries and formulated a RECOFI action plan for regional cooperation in assessment of socio-economic aspects through identifying regional socio-economic indicators to be used at both national and regional levels. The integration of the human dimension, including the social and economic aspects, is essential in the context of the ecosystem approach of fisheries management. For this purpose, it was recognized that key issues in social and economic aspects in the management of fisheries and of the people fishing in the region must be identified together with necessary information indicators to monitor their status. The workshop concluded, among other things, that there is a need to enhance the collection of socio-economic information with a matter of priority by the member countries, and recommended that an applicable, practical and useful work plan on socio-economic work should be formulated to support technical capacity development to advance knowledge and that social and economic aspects must be integrated and incorporated into the RECOFI fisheries management framework to ensure a more holistic approach in line with the ecosystem approach.

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APPENDIXES

OPENING OF THE MEETING AND ELECTION OF THE CHAIRPERSON

1. The RECOFI Workshop on the Social and Economic Aspects of Fisheries in the RECOFI region was held at Al Safir Hotel in Manama, Kingdom of Bahrain from 22 to 24 April 2012, following the agreement at the sixth session of the Regional Commission for Fisheries, held in Rome from 10 to 12 May 2011. The meeting was convened by the RECOFI Secretary. The meeting was attended by 18 delegates from four Member countries and two observers, as well as the RECOFI Secretariat. The agenda and list of participants are attached as Appendix A and B, respectively.

2. Mr Abdul Redha Shams, Director of the Directorate of Marine Resources, Public Commission for the Protection of Marine Resources, Environment and Wildlife welcomed the participants to the Kingdom of Bahrain and introduced Mr Jassim Al-Qaseer, General Director of the Directorate of Marine Resources, General Director Office, Public Commission for the Protection of Marine Resources, Environment and Wildlife, to make an opening statement.

3. Mr Al-Qaseer, on behalf of His Royal Highness Sheikh Abdulla Bin Hamad Al-Khalifa, President of the Public Commission for the Protection of Marine Resources, Environment and Wildlife and His Excellency Juma Bin Ahmed Al-Kaabi, Minister of Municipalities Affairs and Urban Planning, welcomed participants to the Kingdom of Bahrain. He noted that fisheries in the Kingdom of Bahrain are currently being overexploited, affecting livelihoods. The Kingdom of Bahrain is taking measures to address overfishing, management, including reduction of fishing activities and considerations of fishermen must be taken into account. Mr Al-Qaseer wished the workshop a positive outcome, emphasizing the importance of taking the experiences of other countries so that fisheries management issues can be addressed together.

4. Mr Piero Mannini, Secretary for RECOFI and Senior Fisheries Officer, FAO Regional Office for the Near East and North Africa, welcomed participants on behalf of FAO and thanked the Kingdom of Bahrain for hosting this workshop. Referring to the Code of Conduct for Responsible Fisheries (CCRF), and with particular reference to Article 2, Mr Mannini highlighted that contained within the CCRF is the objective to establish principles specifically referring to social and economic considerations. In 2008, the RECOFI Working Group on Fisheries Management (WGFM) mandate was broadened to expand focus, and biological, statistical, social and economic considerations would be taken into account. The working group will take into account the CCRF, the Ecosystem Approach to Fisheries (EAF), emerging trends in fisheries and have a view to ensure the long-term sustainable development, promote regional cooperation, and adopt of sustainable and effective fisheries management measures. The implementation of EAF was adopted by the Commission and should ensure once applied that fisheries are exploited in a sustainable manner while at the same time maximizing social and economic benefits.

5. Mr Mannini emphasized the importance of defining indicators when setting fisheries management and socio-economic goals, in order to effectively monitor progress towards reaching set goals. It was noted that the workshop should work towards gaining a preliminary insight into the main priorities to be addressed, identify major gaps knowledge and expertise in the field, and exchange relevant information and formulating a RECOFI action plan for regional cooperation in assessment of socio-economic aspects and to identify regional socio-economic indicators for both national and local levels of each member country. Mr Mannini's statement is attached in Appendix C.

6. The Secretary of RECOFI called for nominations for a chairperson for the meeting. The delegate from Qatar nominated the Kingdom of Bahrain, and the nomination was agreed by the workshop. Mr Jassim Al-Qaseer was elected Chairperson for the meeting.

OBJECTIVES OF THE WORKSHOP

7. The Agenda, attached as Appendix A, was adopted. The Secretary invited Mr Ahmed Barrania, FAO Consultant, to present the objectives of the workshop.

8. Mr Barrania presented the objectives of the workshop:

- understand the situation of the national and regional marine fisheries in the RECOFI region;
- review the availability of data on socio-economic statistics;
- analyse work and other relevant research activities in Member countries; and
- hold detailed discussion of socio-economic aspects of RECOFI fisheries.

Mr Barrania addressed the expected outputs and outcomes, highlighting the improved understanding on the status of socio-economic aspects of the fisheries, affecting fisheries sustainability and fishermen livelihoods, the identification suitable common socio-economic variables and indicators to be used around the region, outline an integrated statistics and knowledge database for the purpose of socio-economic assessment, establishment of network. It was emphasized that fisheries management is not managing stocks, but managing people, and for this we need to understand the dynamics of fishermen, the social and economic components.

9. The workshop participants emphasized the importance of the aspects mentioned above, and noted that in order to properly protect the environment and fish stocks, the importance of the human dimension must be given more importance.

10. It was commented that past studies in socio-economics faced a number of challenges; fishermen responded to questions in a manner that was not truthful and so the information obtained was not accurate. The Chair emphasized that in order to get accurate and reliable information from fishermen, it is important to approach and work with them in a manner that reflects the importance of their knowledge and experience, rather demanding answers. Some participants further supported this point and noted that the reality of the background and education level must be taken into account when approaching this kind of work. Mr Barrania emphasized the importance to choose people from the community to conduct the interviews. The need to support fishermen in the process, and by ensuring a positive relationship between government and fishermen, can enhance the possibility for good socio-economic information. A number of participants noted activities their countries currently do to support fishers.

11. The issue was also raised that fisheries and livelihoods of fishers will also be impacted by non-fisheries related activities along the coast, therefore integrated coastal zone management (ICZM) should be incorporated. The important point of the role of both nationals and non-nationals involved in the fisheries sector of a number of member countries was raised and emphasized; this will need special consideration. It was discussed that a participatory approach should be incorporated into this work, and also utilizing the principles of co-management. The RECOFI Secretary noted the issue of shared stocks and the need for cooperation, emphasizing the good cooperative work of the Gulf Cooperation Council countries (GCC) and suggested this type of work in RECOFI, noting as well the planned meeting in 2013 on the assessment of the shared stock of Kingfish, inviting the Islamic Republic of Pakistan as well.

COUNTRY REPORTS ON THE SOCIAL AND ECONOMIC DIMENSION OF NATIONAL FISHERIES: AVAILABLE DATA AND COMPILED INFORMATION

12. The country report for the Sultanate of Oman was presented and is summarized here; the full Oman country report is attached in Appendix D. The Sultanate of Oman highlighted the work that has been done in the past, the challenges with monitoring landings as well as accurately and

comprehensively recording the necessary information. The Sultanate of Oman has undertaken socio-economic assessments in the past. The majority of fishing production and employment is from the artisanal sector, which has increased in recent years. There are many other economic issues in the fisheries sector, for example: high operating costs, low income per crew or fishermen, problems in the marketing chain, and production. Social issues include: low education levels, fishing gears conflicts and the appearance of expatriate in fisheries sector. While there are not organized fishermen groups or cooperatives, there is a method for communication between the government and fishermen, through informal committees called Sunat Al Bahar. The country report recommends enhancing capacity building in collecting and analysing data related to the socio-economic aspects for fishermen communities and highlights that there is a need to propose and fund a regional project to study the socio-economic aspects.

The discussion on the Sultanate of Oman country report highlighted the following points:

- The Sultanate of Oman has developed a quality control center focusing on the ability to export to the European Union (EU), which one reason that there is such a high level of export;
- While the Sultanate of Oman has good regulations and enforcement mechanisms in place, the coastline is very long and monitoring landings at all places fish are landed is very difficult;
- The need for a regional project for fisheries in socioeconomics was raised, cooperating through a field programme;
- It was emphasized that traditional tools for fisheries management are not enough, social and economic tools incorporated into the process for a more holistic approach;
- Recommendations from study must be implemented and created in a way that actions can be taken.

13. The country report for the Kingdom of Saudi Arabia was presented and is attached in Appendix E. Saudi Arabia fisheries are almost entirely traditional in terms of proportion of production. There is a general lack of socio-economic information of fishermen, although some aspects are known, including: the method of sharing/payment for vessel owners and crew, the boat needs (repairs, fuel and oil for the engine, etc), and that the fishermen share of the profits is the least in the supply chain. It is highly recommended to undertake a new study on both Red Sea and Gulf coasts in each country, following which the information on the socioeconomic aspects of the fisheries in the Gulf countries should be shared, which could play an important role for countries who share the production of shared stocks of important marine species. The discussion after which highlighted the following points:

- In the Kingdom of Saudi Arabia, temporary fishermen is used as a term to describe the sons of fishermen, who are learning, as apprentices, but who are not yet 18 or full-time fishers.
- The issue of licenses being inherited by a son from his father is an issue of concern for a number of countries in the RECOFI region. Also the issue of fishermen, who are license holders but who hire fish workers and are not on the vessels: these perhaps should not be considered fishermen in themselves. In the Kingdom of Bahrain and the Kingdom of Saudi Arabia, it is the law that one national must be present on each vessel, however this is not enforced.
- Some incentives or economic compensation for closed seasons exists in the Kingdom of Saudi Arabia. There is a fisheries sustainability trust fund to fund some fisheries issues.
- Marine aquaculture is developing in the Kingdom of Saudi Arabia, which will impact fishers, and that impact is currently being studied. It could provide an opportunity for fishermen in the closed season.
- The Kingdom of Bahrain emphasized that it also give temporary licenses for other species during the closed season.

- The information on employment in fisheries is collected by research centers and also by coast guards. The numbers are quite accurate because of these methods.

14. The Kingdom of Bahrain country report was presented and is attached in Appendix F. Over-fishing and conservation are considered the major challenges to Bahrain fisheries and marine resources. The Bahrain fishing industry has experienced an overall increase in effort, in terms of number of vessels, number of fishermen, number of working days and hours and while the total fishing boats and landings have increased, the annual catch rate and actual fishing grounds have decreased. The fisheries have experienced an overall decline in CPUE, estimated at more than 50 percent. An opinion survey on the problems and issues facing fishermen was undertaken in 1993 through the national census and highlighted a number of salient issues namely; theft, and competition of gillnets fishing represent about 50 percent of the fishermen's problems while the problems of landing and operating costs and marketing about 18.8 percent. The following discussion points were highlighted:

- Jellyfish are now being caught and reported, and exported to an international market. This is done by only a few companies, who hire fishermen during the season, and export them to the far east market.
- Sandmining in the Kingdom of Bahrain is expanding; they dredge and fill the sea. They plan to tax the sand mining, to limit the work, so minimize the impact. Also, part of the tax will go to the fisheries fund law, to help with closed season, which is now currently under review and not yet implemented. Those resources will be lost forever, but it is regarded as the least valuable part destroyed for this industry.

15. The State of Qatar country report was presented and is attached in Appendix G. The fishing fleet in 2011 was comprised mainly of 446 vessels and 3 313 artisanal fishermen. The average retail price for local fish has been increasing, for the majority of species, however for some it has actually decreased between 2008 and 2010. The number of fishing boats has generally remained steady between 2005 and 2010; the number of fishermen has fluctuated, while the average catch per fishermen showed a decreasing trend between 2008 and 2010 when compared with 2009. There are a number of national and regional fisheries projects that are ongoing or recently completed in Qatar, focusing on mainly on the area of stock assessment. The following discussion points were highlighted:

- The State of Qatar has good management systems in place to deal with the closed season during fish spawning.
- All data are collected from the marketing sites, on fish prices, landing values etc., currently this type of data collection is in an experimental stage.

16. The Republic of Iraq country report was presented and is attached in Appendix H. The following discussion points were highlighted:

- The Shatt Al-Arab is particularly important for the Gulf as well, with its importance as a breeding ground and bringing nutrients. Upstream damming and water diversion affects this area, which affects the Gulf. There are a number of FAO activities ongoing focusing on Iraqi fisheries, including the tripartite initiative for a field programme in the Northern Gulf area, through RECOFI, and a study on how to rehabilitate the fishery and aquaculture sectors in the Shatt Al-Arab.

IDENTIFICATION OF PRIORITY GOALS AND ISSUES FOR SOCIAL AND ECONOMIC ASPECTS OF FISHERIES IN THE REGION

17. Discussion highlights were presented, and examples of social and economic aspects to consider for the RECOFI region, including:

- Macro-economic
  - Contribution of fisheries to national economy
  - Domestic consumption of fish
  - Fish imports and exports
- Micro-economic
  - Vessel revenue, profit and cost (fixed and variable)
  - Landing weight and value
  - Vessel characteristics: Engine power, Gross tonnage, vessel value, gears used
  - Working hours/days/year/vessel
  - Market prices for different species
- Social aspects
  - Employment: number of crew on vessel, nationality, primary and secondary sector (and who: women, men, nationals, non-nationals)
  - Vessel ownership (individual or partnership)
  - Method of crew payment (wage, share method)
  - Other income sources of fishers (primary source of employment, etc)
  - Number of household employed in fisheries (primary, secondary)
  - Age, education level of fishers
  - Main threats to livelihoods
  - Social and financial services available (insurance, health, credit, savings etc)
  - Organization of fishers (cooperatives and their roles)
  - How/where marketed, roles and profits of fishers, traders, processors, transporters along the supply chain

It was requested that time be taken to consider these examples before further discussion on priorities.

18. Some participants drew attention to the importance of recreational or pleasure fishers, which in some countries data are not collected on. Their integration is important as they are in some cases fishing more than small-scale fishermen, but no data is available. The RECOFI Secretary drew attention to the upcoming issue of the FAO State of the World Fisheries and Aquaculture (SOFIA)[1], which also recognizes the importance of this fishery. Participants reiterated the notion that socio-economics is not only related to the livelihoods of fishers, but also includes a more broad perspective. It was noted that income of fishers is an important indicator that should be included.

INTRODUCTION TO THE SURVEY QUESTIONNAIRE

19. Mr Barrania presented on the approach to this socio-economic study. The objectives of this study included the following:

- determine socio-demographic characteristics such as age structure, sex, marriage status, family size, and education level, etc.;
- highlight socio-economic conditions of the fishermen;
- estimate costs and earnings of fishing vessels in selected fishing areas;
- describe the common problems of selected fishery areas;
- describe relations between the fishermen and their organizations, and indicate the effectiveness of the organization from the member's point of view as well as fisheries co-management; and
- outline recommendations for decision makers to be used in local fishery management and stakeholders' livelihood development plans.

[1] www.fao.org/docrep/016/i2727e/i2727e00.htm

20. A number of considerations that need to be taken into account when undertaking the survey were highlighted, including:

- The questions should be easily understood by the all individuals of the sample whatever their educational and cultural levels.
- The questions should be formulated to be accurately and clearly answered. This can be done through minimizing the open answer questions.
- The questions should be ordered so that the difficult and sensitive questions come later.
- The sensitive questions should be asked indirectly and their answers should be verified.

It was also noted that appropriately targeting questionnaire respondents is key, as well as determining the method and size of the sample given resource constraints. The point was put to the workshop on whether they think it will be feasible, given current capacities, to collect this information.

21. Ms Sachiko Tsuji, Senior Fishery Statistician, FAO, Rome, pointed out that some of the information from the list may be able to be collected from the minimum data requirements that are currently in place. Some of the information needs to be collected regularly; some of the info can be collected much less frequently. Additionally, while previous discussions have been almost completely focused on fisheries production itself, and not post-harvest, while some of the problems of fisheries need to collaborate and integrate management strategies and procedures outside of the fisheries harvest sector. One issue that was raised was that fisheries does not take precedence against other sectors, so a broader perspective of fisheries is needed, not just harvest, but also post-harvest.

22. The point was raised on whether this should be limited to capture fisheries or aquaculture as well. It would depend on the interactions between the two sectors; in some countries the two are very separate, in others there are more interactions at a livelihood level.

23. The Secretary of RECOFI drew attention to the work of Mr Barrania in implementing the survey questionnaire, which was not only carried out successfully in Egypt, but was presented back to stakeholders in a workshop to discuss the work and results. This actually formed an extremely important aspect of the total work, as stakeholder interest in addressing these challenges was confirmed.

24. It was noted that a good deal of information would need to be collected to get a complete picture. Some of the information would not necessarily need to be taken from fishermen; some can be sourced from existing statistics. It will be important to identify what exists and determine the priorities for RECOFI. Issues of resources including time, money, and capacity will be constraints that need to be considered when outlining the workplan.

IDENTIFICATION OF SOCIAL AND ECONOMIC INDICATORS TO BE USED AT THE NATIONAL AND REGIONAL LEVEL

25. Mr Ahmed Barrania gave a presentation on the identification of social and economic indicators. Mr Barrania highlighted the overall types of indicators: macro-economic, micro-economic and social, and noted that different information can be gathered from existing sources, while others will need to be collected in a field survey. The list is extensive, and it is up to the workshop to determine what information is important and should be collected at the national level, and what is agreed that should be collected for RECOFI. Mr Barrania also filtered down some of the indicators to what could be collected based on the discussions from the prior sessions. The Chairperson drew attention to the fact that some of these data are currently being collected in some countries, while others are not, so it would be a good idea to go through in detail what are the priorities and what is existing already. It was mentioned that market information and costs for boat maintenance should also

be included. Some participants reiterated the practicality of the questionnaire, that it should not be too long.

26. Mr Barrania then presented a draft questionnaire, for the comments of the participants. The aim of the questionnaire was to serve as a preliminary method for gathering socio-economic information, was designed to be short and cover the main points addressed by the workshop participants. The questionnaire covered issues at the macro-economic level, the micro-economic level and considered social aspects. The question was raised at to what defines small-scale fisheries, to which it was determined that this definition varies from country to country, and RECOFI has an agreed criteria to cover this. It was noted that this exercise will serve as a first assessment to be used at the country level and at the regional level. Some of this information will be already available. The questionnaire addresses points to a variety of target respondents, so this will have to be revised at the country level to address where and how to get this information. Some of the questions will require technical expertise and so the capacity at each country level to gather this information needs to be assessed.

IMPLEMENTATION OF THE RECOFI RECOMMENDATION ON MINIMUM DATA REPORTING

27. The RECOFI Secretary reminded participants of the Recommendation RECOFI/6/2011/1 entitled "Recommendation on minimum data reporting in the RECOFI area" (Appendix I). In accordance with Article V of the Agreement for the Establishment of the Regional Commission for Fisheries, the Commission agreed that the recommendation would take effect on 1 January 2012; all Member countries are bound to comply with this recommendation. Ms Sachiko Tsuji also reminded participants that this issue would be raised at each RECOFI workshops, as agreed and some time would be devoted to continuing to developing this. Ms Tsuji then gave a presentation on the implementation of the RECOFI Recommendation on minimum data reporting. She mentioned the importance and utilization of indicators in fisheries management, noting also the types of indicators that are needed; what they need to describe. Also indicators must be clear and able to be used in management, with no ambiguity. The hierarchical tree was described; the importance of determining the goals, the broad objectives that would lead to these goals, the issues that need to be addressed and the operational objectives that are linked to these issues. It was highlighted that this tool will be important for determining clear management objectives and how to achieve these targets.

28. Focusing on social and economic aspects, there were certain priorities which were already agreed at the Workshop on Fishery Stock Indicators and Stock Status, Tehran, Islamic Republic of Iran, in 2009[2], including that the social and economic importance of the fisheries sector should be measured by the extent of its contribution to the local food supply and its contribution to exports both in value and quantity. A hierarchical tree for social and economic aspects was presented, and it was emphasized that this would be needed for future work in this area to be clear on the goals and how these would be achieved. Ms Tsuji then highlighted how different types of information could be collected, including gathering this information from existing census and administrative records.

29. The discussion on what Ms Tsuji presented focused on the need for countries to continue on their commitment for this work, that the results are impressive but that more countries need to submit their data, particularly their historical data, as soon as possible. The RECOFI Secretary drew attention to a project proposal that was submitted by the GCC countries and Yemen which would encompass stock assessment as well as developing the capacity of young people in this area, which is going to be signed and implemented in the near future.

[2] www.fao.org/docrep/014/i2170e/i2170e00.pdf

30. Ms Tsuji noted that while she is working in the capacity of technical support to RECOFI Member countries, it is needed for countries to take more ownership for this work, to determine how to manage resources, and as well to ensure capacity building in the area of data collection methods. Progress is being made in data collection. Bahrain noted that there is a lot of work being undertaken at the regional level, but there is a lack of coordination between the entities doing this work. Increased coordination between RECOFI and the GCC is recommended. The Kingdom of Bahrain stated that it would do its part to increase the links between the two entities.

31. The RECOFI Secretary emphasized that with limited resources the work undertaken by each entity should not be duplicated, cooperation between the RECOFI and the GCC is needed. It was also noted that countries that are not submitting their minimum data to the RECOFI Secretariat must be urged to do this immediately. The RECOFI recommendation on minimum data requirements was adopted by member countries and they have an obligation to submit these data.

ESTABLISHMENT OF A SOCIO-ECONOMIST NETWORK AND FORMULATION OF A REGIONAL WORK PLAN

32. Mr Mannini invited participants to provide feedback on the questionnaire that was presented under Agenda item 5. It was noted that this work will be useful possibly for national plans of work, and that as a workshop it was needed to think about whether a preliminary network of people who can be focal points for social and economic aspects for RECOFI was present.

33. Mr Barrania presented on a proposal for a work plan for the socio-economic study, for the discussion and modification by the participants. The proposal included:

Develop a comprehensive profile of the study site, including:
- Boundaries of the study site
- Past and present :
  - Demographic structure
  - Economic structure
  - Social structure
  - Infrastructure provision.
- Development schemes in the study site, past, present and future.

Field work
- Identify required data and information
- Conducting field surveys
- Designing a questionnaire form
- Pilot survey and feedback

Data analysis and socio-economic assessment
- Data entry and verification
- Data analysis

34. The participants noted that it is the responsibility of the countries to use the scientific studies from the research centers available; there must be a national commitment to identify and use all stakeholders, research institutes, universities, and NGOs to gain this information. The Chairperson suggested to determine what the workshop can commit to at present from which point the capacity of each country to provide information can be assessed. All present countries affirmed that they can provide the discussed information.

35. It was determined that the best way to proceed would be through the nomination of focal points for each country to carry out the above work plan. The Chairperson noted that only four countries were present, and that it was needed to determine as well whether the RECOFI countries not

in attendance other countries are also willing to do this, emphasizing that their cooperation is also important. It was agreed that a minimum network based on the RECOFI countries in attendance would be formed, also nominating a leader for this Task Group. The RECOFI Secretary will also invite the other member countries to nominate their Task Group member.

36. The meeting agreed that a workplan proposal needs to be developed and submitted at the forthcoming sixth meeting of the WGFM to be held in the State of Qatar later in 2012. It was proposed and agreed that the following day would include as well as an adoption of the major outcomes and conclusions, a road map for the way forward from this workshop. Before closing, Ms Tsuji emphasized the need for historical fisheries data and requested that it be submitted as soon as possible.

37. Mr Mannini mentioned that if observers to this meeting would like to be more informed and attend future RECOFI sessions, they can send a request to the Secretariat for consideration.

MAIN OUTCOMES OF THE NEAR EAST AND NORTH AFRICA REGIONAL CONSULTATIVE MEETING ON SECURING SUSTAINABLE SMALL-SCALE FISHERIES (MUSCAT, OMAN, 26–28 MARCH 2012)

38. Mr Piero Mannini presented the objectives and outcomes from the Near East and North Africa Regional Consultative Meeting on Securing Sustainable Small-Scale Fisheries: Bringing Together Responsible Fishing and Social Development that was held in Muscat, Sultanate of Oman, on
26–28 March 2012. Mr Mannini noted that small-scale fisheries contribute to food security and poverty alleviation, and that over 90 percent of fishers worldwide are small-scale, the social and economic dimensions of whom are not well understood. The ongoing work of FAO to convene consultations on this matter at national, sub-regional and regional levels since the Bangkok statement on small-scale fisheries in 2008 was mentioned, with particular relevance to the efforts to consult all relevant stakeholders. It was mentioned that the guidelines should complement the CCRF and draw on its principles and approaches and be aligned to other related instruments and that in terms of governance of access to resources, resource management and stewardship, the unique dimensions of small-scale fisheries when contrasted with traditional fisheries management need to be considered in terms of management measures and considerations. Additionally, the links between equity/equality and longer-term development prospects need to be understood in the SSF context, as well as the prevalence of poverty in terms of income, education, health care, working conditions and participation on decision making. Mr Mannini went on to note that the Guidelines will only be effective if implemented, that visibility of SSF is key to political and financial support, and that process is key to buy-in and ownership.

39. The discussion that followed included determining that while subsistence fishing is a part of small-scale fisheries, and would need special consideration, not all small-scale fisheries are only subsistence fishing. In the RECOFI region, small-scale fisheries make the bulk of commercial fisheries production. Additionally, the some possible tools for the implementation of these guidelines were outlined.

OTHER MATTERS

40. There were no other matters.

ADOPTION OF THE CONCLUSIONS AND RECOMMENDATIONS OF THE WORKSHOP

41. A summary of discussions and main conclusions was presented and adopted, including a Terms of Reference for the Task Group. This is attached in Appendix I.

42. The Chairperson, on behalf of the Public Commission for the Protection of Marine Resources, Environment and Wildlife, thanked participants' delegates for their constructive contribution to outcome of the workshop. He also thanked FAO and the RECOFI Secretariat for their efforts in ensuring that the meeting was a success.

43. The participants thanked the Government of the Kingdom of Bahrain for hosting such an excellent and successful meeting. The participants also thanked the RECOFI Secretariat for its support prior to, and during, the meeting.

APPENDIX A

Agenda

1) Opening of the Meeting and election of the Chairperson

2) Objectives of the Workshop

3) Country report on the social and economic dimensions of national fisheries: available data and compiled information

4) Identification of priority goals and issues on the social and economic aspects of fisheries in the region

5) Introduction to the survey questionnaire

6) Identification of social and economic indicators to be used at the regional level

7) Implementation of RECOFI Recommendation *RECOFI/6/2011/1* (minimum data reporting in the RECOFI area)

8) Establishment of a socio-economist network and formulation of a regional work plan

9) Main outcomes of the Near East and North Africa Regional Consultative Meeting on Securing Sustainable Small-Scale Fisheries: Bringing Together Responsible Fishing and Social Development (Muscat, Oman, 26-28 April 2012)

10) Other matters

11) Adoption of the conclusions and recommendations of the Workshop

APPENDIX B

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APPENDIX C

Opening speech
by
Piero Mannini
RECOFI Secretary and Senior Fishery Officer
FAO Regional Office for the Near East and North Africa

Mr Jassim Al-Qaseer,
Mr Abdul Redha Shams
Distinguished participants,
Dear Colleagues,
Ladies and Gentlemen,

On behalf of the Food and Agriculture Organization of the United Nations (FAO), it is my pleasure to welcome you to the FAO/RECOFI Regional Workshop on Social and Economic Aspects of Fisheries in the RECOFI Region that is held in Manama, kindly hosted by the Kingdom of Bahrain.

The Code of Conduct for Responsible Fisheries, drafted by 170 nations during discussions brokered by FAO, was adopted by all FAO Member States on 31 October 1995. The Code contains a series of principles and articles promoting best practices for conducting fishing and aquaculture in a responsible and sustainable way.

In particular and with reference to the social and economic dimension of fisheries, Article 2 of the Code reads that the objectives of the Code are, *inter alia*, to: Establish principles, in accordance with the relevant rules of international law, for responsible fishing and fisheries activities, taking into account all their relevant biological, technological, economic, social, environmental and commercial aspects;

ARTICLE 7 on Fisheries management states that fisheries management measures should provide inter alia that:

a) excess fishing capacity is avoided and exploitation of the stocks remains economically viable;
b) the economic conditions under which fishing industries operate promote responsible fisheries.

As you know the RECOFI Working Group on Fishery Statistics was renamed as WGFM in 2008 and its mandate broadened, as a result of a decision taken at the 2007 RECOFI Session when the Commission agreed to expand and strengthen the Working Group's scope, role and functions.

In broadening the Working Group's focus, fisheries management was considered in a more comprehensive and integrated framework addressing biological, statistical, development, economic and social aspects. I believe firmly that in this way fisheries management will be improved significantly because the Working Group is now in a position to deal with all factors that influence and impact fisheries management.

The terms of reference for the Working Group on Fisheries Management state that the Working Group shall, taking into account the Code of Conduct and its technical guidelines and other international instruments:

1. Exercise the role and functions conferred on the Working Group by RECOFI including the consideration of biological, statistical, social, economic, policy, legal and institutional aspects of fisheries conservation and management with a view to ensuring the long-term sustainable development of resources in the region, and amongst the other things:

- Identify major fishery-related issues and emerging trends for fisheries management practice, including the ecosystem approach to fisheries, and make recommendations, as appropriate, for follow-up action;
- Identify and apply, as appropriate, a set of regionally-agreed indicators for sustainable fisheries development;
- Promote closer regional cooperation and collaboration in fisheries conservation and management, including through coordinated and harmonized policies and programmes relating to fisheries legislation, acceptance and implementation of international fisheries instruments, adoption of fisheries and management measures and monitoring, control and surveillance;
- Monitor and report on adverse impacts induced by human-made activities on fisheries and their long-term sustainable management and utilization, as appropriate, and make recommendations concerning remedial measures and action;
- Encourage human capacity building and institutional strengthening and enhance extension services in all aspects of sustainable fisheries management and utilization, including making recommendations for appropriate regional programmes;
- Assemble, publish and disseminate information concerning the state of the region's fisheries;
- Promote collaboration with other regional and international organizations, as appropriate, to enhance the sustainable fisheries management and utilization in the region; and
- Undertake other activities relating to fisheries management considered important and appropriate by the Working Group or as directed by RECOFI.

In coherence with renewed and extended mandate of the WGFM, the implementation of an Ecosystem Approach to Fisheries (EAF) in the RECOFI region was adopted by the Commission at its fifth session in Dubai, United Arab Emirates, in May 2009.

In particular, the RECOFI Regional Strategy and Priorities for Regional Fisheries Management advocates the promotion of sound and effective regional fisheries governance by:

- ensuring that fisheries are exploited and utilized in a responsible and long-term sustainable manner;
- ensuring that fisheries generate maximum social and economic benefits for RECOFI countries; and
- ensuring that ecosystem considerations are incorporated into conservation and management decisions.

EAF strives to balance diverse societal objectives, by taking account of the knowledge and uncertainties of biotic, abiotic and human components of ecosystems and their interactions and applying an integrated approach to fisheries. The EAF takes its focus in fisheries management but broadens the perspective beyond seeing a fishery as simply "fish in the sea, people in boats", beyond consideration only of commercially-important species and beyond management efforts directed solely at the harvesting process.

Consequently and in order to use effectively an adaptive management approach, there is a need for a robust monitoring system providing information on the performance of the various components of the EAF policy and management system. There is, hence, a need to define and agree on indicators, reference points and performance measures. Indicators are needed at different levels and stages of the EAF process and should be defined for goals, objectives and processes relevant to EAF policy, management plan and implementation.

This regional meeting is the result of the joint effort of the FAO/RECOFI Secretariat and the Public Commission for Protection of Marine Resources, Environment and Wildlife, General Directorate for the Protection of Marine Resources. It is expected that discussions will contribute to:

- Understand the situation of the national and regional marine fisheries in the RECOFI region, particularly from the social and economic point of view;
- Review the availability of data on the socio-economic statistics, analysis work and other relevant research activities in member countries;
- Gain a preliminary insight into the main priorities to be addressed, identify major gaps knowledge and expertise in the field, and exchange relevant information;
- Formulate RECOFI action plan for regional cooperation in assessment of socio-economic aspects and to identify regional socio-economic indicators for both national and local levels of each member country.

I wish to extend my thanks to those in the General Directorate for the Protection of Marine Resources and FAO in Cairo and Rome who have worked together to make possible the organization of this meeting. Special thanks are due to the Kingdom of Bahrain for hosting this event.

Thank you very much for your attention.

APPENDIX D

Country report: Sultanate of Oman

Summary

The fisheries sector in the Sultanate of Oman is one of the important economic sectors which have a great contribution in the national economy of the country. Also, it has a role in the strengthening of social and food security. The coastline of the Sultanate of Oman is 3 165 km; these coastlines are known to vary both in terms of abundance and diversity of resources. The importance of the fisheries sector is highlighted by its contribution in providing high quality food for Omani citizens.

In Oman the average consumption of fish per person was recorded to be more than 21 kg annually (Ministry of National Economics), compared with the global average consumption of fish at 17 kg per capita annually. Moreover, the fisheries sector is a source of income for a large number of Omani citizens, while the number of fishermen is reached to be more than 36 thousand fishermen (Oman Statistic Book, 2010). There was a clear increase in the total landing of fish in the year of 2010, at approximately 164 thousand tonnes (31 percent more than in 2009), totaling 118 million Omani Rial in value. This increase was a result of the increased landings the traditional fishery sector.

There are a number of rules and regulations applied by the Ministry of Agriculture and Fisheries in order to protect the marine resource from exploitation; there was a closed season for Abalone fisheries (for three years between 2008 and 2010) in order to give the stock the ability to be recruited. There are several regulations regarding the type of gears the fishermen use as there are some types of gears which have negative impacts on the environment. There is an important concern for the sustainability of the fisheries sector and marine resources, particularly as this sector is important in terms of social and economic aspects for the fishermen. Fishing for some fishermen is the only source of income; the amount of catch determines whether their income is high or low at any time.

There are many other economic issues in the fisheries sector, for example: high operating costs, low income per crew or fishermen, problems in the marketing chain, and production. Social issues include: low education levels, fishing gears conflicts and the appearance of expatriate in fisheries sector.

Brief introduction to the marine captured fisheries

Fishing ground description

The coast of Oman is surrounded by the Arabian Sea to the south and by Sea of Oman to the north. The Oman coastline is divided into two geographic regions which are distinguished by their hydrodynamic and hydrological characteristics. There are different types of fishing grounds along the coast line; some of the grounds are soft with clean sands (mostly in Al Batinah), while there are also hard rocky bottoms and soft bottoms with muddy sand.

General description of fishing operation

There are several types of fishing vessels operating along the coast of Oman, these vessels vary in their size, operating period, amount of catch, and type of gears used and in their engine power. According to the data of 2010 there were approximately 696 artisanal fishing vessels, 13 long line fishing vessels, 33 coastal fishing vessels, 25 trawler fishing vessels (although trawlers have been banned since 2011). There are also small fiberglass boats used by the traditional fishermen and distributed in all along the coast of Oman, and in 2010 they totaled approximately 18 031. The majority of artisanal vessels, coastal vessels and fiber glass boats are multi gears meaning that there are not specific gears for specific vessels. The only vessels which use one type of gear are the long liner vessels, using only long lines.

The size of the artisanal and coastal vessels ranges between 12 to 32 metres, while the size of the fiber glass boats range from 5 to 9 metres. Small fiber glass boats, artisanal and costal vessels caught different types of fish including large pelagics, small pelagics, demersal, crustaceans, sharks and rays; there is no selectivity in the type of fish. Long liner vessels specialized to catch only yellowfin tuna, sailfish, sharks and others.

All the types of fish which are mentioned can be caught during the entire year; however the crustaceans are caught on a seasonal basis. Table 1 below shows catching seasons for crustaceans in Oman.

Table 1: Catching seasons for crustaceans

Species name	Catching period
Lobster	March–April
Shrimp	September–March
Cuttlefish	August–January
Abalone	20 October–20 November

Regarding the classification of fishing vessels according engine power (HP), in 2005 there was a project implemented by the Statistical Department in the Ministry of Agriculture and Fisheries to record all the artisanal fishing boat and vessels along the coast of Oman. The following table shows the summarized results of boats / vessels classifications according to engine power.

Table 2: Classification (HP) of artisanal fishing vessel/boats according to data of 2005

Type of vessel	Engine type	< 60	16–48	50–70	80–100	> 100	Not clarified	Total
Fiber Glass	1 Inboard	2	53	6	1	3	0	65
	2 Inboard	0	1	7	1	0	0	9
	1 Outboard	695	7485	205	24	4	1	8414
	2 Outboard	0	310	485	48	27	0	870
Houries	1 Inboard	1	0	0	0	0	0	1
	1 Outboard	3	6	6	0	0	0	15
	2 Outboard	0	1	0	0	0	0	1
Launches	1 Inboard	15	61	78	58	156	0	368
Aluminum boats	1 Inboard	6	1	0	0	0	0	7

There was another project implemented in 2010 for the same purpose, the publishing of which is forthcoming once the results are approved.

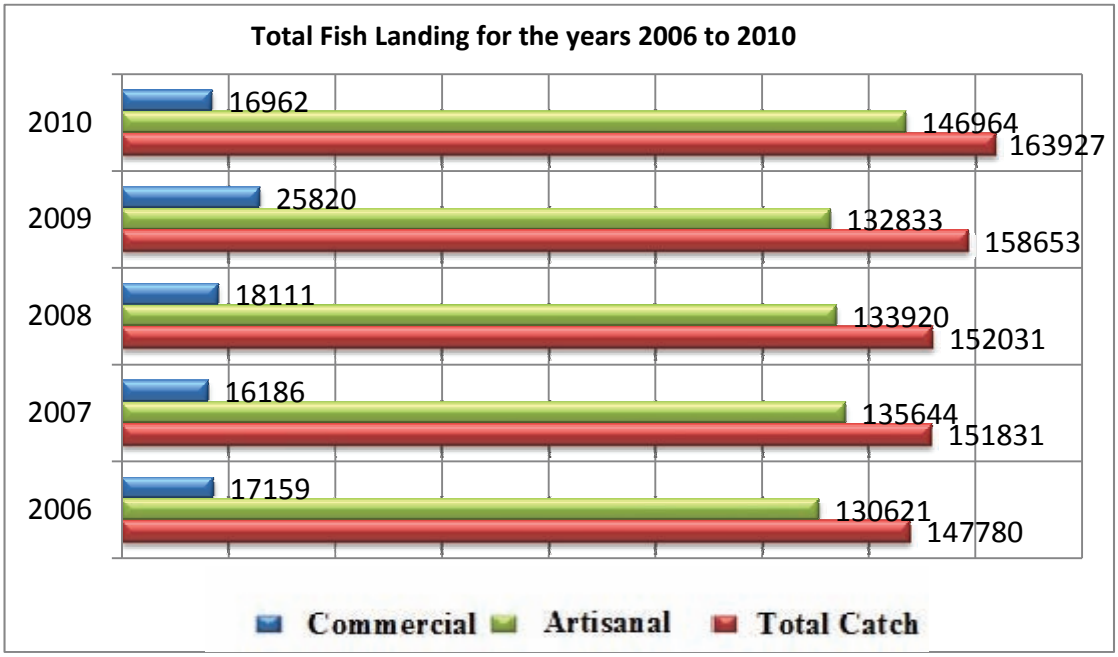
Main landing site

There are many landing sites along the coast of Oman; each coastal region has several landing sites. The total landing sites according to the latest data (2010) were 177 sites including some of the fishing ports. There are approximately 19 fishing ports along the coast, but not all of them are used as landing sites.

Historical trend of catch

Figure 1 shows the historical trend of catch from 2006 until 2010, showing that total production is comprised mainly from artisanal catch, which has increased in the last year.

Figure 1: Total fish landings (tonnes) for years 2006 to 2010



Management measures and regulations that affect fishing activities

In order to protect and provide the sustainability for marine resources, there is a need to put rules and regulations to prevent the wrong activities which might have a negative impact on the marine environment or on its resources. Therefore a Royal decree number 53/81 was issued in 1981to put the first law related to fishing. It is called "The Marine Fishing and Living Aquatic Resources Protection Law (MFLARPL)"; the law provides the legal mandate for the conservation and exclusive management of the fishery resources within the Omani exclusive economic zone (EEZ).

It has six sections covering definitions, handlings, marketing and processing, violation and penalties and general provisions. The Executive Regulations deal with licensing procedures, license fees, protection, development of marine resources, transport and marketing, violation and penalties.

Sector organization

The Ministry of Agriculture and Fisheries is the sole authority for the management of the fisheries resources in the Sultanate of Oman. The ministry has regional offices in all seven coastal governance.

No formal organizations represent fishermen, with the exception of informal committees (called Sunat Al Bahar) which have a fishermen representative way in each Welaya (city). The member of these committees usually has the most experience in the fishery.

Main issues

There are several issues arising from illegal or inappropriate activities and have a direct effect on the marine environment and its resources, such as:

- Ghost fishing;
- Conflict between the artificial coral reefs and the gears used by the fishermen;
- Damaging the fishing grounds by the traditional trawlers which are used to catch shrimp;
- Environmental damages in Abalone fisheries, by moving the rocks from their place;
- Discarded fish or what is called the by catch, fishermen throw non preferred fish back to the sea.

Overview of the social relevance of marine fisheries

Number of fishermen by subsectors

The numbers of fishers are mainly comprised of those fishing in fiberglass and artisanal vessels, as is demonstrated below in Table 3.

Table 3: Number of Fishermen by subsector (data of 2010)

Vessel type	Fiber glass boats and artisanal	Coastal	Commercial
Number of Fishermen	36 320	99	1 367

Ownership forms

The type of ownership in the traditional fishery is individual.

Methods applied for income distribution among the crew and vessels owners

a. Small boats and vessels- Sharing method is applied (1/3 for the boat maintenance, 1/3 for boat owner, 1/3 for the crew)

b. Coastal and commercial vessel- Wages method or percentage of profit.

Fishermen communities and social services and facilities available

The fishermen communities are found in all the coastal regions of Oman. Some of these communities rely on fishing as their only source of income, these groups worry about the future of fisheries more than any other groups. Fishermen communities are provided with all social services entitled to Omani citizens in the country.

The Ministry of Agriculture and Fisheries provides several services such as: awareness programs; training; and incentives. The types of incentives the government provide are: fishing boat, engine, fishing gears, fishing equipment, ice pox, etc. The Ministry provides many facilities for fishermen communities, including fishing ports, fish markets, landing site facilities (eg. shades, stores, boats, pulling machine, etc).

Fishermen organizations and facilities provided

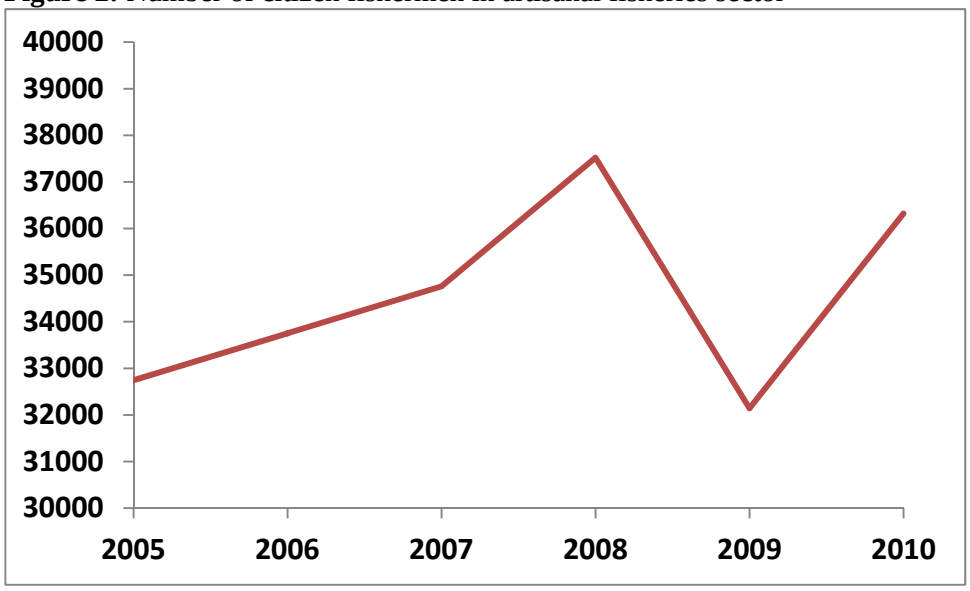
As it was mentioned there are no fishermen organizations in Oman. The Ministry of Agriculture and Fisheries adopts the idea of having fishermen Committees in all the coastal regions of Oman (Sunat Al Bahar) in order to develop the sector and to involve fishermen ideas and suggestions in different parts of the sector. There are approximately 25 committees with 125 members. The members of these committees are fishermen who have a great experience in fisheries who give suggestions and recommendations regarding the projects and studies related to the fisheries development. They also solve the misunderstanding between the fishermen.

Historical trend of the number of citizens and foreign fishermen in recent years (2005–2010)

Table 4: Number of fishermen in recent five years

Year	Number of fishermen (citizens)
2005	32 744
2006	33 751
2007	34 757
2008	37 520
2009	32 140
2010	36 320

Figure 2: Number of citizen fishermen in artisanal fisheries sector



The figure above shows the historical trend for the total number of fishermen for the recent five years (2005–2010). Regarding foreign fishermen, it is not allowed in Oman and no licenses are issued to them, but in some regions they are involved in the fisheries sector illegally, meaning that there is no data available about the number of foreign fishermen.

Main social issues and fishermen complaints

There are several issues in the fisheries sector in the Sultanate of Oman, and the Ministry of Agriculture is trying to come out with the best solutions for each issue. The following are some of these issues:

- Conflict between the small fiber glass boats and the bigger boats (launch), where some launches catch in the areas of the fiber glass boats;
- Conflict between the fishing gears;
- In some regions conflict between fishermen appears, when fishermen from different regions catch in their water;
- Use of prohibited fish gears in some areas, for example some fishermen use nets to catch lobsters and trawlers for catching shrimp;

- Appearance of landing units along the coast of Oman- data collection is a challenging process for the data collector;
- Shortage of infrastructures in some existed landing sites;
- Lack of markets in some landing sites in some areas;
- Lack of ice factories along the coast line in some areas;
- Preference of small boats by fishermen, causing exploitation of resources in the areas near the coastal zone.

Overview of the economic relevance of marine fisheries

There is no information available regarding the contribution of each sector in food security. However the traditional fishery represents approximately 90 percent of the total landing in 2010 (Statistic Book 2010). The gross consumption of fishing products per inhabitant of the country is about 21 kg annually.

Production value in USD 2005–2010, and fish contribution to GNP

Table 5: Total value of production for 2005–2010

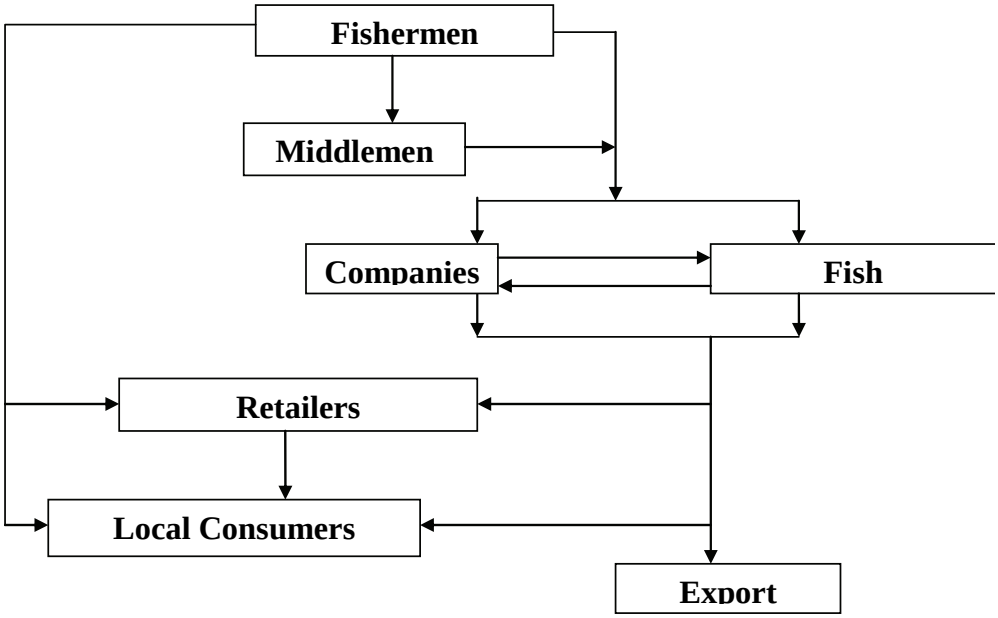
Year	Total value (OMR)	Total value (US$)
2005	68 175 000	177 077 926
2006	69 139 000	179 581 823
2007	76 297 000	198 174 031
2008	83 544 000	216 997 408
2009	91 398 000	237 397 408
2010	100 185 000	260 220 786

The contribution of fish to the gross national product (GNP) is about 110 million Omani Rials annually, which is about 0.5 percent.

Employment created directly by the fishing industry in the country

- Self-employment by fishermen
- Data collectors in landing sites
- Ice factories
- Fish companies
- Fish distributers
- Fish transporters
- Laboratory specialists
- Fisheries specialists
- Surveillances and monitors
- Fish traders
- Fish ports managers

Figure 3: Fish market chain in the Sultanate of Oman



Average fishermen income

According to a study done in 2002 (Analysis of Socio-Economic Aspects for Small Scale Fisheries in Sultanate of Oman), the average income for fishermen was 31.4 RO (daily) and 7 244 RO (annually).

Foreign trade data

The Ministry of Agriculture and Fisheries is making great steps to develop the fisheries export sector, according to its positive impact on the National Economy of the country. The Sultanate is trying to reduce oil product export dominance by diversification in the type of the exported products. There was a significant increase in the amount of fisheries export in the year of 2010 by 7.4 percent comparing to the year of 2009.

Table 6: Fish exports 2006–2010

Statements/years	2006	2007	2008	2009	2010
Total quantity exported (thousand tonnes)	76	75	74	81	87
Percentage of export from total production %	51	49	49	51	53
Value (million Omani Rial)	70	59	60	61	64

There was a relatively small quantity of fish imported from other countries. In 2010, the total imported fish was about 11 978 tonnes, which was a decrease of 21 percent from 2009.

Existing data and information source and relevant institutions and capacity

There is a study undertaken in 2002 by the Ministry of Agriculture with the cooperation of Sultan Qaboos University and the Agriculture and Fisheries Development Fund. The study was an analysis of socio-economic aspects for small-scale fisheries in Sultanate of Oman and aimed to provide the main information to create appropriate rules and regulations for developing the fisheries sector in Oman. This information includes the socio-economic situation of the fishermen.

The data and information on fishermen were gathered by preparing a questionnaire, and included questions related to the socio- economic aspects. The questionnaires were distributed to the regions that involved in the study, and two methods were used for analysing the data, statistical regression and the descriptive statistical procedure.

The main findings of the study were:

- 56 percent of the fishermen involved in the study were illiterate, except Dhofar, where 50 percent of the fishermen were educated;
- More than 85 percent of the fishermen believe that fisheries sector has a lot of problems, the main one being a low income, and 49 percent preferred to have another job instead of fishing;
- 37 percent of the fishermen wanted to replace the small boats by bigger boats;
- Average operation cost for all types of boats was O.R 18.6, and the income from one trip was RO 31.4;
- More than 83 percent of the fishermen were not satisfied with the marketing outlets;
- 69 percent of the fishing gears and boat value was paid by government support.

Proposal and recommendations to include the social and economic aspects in national and regional fisheries governance

The two regional bodies, the Regional Commission for Fisheries (RECOFI) and the Fisheries Committee of the Gulf Cooperation Council Secretariat General, provide technical support and capacity building, however real activities such as projects are limited.

We recommend enhancing capacity building in collecting and analyzing data related to the socio-economic aspects for fishermen communities, as well there is a need to propose and fund a regional project to study the socio-economic aspects.

APPENDIX E

Country report: Kingdom of Saudi Arabia

Summary

The status of fisheries in Saudi Arabia is stable although some major important species decreased by approximately six percent in 2010 (39 081 tonnes) compared with 2009 (41 604 tonnes). This decrease is due to the decrease of the most important species of shrimp (*Penaeus semisulcatus*) from 8 393 tonnes in 2009 to 6 881 tonnes in 2010 (18 percent), and also the decrease of crabs by 4.4 percent, and other important species. Fishery resources in the Saudi Arabian Gulf waters are mostly caught by traditional[3] fisheries which resembles 99.98 percent of the total catch in 2010.

There is a general lack of socio-economic information of fishermen, although some aspects are known, including: the method of sharing/payment for vessel owners and crew, the boat needs (repairs, fuel and oil for the engine, etc), and that the fishermen share of the profits is the least in the supply chain. There are no new studies or surveys concerning the socio-economic status of the fishermen, the old study was full of gaps.

Introduction to the marine capture fisheries

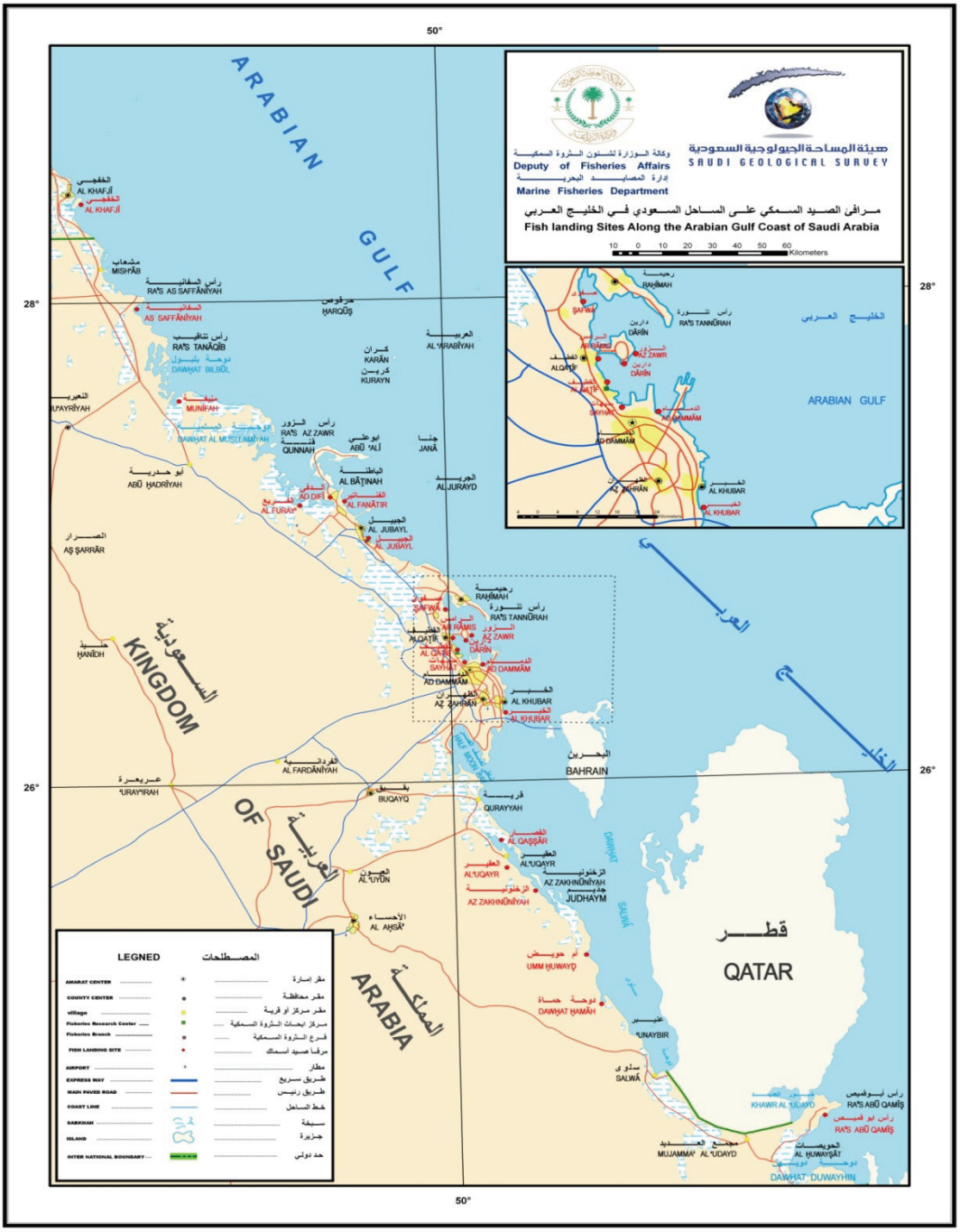
Most of the Saudi Arabian Gulf topography is muddy sometimes with shells, and the coastal waters are mostly muddy, with some areas of rocky topography, also there are coral reef areas but not too much.

Fishing operations are undertaken by both large and small fishing vessels, the large ones are between 10 to 20 metre length and run by internal engine from 150 to 400 horse power, while the smaller boats are run by outboard engines between 70 to 140 horse power; most of the small boats have two outboard engines of 35 horse power each. The boats are multi-purpose fishing boats; in the shrimping season many large boats use shrimp trawl nets of 16 meter cod end, and some small fishing boats (8 to 9 metre length) also catch shrimp in some areas, mostly in the southern areas such as Dareen, Qateef, AlKhubar, and or in the northern areas south of Jubail. The major species caught by shrimp trawling are two shrimp species, and other shrimp species considered as mixed shrimps, crabs, white cuttlefish, catfish, silver sillago, and other fish species. Shrimping takes place between August and February each year. Demersal species are generally caught most of the year by traps (large, medium and small sizes), mostly between May and September, while some species are caught in the winter season. Gill netting, both large and small mesh sizes, is also an important fishery; the main target species by the large meshsize are narrow barred Spanish mackerel, large Jacks and trevallies, large barracudas and some other species; the most important pelagic species is the Spanish mackerel, while the others are considered as by-catch species, including sharks and rays. Hand lines, troll lines, and long lines, are also important fisheries, most of the catches of these methods are demersal, and some pelagic and mesopelagic species are caught also.

There are 17 landing sites in the Saudi coasts of the Gulf, the most important of which are: Jubail, Qateef, Dareen, and Dammam, and also Al-Khubar during shrimp season only, but less important after it. Figure 1 below shows a map of landing sites along the Gulf Coast of Saudi Arabia.

[3] Traditional fishing refers to vessels between 5 and 20 metres, and includes include onfoot fishermen who fish in the intertidal zone, or near by the coast, without a vessel. Traditional fishermen use handlines, gill nets including large mesh size gill net and small meshsize gill net, wire traps of all sizes, small shrimp trawl nets.

Figure 1: Landing sites along Gulf Coast of Saudi Arabia



Historical trend of catch

Table 1 shows the historical trend for fish catch on the Gulf coast of Saudi Arabia, showing a general fluctuation between approximately 37 000 tonnes and 43 000 tonnes since 2005, and with 2010 showing a lower production than the previous four years.

Table 1: Historical trend of catch in the Saudi Arabian coasts in the Gulf

Total catch in tonnes	2005	2006	2007	2008	2009	2010
	37 090	42 037	40 049	43 489	41 604	39 081

Management measures and regulations that affect fishing activities

There are a lot of management measures affecting fishing activities in the Kingdom of Saudi Arabia and which aim to decrease fishing effort and to minimize the negative effects of these activities on both stock and environment. These measures are summarized as follows:

- Stop new entries of fishing effort by preventing new fishing licences, except for the fishermen who "Saudize"[4] fishery workers, and limiting the boat size to 10 metres in length;
- Applying a fishing season for shrimps, both in the Gulf and Red Sea, and in the process of making a closed season for other species;
- Strengthening fisheries regulations to increase compliance; some regulations are being strengthened such as monitoring, and management controlling;
- Developing 42 landing sights and fishing ports in both sea coasts including seven in the Gulf;
- Strengthening our knowledge in stock assessment of the major imporrtant species by conducting studies and surveys to better understand and manage our resources.

Sector organization

Sector organization needs to be strengthened and there is a need to persuade fishermen to be organized in cooperatives, which are currently weak, and improving the role of the government to help this sector. Also another major issue is strengthening the role of guidence to the fishermen, and reducing the non-Saudi fishery workers for better results in controlling the fisheries sector.

Another main issue concerning the socio-economic aspects for Saudi fishermen is the need to develop a new study to better understand the situation of fishermen in order to improve their situation and develop their important role in the fishery.

Fishing boats and fishermen

Table 2 below shows the number of fishing boats from 2005 to 2010 by sector, demonstrating the dominance of traditional vessels in the sector.

Table 2: Number of fishing boats from 2005 to 2010 by sectors

Category/year	2005	2006	2007	2008	2009	2010
Investment boats	26	26	29	24	28	29
Traditional boats	1 827	1 827	1 898	1 948	2 012	2 034

[4] Saudization of the fisheries sector refers to encouraging increasing numbers of Saudi citizens to be involved in the sector. An example includes: new entries to fisheries cannot get a license to go fishing unless he uses a Saudi crew in the boat which should be 10 metre boats only. It encourages vessel owners to hire citizens of Saudi Arabia, rather than foreign labor.

Overview of the social relevance of marine fisheries

Employment is an important social factor for the fisheries sector in Saudi Arabia. Table 3 below details the numbers of fishermen employed in the sector, which is dominated by non-Saudi fishermen.

Table 3: Number of fishermen divided by sectors in the Gulf from 2005 to 2010.

Category/year	2005	2006	2007	2008	2009	2010
Investors	8	8	8	8	8	7
Traditional fishermen	2 123	2 123	2 211	2 211	2 251	2 433
Onfoot fishermen	20	20	28	28	20	15
Temporary fishermen	176	176	197	197	50	31
Saudi fishery worker	543	543	511	511	611	711
Non Saudi fishery worker	7 701	7 701	8 950	8 950	8 690	8 490
Total	10 571	10 571	11 905	11 905	11 630	11 687

Vessel ownership forms

The boats are owned by fishermen or Saudi investors, with the exception of four boats owned by the Ministry of Agriculture (Research Center for Eastern province, and its branch in Jubail), used mainly for monitoring the fishermen boats and its gears used. The method applied for income distribution is mostly shared between the boat owner and his crews (Two shares for the boat needs, two shares for the owner of the boat, two shares for the captain, and one share for the crew. Some boat owners (fishermen) do not actually go fishing, they depend on the fishery workers (mostly non-Saudi workers) pay a certain amount of money (3 000 to 5 000 Saudi Riyals) as a fee, and the fishery workers sell the fish. In other arrangements, fishermen give 50 percent to the vessel owner, and the remaining 50 percent is for the crew. It is not known how many vessels use each method of payment.

The contribution of fishery sectors to national food security in the whole country is considered as one of the important factors of food security. It is anticipated to become even more important with the planned increase in aquaculture production (by 2029) through implementing the sustainable development strategy; currently aquaculture contributes small portion of the total annual per capita fish consumption of between 8.5 to 9.5 kg.

The production value of total fishery production is estimated at USD3 730 000 000 in 2010. The employment created directly by the fishing industry in the country is not known.

Regarding the fish market chain, the fish comes from the fishermen to the auction markets (mostly in baskets of 32 kilograms), where they are given to a middleman in the market, (there are usually four middle men at each big auction market), and auction off to fish traders who then sell it by both wholesale and retail. If it is sold wholesale, the fish continues to other markets in other cities via refrigerated trucks, pickup trucks, or via cargo airplanes. The longer the supply chain, the higher the price, and fisherman receive the lowest profit margin, depending on the middleman for loans, and finances required for his household, in a manner that creates a dependency of the fishermen on the middleman.

Additionally, foreign trade is very important, particularly imports, which exceed 150 000 tonnes and are required to cover the demand of fishery products for consumption. Exports are less important and rarely exceed 18 000 tonnes, mainly from aquaculture production.

It is highly recommended to undertake a new study on both Red Sea and Gulf coasts in each country, following which the information on the socioeconomic aspects of the fisheries in the Gulf countries should be shared, which could play an important role for countries who share the production of shared stocks of important marine species.

APPENDIX F

Country report: Kingdom of Bahrain

Introduction

Bahrain is a group of islands with a land area of 740 km^2, a coastline of 590 km, and a fishery zone of 3 800 km^2. Fishery GDP at purchaser's value in 2009 totaled BD10.90 million, and comprised 0.15 percent of total national GDP. Since mid of 1980s the average annual landings of finfish fluctuated between 6 000 and 9 000 tonnes. Recorded crustacean production increased to 6 040 tonnes in 2007 from 1 869 tonnes in 1985.

Table 1: Fishery Commodity Balance 2007-2009

	Production (tonnes)	Imports* (tonnes)	Exports* (tonnes)	Total supply (tonnes)	Population *	Consumption kg/year
2007	15 011	4 373	9 884	9 500	1 039 297	9.1
2008	14 175	6 832	7 902	13 105	1 106 509	11.8
2009	16 356	7 112	9 537	13 931	1 173 000	11.8

**CIO (Central Informatics Organization), Kingdom of Bahrain.*

In 1997, the Ministerial Decree (No.7) was issued to terminate finfish trawling by industrial steel hulled vessels in Bahrain, since which time there have been only artisanal fishing boats in Bahrain.

These fishing boats of the artisanal sector are classified into three types based on their keel-length and type of powered engines. The main gears used in the artisanal sector include; Gargoor (wire-trap, hook and line, gill-net, shrimp trawl, barrier trap (Haddrah). Fishermen in Bahrain are categorized into full-time, part-time, occasional and recreational. The last two types of fishermen have other vocations on land and fishing is a second job to improve their income. Over-fishing and conservation are considered the major challenges to Bahrain fisheries and marine resources.

The fishing fleet for both fish and shrimp fishery has increased thus resulting in less catch per boat. Dredging for sand and land reclamations caused destruction of huge areas of marine habitats.

Fishery regulations

- In 2002, Decree law No (20) was issued concerning the regulation of Fishing, Exploiting and Protecting Marine Fisheries;
- Ministerial Decree established a shrimp fishing ban period;
- The Ministerial Decree (No.7 for 1997) was issued to terminate fish trawling by industrial steel hulled vessels in Bahrain from 1st June 1998.

Fishery gears

- Artisanal fishery sector only;
- Small scale gears such as; gargoor (wire-trap), haddrah (barrier trap), hook and line, gill-net and shrimp trawl, and as well long line is a recent addition;
- Productivity has a low catch per unit effort (CPUE); usually not exceeding a few kg/boat/day.

Employment (Fishery Census 2004)

- Fishery classified into types: full-time, part-time, occasional and recreational.
- 2 727 vessels;
  - 9 164 fishermen;
  - Secondary Sector (700 rough estimate)

Fish Trade

In 2007, the import value of fish products was BD2.07 million, while the export value was BD6.03 million.

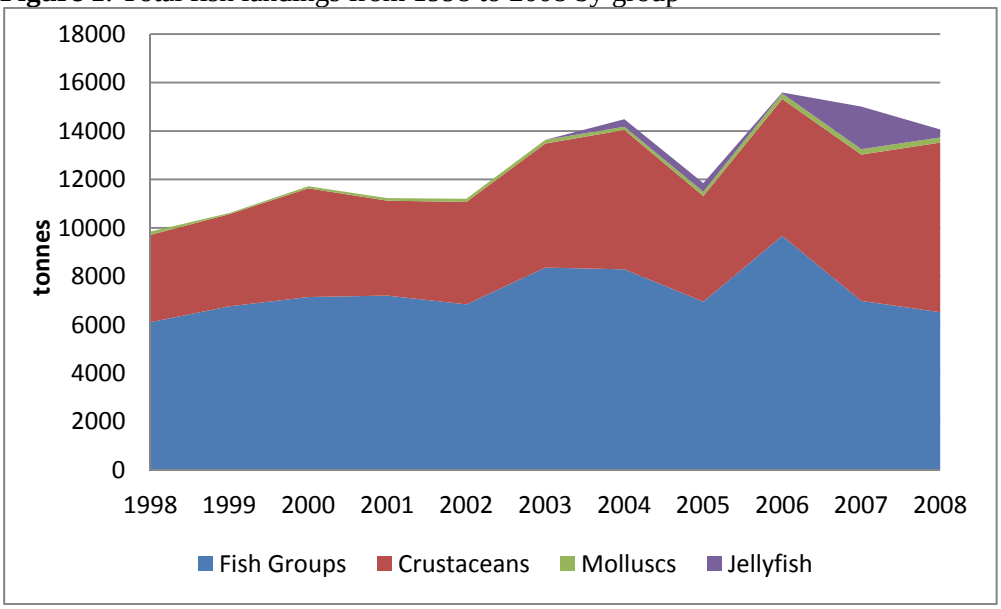
Landings

- The total fish landing has increased significantly during the last two decades, while the finfish landing has remained stable more or less.
- The increase in total landing can be attributed to increased crustacean (Crabs and Shrimp) landing.
- Most of valuable commercial finfish species production has not recorded a remarkable increase during the last 20 years, such as; Hamour (*Epinephelus coioides*), Chana'ad (*Scomberomorus commerson*) Saffee (Siganus spp.), Janam (*Plectorhinchus sordidus*), Burtam (*Epinephelus multinotatus*), Khadrah (*Trachurus indicus*), Kefdar (*Gnathanodon speciosus*), Rabeeb (*Gnathanodon speciosus*), Sharee (*Lethrinnus nebulosus*). (Table 2 below).

Table 2: Total fish landings from 1998 to 2008 by fish groups

Fish Groups	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Fish Groups	**6112**	**6765**	**7147**	**7209**	**6844**	**8362**	**8291**	**6956**	**9673**	**6988**	**6520**
Trevallies	359	524	414	450	470	570	348	715	508	298	259
Halfbeak	116	273	39	59	3	156	52	60	134	101	84
Silver Biddies	347	261	334	372	172	151	175	63	133	145	126
Perches	944	1227	1403	1377	1675	2169	1821	1538	1326	1111	1005
Snappers	100	294	157	103	142	63	62	45	122	76	66
Mullets	73	10	59	39	29	26	33	15	19	28	104
Groupers	331	525	670	794	725	811	649	358	462	440	306
Rabbitfish	1523	1241	2114	1899	2009	2273	1836	1802	2602	1695	1582
Mackerels	100	44	99	109	121	130	170	80	77	54	169
Tunas						0	0	28	3	10	3
Grunts	355	325	297	236	121	354	241	124	237	111	93
Seabreams	757	582	591	401	488	573	359	116	69	57	590
Barracudas	156	6	8	7	6	11	52	251	416	536	180
Goatfish	16	414	82	192	17	75	39	12	18	2	7
Needlefish	29	26	13	53	25	27	132	41	79	44	77
Parrotfish	63	66	32	21	27	20	15	5	6	4	8
Cobia	6	9	9	20	11	5	0	19	42	21	11
Sharks & Rays						0	0	1	1	5	43
Rajiformes						0	22	7	5	4	5
Other Fishes	837	938	826	1077	803	948	2285	1676	3415	2247	1803
Crustaceans	**3598**	**3807**	**4486**	**3917**	**4232**	**5125**	**5756**	**4364**	**5649**	**6040**	**7001**
Shrimps	2530	1622	2104	1359	1401	1602	1585	1107	1951	2790	2403
Crabs	1017	2179	2380	2556	2828	3522	4169	3246	3695	3248	4592
Lobsters	51	6	2	2	3	1	2	10	2	3	6
Molluscs	**139**	**48**	**85**	**104**	**128**	**151**	**130**	**176**	**229**	**224**	**217**
Jelly Fish						**0**	**312**	**358**	**43**	**1759**	**325**
Grand Total	**9849**	**10620**	**11718**	**11230**	**11204**	**13638**	**14489**	**11854**	**15594**	**15011**	**14063**

Figure 1: Total fish landings from 1998 to 2008 by group



Fishing effort

The fishing effort has been characterized as increasing overall, and more specifically by:

- Increase in number of boats, gears, technology (i.e. winch, GPS, fish-finder etc).
- Increase in number of fishermen.
- Increase in number of working days and fishing hours (i.e. in shrimp-trawl and gill-net).
- Increase in number of hauling of gargoor (wire-trap) from sea. (Figure 2, below).
- The trend of annual catch rate has recorded a significant decline in last 10 years.
- Total fish landings and total fishing boats have increased significantly during the last two decades, while the fishing area around Bahrain has been reduced. (Figure 3, below).

Figure 2: Total effort by gear type 1990-2008
(Small shrimp trawl is using a speedboat, large shrimp trawls is using a dhow)

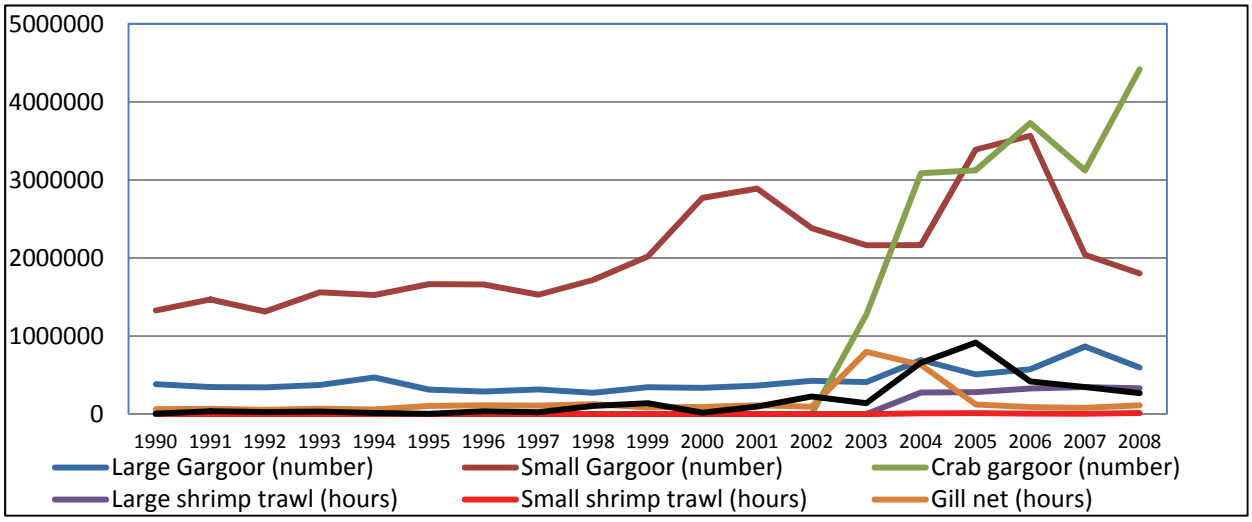
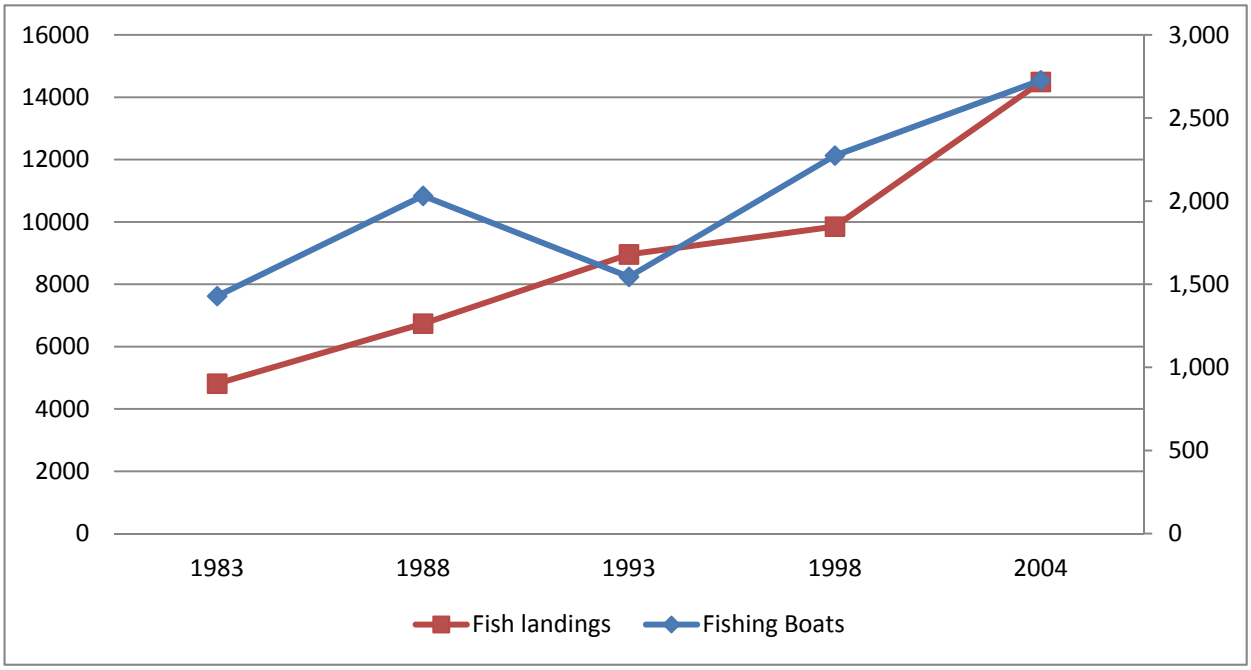


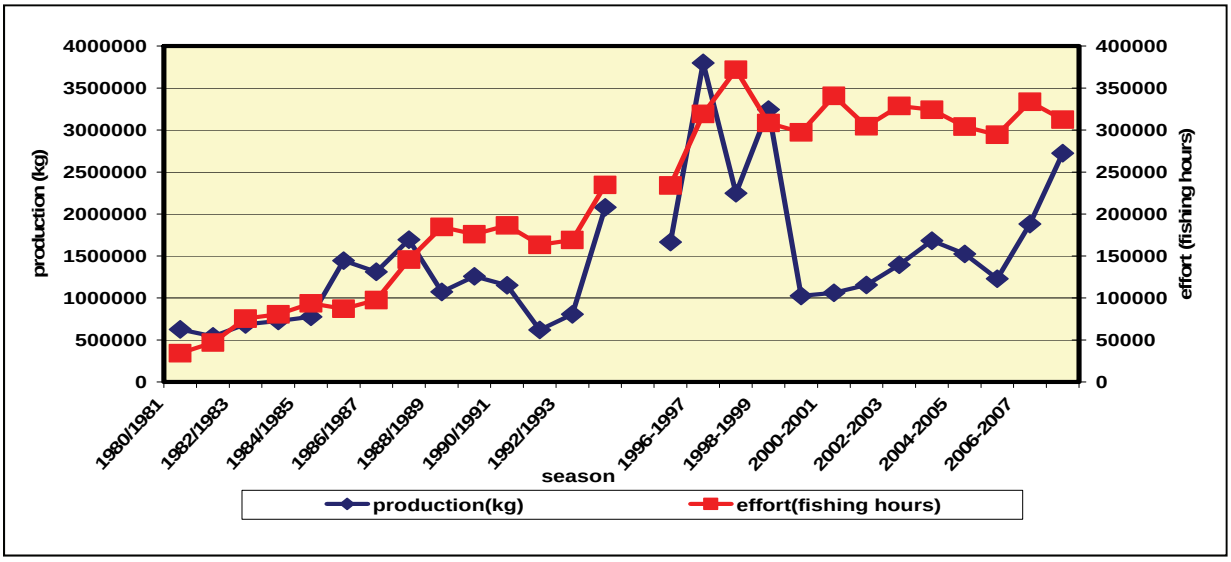
Figure 3: Total fish landings (tonnes) and total fishing boats in Bahrain 1983-2004



Shrimp fishery

Data about the catches and efforts and the CPUE show deterioration in this fishery; a decline in CPUE is estimated at more than 50 percent, while the average of the exerted effort recorded high levels which led to a decrease in the level of fishing levels. Figure 4 below shows the total production and effort in fishing hours of shrimp from 1980 to 2007.

Figure 4: Total production of shrimp and effort during fishing seasons in Bahrain (1980/1981 to 2006/2007)



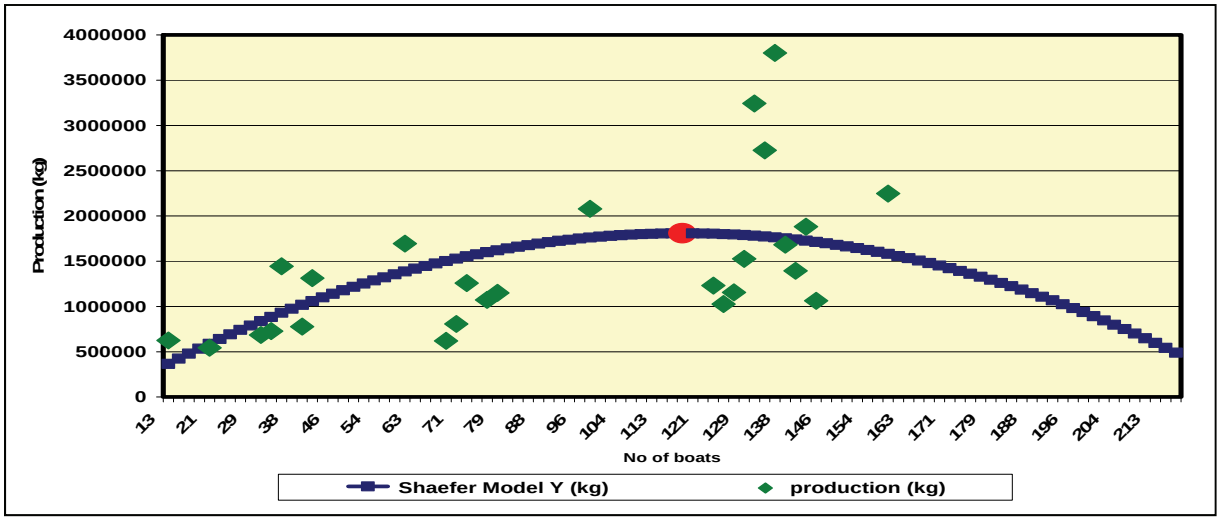
Estimation of maximum sustainable yield and f_{MSY}

The maximum sustainable yield (MSY) estimated is 1 888.8 tonnes, at the optimum effort level (f_{opt}) equal to 280 434 dhow trawling hours. These are equivalent to 117 dhow shrimp boat assuming that a

dhow operates 2 400 trawling hours in a season according to the model below. Figure 5 below shows the estimated MSY and fMSY using the Schaefer Model for the time series 1980 to 2007.

$$f_{MSY} = -a/(2b) = 280434 \quad Trawl - hr \Rightarrow \frac{280434}{2400} = 116.7 \cong 117 \quad boat$$

Figure 5: Estimated MSY and f_{MSY} using the Schaefer Model from 1980-2007

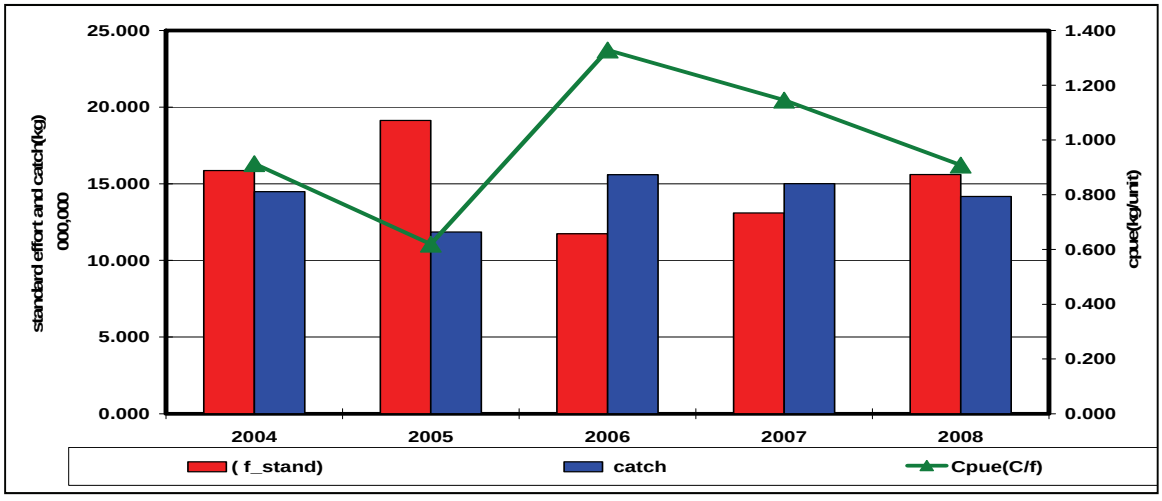


Fishery situation

Data of the artisanal fishery in Bahrain shows there are inverse relation between the total quantities landed by main fishing gears and standard effort. Total catch and standard effort data presents here for the years 2004 to 2007 shows that when the standard effort increases the catch declines.

Figure 6 demonstrates the relationship between total standard effort and total catch, and the average catch per unit effort in Bahrain between 2004 and 2007.

Figure 6: The relation between total standard effort and total catch and average catch per unit effort, 2004–2007



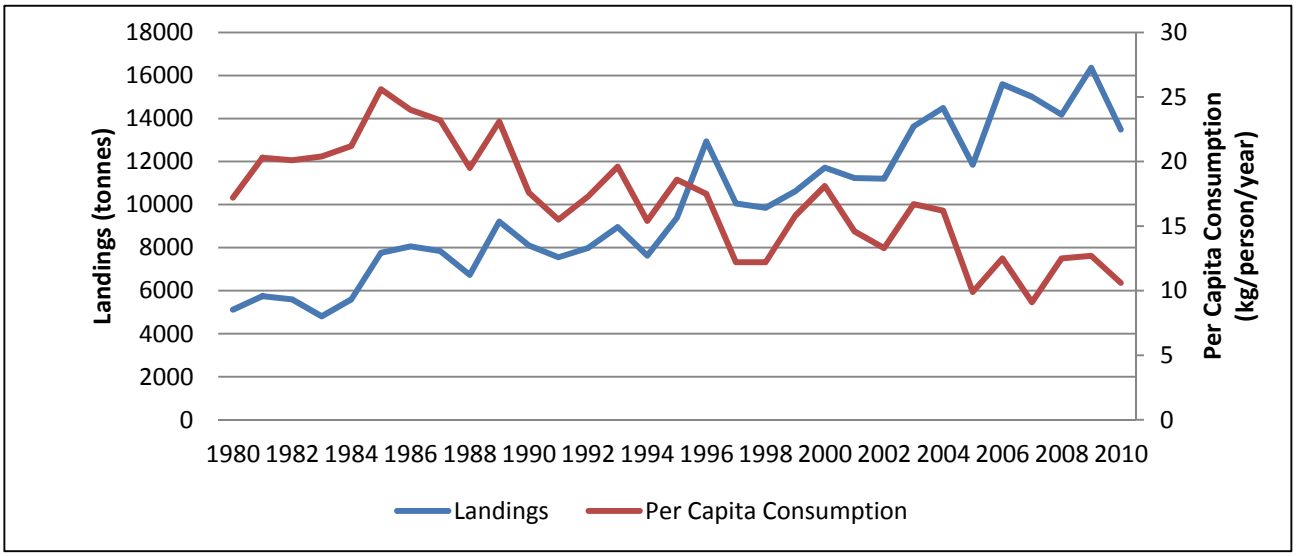
There are a number of policies regulating fisheries, key policies include:

- Since 2000, the development of fishing infrastructure started with the construction of fishing harbors around Bahrain's coasts. These facilities provide mooring, access channels, fuel supply, fresh water, shaded work areas, storage, security, toilets, etc.
- A development fund will be established by taxing marine dredging operations. This fund will be used to improve the livelihoods of fishermen and rehabilitating marine habitats.
- The Bahrain fishery sector only represent about 0.2 percent of GDP.
- The Bahrain fisheries sector is in a critical situation due to the pollution of marine habitats, too many fishing boats and fishermen and small fishing zones.
- There is a need to develop fish production by making plans and strategies to improve natural resources, fish production and develop mariculture.
- The small fishing areas cause conflict between fishermen. There are recommendations to reduce the number of shrimp and fishing licenses through buy-backs and compensation measures.

Fish consumed in Bahrain

Until the year 1997, the fish consumed in Bahrain consisted of fish from both the traditional and industrial sectors plus fish quantities imported minus exported fish. The contribution of the traditional sector to this consumption is highest, followed by the fish imports and then the industrial sector. Fish production and fish consumption is detailed in Figure 7 below.

Figure 7: Fish production and fish consumed in Bahrain during 1980–2010



Fish marketing in Bahrain

Fish landings through traditional fishing (local and foreign), selling in several ways:

- Public auction in the Manama Central Market.
- Marketing in the shops.
- Direct sales on the beach by the fisherman.
- Direct sales to hotels, restaurants, etc.

Manama Central Market

The Manama Central Market is the largest market in Bahrain. It comprises the majority of fish, it is a wholesale (auction) market and receives market about 50–percent of the total quantities produced in Bahrain. Fish are sold at the auction in the market in the early morning hours 3–7 am. This is done after the transfer of fish from landing sites to the market. The fish are usually reserved in the ice to keep it fresh.

Following the auction, fish are sold to the retail market. There are other markets, in Muharraq and Sitra as well as some shops which sell fish in many villages.

Priorities in development projects in the opinions of fishermen

There was a fishermen opinion survey conducted in the 1993 census, through which it was found that the following issues and problems are important in programmes and projects outlined in Table 3:

Table 3: Issues and problems highlighted by fishermen in 1993 census

Issues in projects	%	Problems related to fishing	%
Supervision and monitoring	27.96	Theft	39.37
Construction fish Ports	27.66	High costs of fishing	22.17
Subsides and Support	24.92	Lack of facilities for landing	13.57
Reduction of fishing licenses fee	7.0	Competition between fishermen	11.31
Allow export	3.95	Fish marketing	5.0
raise the prices of fish	3.95	No facilities for loans	3.62
Prohibition of gillnets	3.04	Small number of Bahraini fishermen	2.26
Facilities of loans	0.91	Gillnets	1.35
Facilities of management procedures	0.30	Complaint of administrative procedures	1.35
Prohibition of foreign fishermen	0.0	Fish import	0.0
Encouraging Bahrainis to work in fishing	0.0	Difficult procedures in the recruitment of foreign fishermen	0.0
Cooperation and coordination with fishermen	0.30	Large numbers of foreign fishermen	0.0

The previous results have been used for the development of the fishery sector to design and identification of programs and projects selected for development of this sector. The understanding of the issues and problems of the fishermen and their effects on the exploitation of fish stocks is critical to develop ways to protect the fishery and fishermen. It is observed from previous results that the theft, and competition of gillnets fishing represent about 50 percent of the fishermen's problems while the problems of landing and operating costs and marketing about 18.8 percent.

Protection and development of marine environment

The strengthening of natural marine resources is reflected in the protection factors of the pollutants and the harmful effects that can have on this wealth is important. Since this policy-relevant interactions between the fisheries sector and other sectors as well as social and economic aspects, they are more issues important in the study and discussed as needed, for example, drilling for oil and filling to expand the area of urban and sewage pumping waste as well as linked to laboratory and industries and the interaction of all these activities on the ground economically and politically. To avoid or reduce these activities in the process of demolition and destruction of fisheries should involved a wide spectrum of experts from all these activities in development of programs and plans to put priority to protection of marine environment. In addition, to activation of other activities by finding alternative ways to get rid of the negative impacts of these activities without compromising the sources of Fisheries. At present the government is working on artificial reefs for development of marine

environments, government is working to enhancement fish stocks with release of fingerlings for some important species such as grouper and rabbit fish and sea breams

Concerns of government to develop the fisheries sector

1. Establishment of Directorate of fishery resources

The government established the Office of Fisheries in 1968 for the exploitation of this national wealth. Initially its mandate had been confined to the study of the status of the fishery and on research and surveys of fish stocks in the territorial waters of Bahrain. It has since expanded to cover more fisheries issues, aspects and activities. Accordingly, the Fish Bureau was transferred to the Directorate of Fisheries.

Initially the administration was utilized to develop small programs designed to raise performance in the traditional fisheries sector through training for fishermen on how to use and repair, repairing nets, and worked to encourage young people to work in fishing through government fishing projects. These projects contributed in providing fish for citizens and residents of Bahrain and at reasonable prices.

2. A plan to develop fisheries sector (1981–1986)

This plan is within the government's plan for developing productivity and achieving national objectives designed to provide healthy food for all citizens and residents. The fisheries sector has contributed by developing an integrated program designed to support and develop this sector and its employees. It has developed a plan (1981–1986) for integrated social and economic development in the fisheries sector. The aim of this plan was to provide fish locally at reasonable prices through the local organizations, and supporting and development this sector by maintaining fishing areas and protecting fishery wealth.

The government provided basic facilities and support material and guidance to traditional fishermen to ensure they continue in this profession and to attract young people through incentives and facilities provided to them. Key objectives of the plan included:

- Improve the economic and social situation of the fishermen;
- Regulating profession of fishing and protection of fisheries wealth;
- Training of national young people and researchers in fisheries field;
- Expanding in researches, studies and guidance to encourage investors to invest in the fisheries sector;
- Increase total fish production to raise the per capita consumption of fish in Bahrain.

3. Legislation and regulations in the fisheries sector

In 1981, the Amiri Decree was issued to regulate the exploitation of fisheries as well as ministerial decisions issued to protect fisheries. One of these decisions was to open and close fishing seasons of shrimp. It also publishes ministerial decisions to clarify issues, for example Ministerial Decree No. 7 of 1997, which ended industrial sector trawling in Bahrain in 1998.

In 2002, a new Fisheries Decree No. 20 of 2002 was issued and included a comprehensive review of all previous legislation and drafting new laws consistent with the changes and developments in the fisheries sector and marine resources. Thus, fishing does not mean exploitation of fisheries to limit deterioration or significant expansion in improving services but combines with a good exploitation of these resources with continuous monitoring and prohibiting illegal methods with appropriate enforcement, including, for example nets with three layers which leads to overexploitation. The law seeks to reduce fishing operations and improving the efficiency of fisheries and raising the revenue and profitability for fishermen.

4. National Centre for Mariculture

This center was established in the early nineties after the tests and the initial research to develop the basics of fish farming in Bahrain and the objectives include:

- Establishment of scientific and technical base for fish farming in Bahrain.
- Research and development of aquaculture systems appropriate to local conditions.
- Production of eggs in hatcheries and fish fingerlings for use in local and foreign culture projects.
- Release fingerlings into the sea to enhancement local resources.

5. Construction of fishing ports

Within the objectives of the fisheries sector the government worked at the highest levels to put plans to design and create fishing ports in Bahrain with all types of facilities and services to serve a large sector of fishermen. The first two sites selected were Sitra and Budiay. The third project was expanded to the Muharraq Jetty, adding services and facilities to it to accommodate large numbers of fishing vessels and fishermen. Al Hidd fishing port was finished last month.

6. Challenges and constraints face fishery resources in Bahrain

- Over-fishing (many fishing boats);
- Depletion of stocks of some fish species;
- Illegal fishing;
- Lack of facilities in some landings sites;
- Lack of surveillance and enforcement;
- Reclamation and dredging operations;
- Pollution from industrial waste, sewage and cargo ships;
- Global warming;
- Limited fisheries resources.

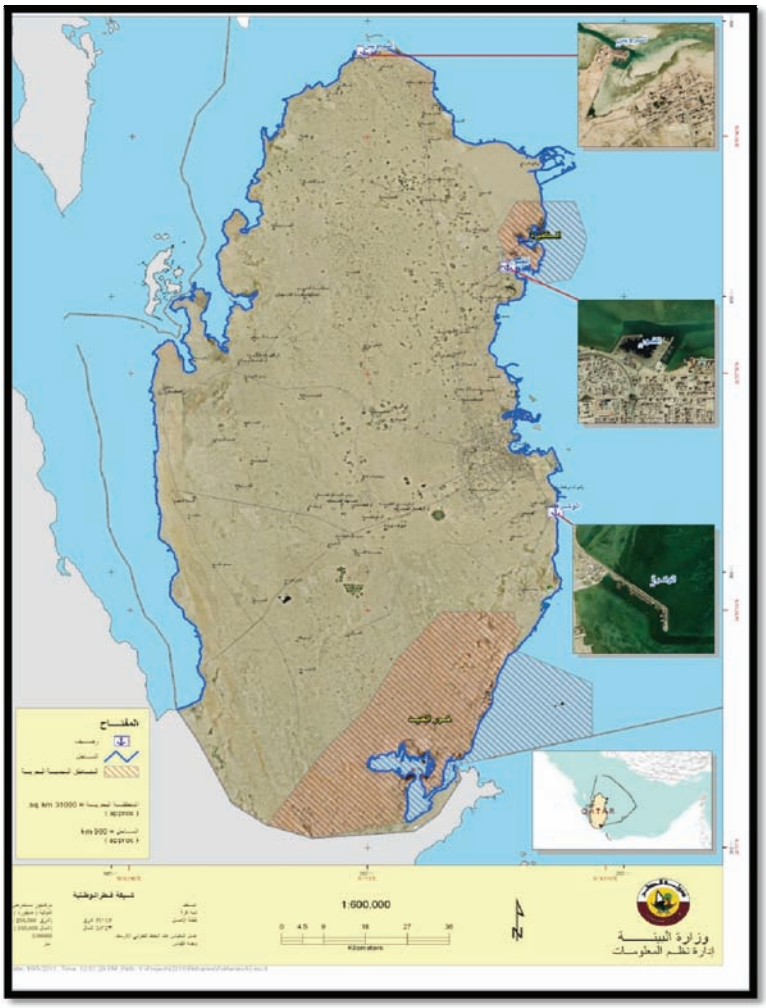
APPENDIX G

Country report: State of Qatar

Introduction

Qatar has an area of 11 437 km², with a shelf area of approximately 10 700 km², and 563 km of continental coastline, see Figure 1 below.

Figure 1: Map of Qatar



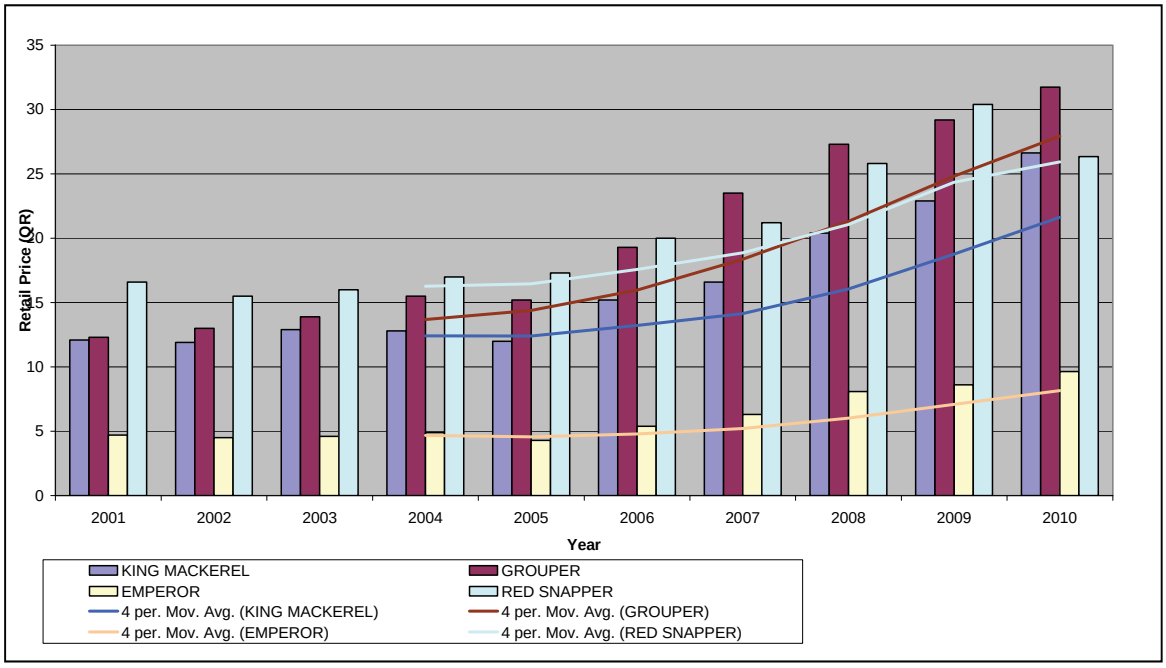
The fishing fleet in 2011 was comprised mainly of 446 vessels and 3 313 artisanal fishermen, as detailed below in Table 1.

Table 1: Fishing fleet 2011

Port / Data	Al-Shamal	Al-Wakra	Al-Khor	Doha	Total
Vessels	46	213	168	19	446 (286 owners)
Artisans	321	1 635	1 170	187	3 313
Speed Boats	176	143	178	288	785

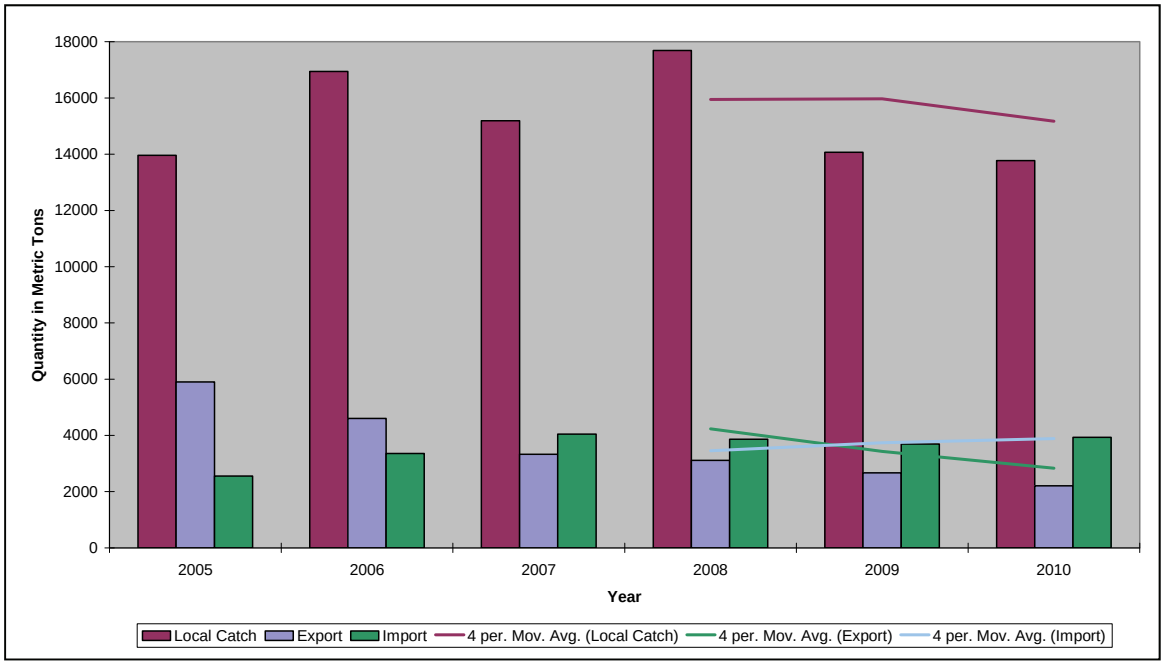
The average retail price for local fish has been increasing, particularly in the case of the king mackerel and grouper, while the local retail price of the emperor has been steadier, and in the case of the red snapper, prices actually decreased in 2010 when compared with 2009. This trend is presented below in Figure 2.

Figure 2: Average retail price (QR) for local fish by species in Qatar 2001–2010



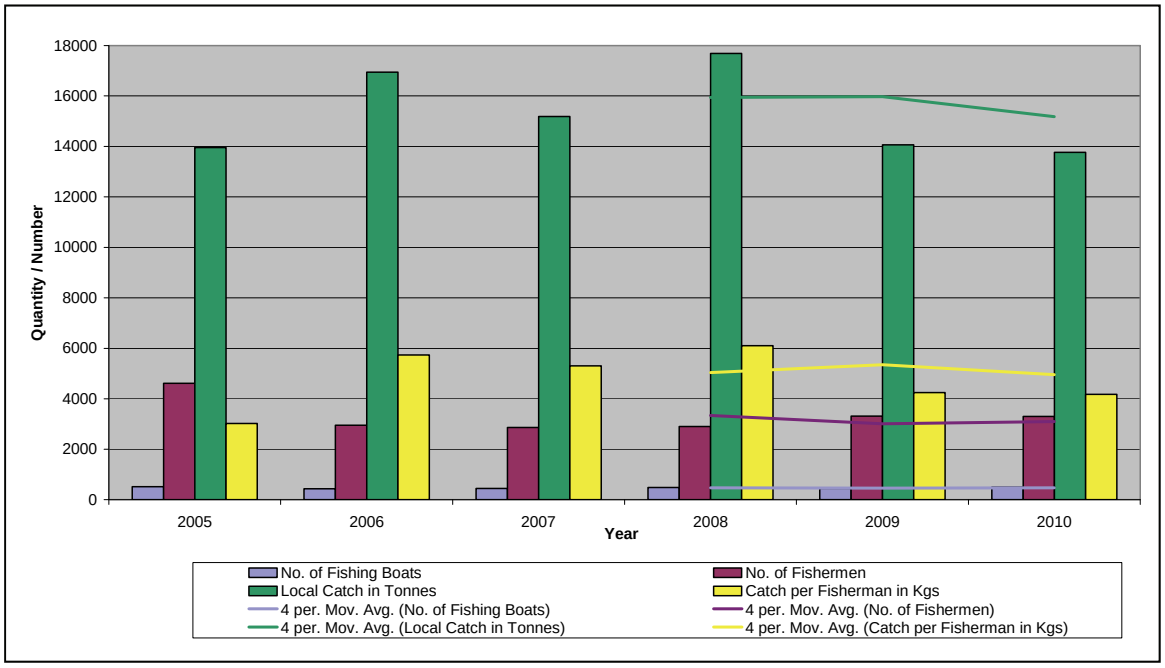
Fisheries production in Qatar fluctuated slightly between 2005 and 2010, with a decreasing trend between 2008 and 2010. Imports have remained fairly steady in this same period, while exports have demonstrated a slightly decreasing trend. Figure 3 below details the production, import and export of fish in this time period.

Figure 3: Local catch, import and export of fish 2005–2010



The number of fishing boats has generally remained steady between 2005 and 2010, the number of fishermen has fluctuated, while the average catch per fishermen showed a decreasing trend between 2008 and 2010, as demonstrated in Figure 4 below.

Figure 4: Local catch, number of fishermen and boats and catch per fishermen 2005–2010



Fishing gears

There are number of fishing gears used, namely the following:

- Fishing traps, gargoors
  - Dome shaped wire traps,
  - Usually baited with dried sardines and/or bread
  - Used to target demersal species
- Drift nets
  - Gill nets,
  - Drift at the sea surface
  - Used to target large pelagic species
- Gill nets
  - gillnets
  - Set around schools of small pelagic species
- Hand lines
  - Mono-filament line with one or more baited hooks

Fish landings

There are four landing sites, one central fish market in Doha. Fish landings totalled 13 957.7 tonnes and 13 760 tonnes in 2005 and 2010, respectively. All landed fish are supposed to be taken for auctioning in the central fish market. Most production is consumed locally.

Statistics and information system

- Full enumeration of statistical data on catch is being applied in Doha Central market.
- Fish landing reporting in all fishing port was applied from 2009.
- Fishing effort statistics is represented only by the number of active big boats (launch) and number of fishermen.

- Detailed information on fishing effort including number of fishing gears per boat is lacking.
- Data on catch per unit of fishing effort for various fishing gears is being recorded randomly only in all fish landing sites.

Current research projects

A Fish Stock Assessment Project began in January 2009, as a three year project. The expected outcomes include the following:

- An overall management strategy for fisheries resources.
- National Data base for fisheries.
- Capacity building for nationals.

The current status of fish stocks is highlighted below in Table 2.

Table 2: Current status of fish stocks

Scientific name	**Local name**	**Stock status** **تقييم الوضع الراهن**
Gnathanodon speciosus	Rabieb - ربيب	Fully exploited إستغلال كامل
Diagramma pictum	Farsh - فرش	Overexploited إستغلال مُفرط
Lethrinus nebulosus	Shaari - شعري	Fully exploited إستغلال كامل
Lethrinus lentjan	Bucshina - شعري بقشينة	Under-exploited استغلال مُتدني
Lethrinus microdon	Sooly - سولي	Sustainably exploited إستغلال أمثل
Scomberomorus commerson	Kanaad - كنعد	Overexploited إستغلال مُفرط
Epinephelus coioides	Hamour - هامور	Fully exploited إستغلال كامل
Siganus canaliculatus	Safi - صافي	Sustainably exploited إستغلال أمثل
Argyrops spinifer	Kufer - كوفر	Under-exploited استغلال مُتدني
Rhabdosargus haffara	Qorqofan - قرقفان	Sustainably exploited استغلال أمثل

A project on the population biology and inshore fishery assessment for blue swimming crab was undertaken, the objectives of which included studying the biological characteristics of the blue swimming crab, *Portunus pelagicus a*nd to propose management measures for its sustainable exploitation. The results of this were that precautionary management measures including, setting landing size limits, prohibiting non selective fishing gears, imposing closed season as well as protecting the nursery grounds were proposed and are currently being reviewed for consideration.

A regional project of a survey of demersal fish stocks of the Gulf and Gulf of Oman commenced in October 2008 and included a stratified survey program including a combination of trawl surveys, fish trapping and acoustic techniques is being used. The preliminary results have included the estimation of stock biomass of all demersal species using swept area technique and were estimated at 21 447 tonnes with an average density of 629.9 kg/km^2.

Fisheries management

- Input controls
- Stoppage issuing new fishing licenses for launchs and tarads.
- Limiting the number of monthly landings (3 landings/vessel with a trip period of maximally 4 days each) for launches during the period April–May each year.

Committee of living aquatic resources

- 13 members from different sectors

- Represent boat owners, coastguard, Qatar University, Department of Consumer Protection, Department of Ports, Qatar Petrol Company, Fisheries Department
- The members meet twice a month .

Overview of the economic relevance of marine fisheries

The contribution of fishery sector covers 88 percent of self-sufficiency for the local market. The total value of local catch of fish according to retail price is 195.517 million QR in 2009 and was .002 percent of GNP. Fishermen gain access to credit through the Qatar Development Bank and totaled 5 070 000 QR for 24 boats in 2011.

APPENDIX H

Country report: Republic of Iraq

Summary

The Iraqi marine fisheries sector has not been developed due to a lack of competencies and good planning, as well as the absence of institutions, scientific researches, economic studies, and more importantly the absence of the state in this vital sector.

Although Iraq has a limited coastal area (900 km^2) with the depth not more than 15–17 metres, this area comprises an important area for migration, breeding and feeding, as it is affected by the tidal current mixed with Shatt-Al-Arab water and Karun river.

Marine fishes have only been caught by private fishing boats located in Basra, and the total fishing has virtually no impact on the national economy value due to the absence of exports and import activities at present. However, it is a source of income and employment for fishermen and the unemployed.

Brief introduction to the marine capture fisheries

The fishing boats are selling from Al-Faw city to the Gulf, and the total area of the fishing ground is about 900 km^2. Iraq marine fishing operations depend on 211 small to medium sized boats as following:

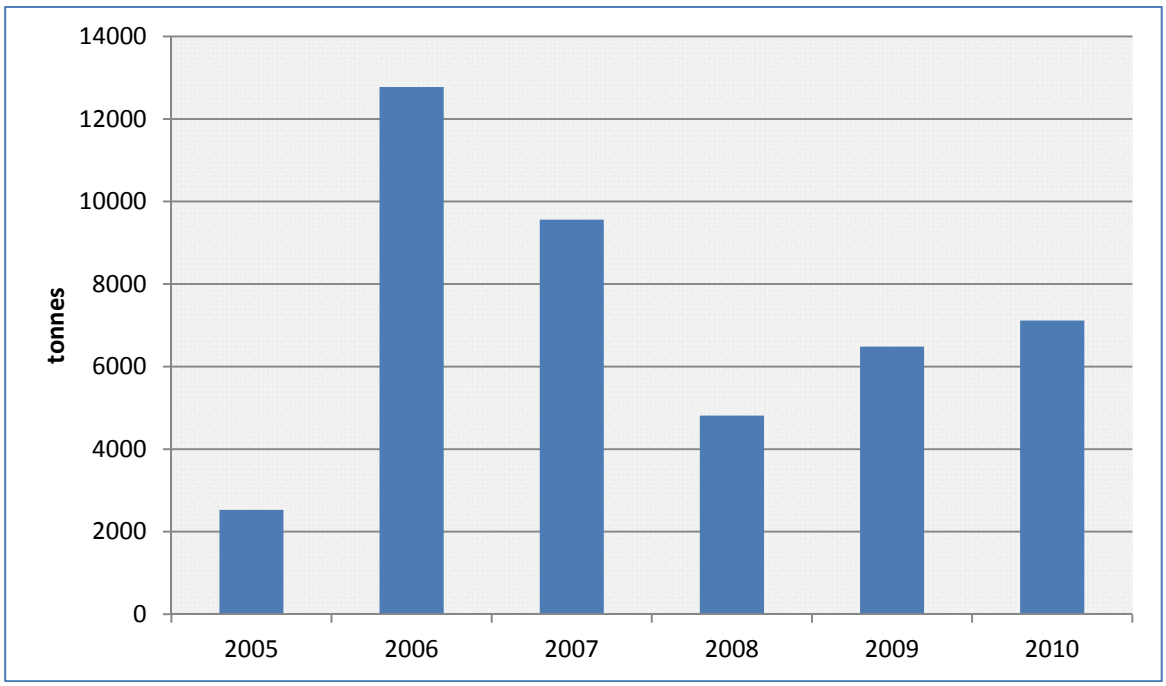
- 65–120 hp = 41
- 150–250 hp= 153
- 270–600 hp= 6
- 700–950 hp= 11

The fishing method used includes trawls, gill net, cast, and traps; the boats above are not specialized for a certain method, but instead use multi-gear.

The main species caught are different types of *clupeidae*, *pampus*, *carangidae*, *acanthopagrus mylia*, different types of sea bream, and different genera of *johnius*, *bothidae,* and *serranidae*.

The Al-Faw fishing port is the only landing site. The total catch between 2005 and 2010 is detailed in Figure 1.

Figure 1: Total marine capture fisheries production 2005–2010



All fishing boats are for daily fishing, and the main problems facing the fishermen is the access to fuel supply, as well as dealing with harassment of the marine guards. There exist two cooperatives in the marine fishing communities that assist in organizing the sector. The state is generally absent in the sector and so fishermen must be completely self-reliant and take on measures to protect from risks themselves.

Overview of the social relevance of marine fisheries

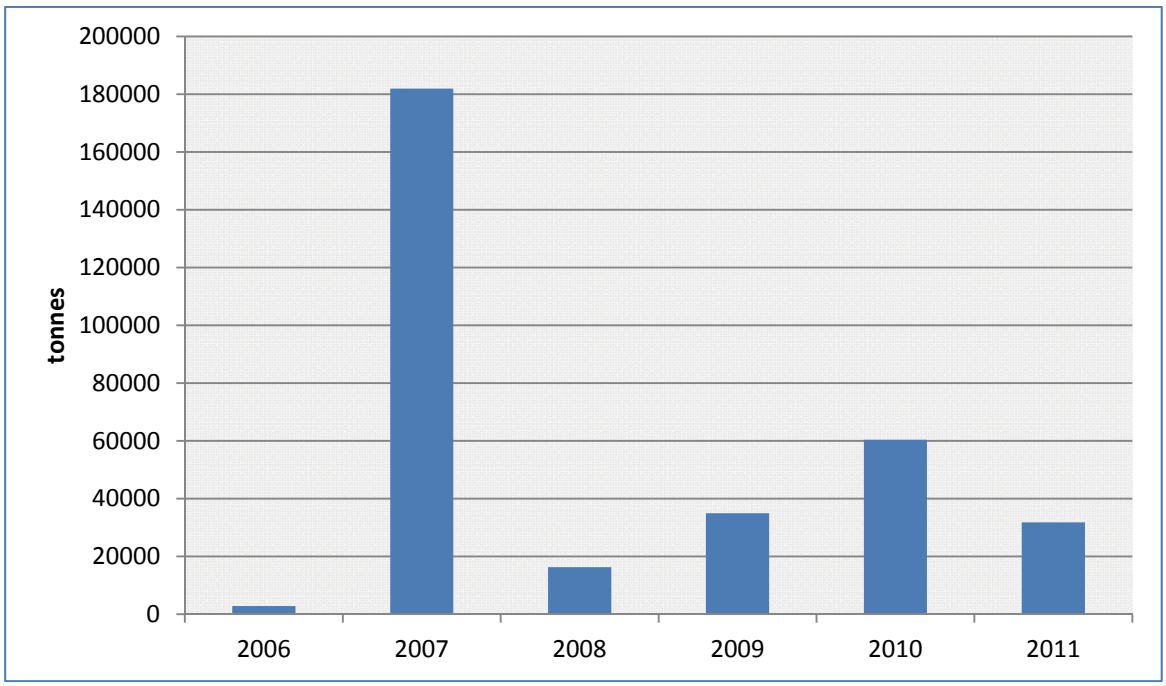
The number of fishermen is not known, particularly as the number on any given day will depend on the availability of work on that particular day. Vessel ownership is individual and the method for income distribution is by wages and while the number of crew per vessel is not accurately known, it is estimated at five to seven fishermen per vessel. Community and social services are not available. Fishermen are all Iraqi citizens; foreign fishermen are not involved in the Iraqi fishing sector. The main social issue for fisherman is the absence of security during fishing and throughout the fishing zone; marine guard they may arrest them with charges or not, and all their fishes may be confiscated. In addition, fishermen complain of low wages when compared with their efforts as well as decreasing the quantity and the quality of fish and fishing.

Overview of the economic relevance of marine fisheries

The contribution of fishery sector to the Iraqi national economy is considered small to non-existent. The impact on national food security is small and is estimated to be less than 3–5 kg/year. Information on the production value is not known. Employment created directly by the fishing industry is considered limited; the sector needs skilled people, but due to low wages, difficulties faced at sea and the absence of the state in the sector, it is not a desirable profession.

The fish market chain is going between boat owners and intermediaries then to wholesalers then to retailer finally goes to consumers. The average fishermen income when compared with the national average is almost similar. Most boat owners have their own capital and their business is not wide, their credit needs are limited however if they need, they can access credit from a variety of sources. Fish imports represent more than 50 percent of fish in Iraq, and the rest is from inland fishing and marine fishing. Total import since 2006–2011 are detailed below in Figure 2.

Figure 2: Total fish imports in Iraq 2006–2011



Existing data and information sources and relevant institution and capacity

Due to the absence of the state in supporting this sector there are no official studies or reports from any institutional sources. The only data and information available is the number of the fishermen and the boats, which we obtain from the license issued by the state.

Proposal and recommendations to include the social and economic aspect in national and regional governance

Due to confusion, instability and lack of institutional organizations for the management of fisheries there is not one unified plan or goal to direct the experts. Iraq is looking forward to good, scientific and institutional cooperation between the national and regional fisheries governance and will agree with any proposal policies that have no interference on national regulations and that benefit fishermen and regional organizations. Additionally, Iraq is ready to transfer the practices, including socio-economic aspects, from the regional level to the national and local level in Iraq.

APPENDIX I

Recommendation RECOFI/6/2011/1 on minimum data reporting in the RECOFI area

The Regional Commission for Fisheries (RECOFI),

RECALLING that the purpose of RECOFI is, *inter alia*, to promote the development, conservation, rational management and best utilization of living marine resources, as well as the sustainable development of aquaculture;

RECALLING that the third meeting of RECOFI's Working Group on Fisheries Management (WGFM) (Doha, Qatar, 20–22 October 2009) agreed that a recommendation on minimum data reporting in the RECOFI Area should be drafted for review by the fourth meeting of the WGFM (Muscat, Oman, 3–5 October 2010) for submission to the Sixth Session of RECOFI (Manama, Bahrain, 10–12 May 2011);

REAFFIRMING the strong desire of RECOFI Members to promote closer international cooperation and harmonization in fisheries of mutual interest;

AWARE that minimum data reporting requirements for the RECOFI Area are fundamental to promoting long-term sustainable fisheries, especially for species of common interest in the region (see Appendix 1);

ADOPTS in conformity with the provision of paragraph 1 (b) and (h) of Article III and Article V of RECOFI Agreement that:

1. (a) Each Member shall take such measures as may be necessary to ensure the collection and submission of information required under the paragraph 2, 3 and 4 of this recommendation.

   (b) Nothing in this recommendation shall constrain a Member pursuing data collection and sharing them with the Commission for the purpose of improving management of fisheries and fishery resources in the RECOFI area beyond the requirements of this recommendation.

2. (a) Each Member operating with shrimp trawl fishery shall make available to the Commission the following information with respect to that fishery:

   (i) opening and closing dates of the fishery;
   (ii) number of vessels engaged in the fishery according to its own vessel type/ size categories (e.g. steel-hulled/speed boats/dhows);
   (iii) annual average tow duration, annual average number of tows per day, and total number of days at sea, according to vessel type/size categories;

   (iv) live-weight equivalent of annual catch of shrimp, swimming crab, cuttlefish, narrow-barred Spanish mackerel, emperors, groupers, sharks, rays, and other finfishes, taken by the fishery;
   (v) annual amount of discards, and
   (vi) species composition of bycatch and discards, if available.

(b) If any bycatch reduction device (BRD) is used or other mitigation measure taken, each Member should advise the Commission of details of such BRD/mitigation measure used and submit the catch and effort for those vessels with mitigation measures separated from those vessels operating normally.

3. Each Member shall make available to the Commission the following information with respect to gillnets, wire-traps, and hook-and-line fisheries, respectively:

(a) annual effort in individual fisheries, in terms of "number of days at sea", and if this is not possible, alternative effort with its brief description; and

(b) live-weight equivalents of annual total catch, and of annual catches of narrow-barred Spanish mackerels, emperors, groupers, sharks and rays taken by individual gears with species identification of emperors and groupers to the extent possible, and amount of discards if available.

4. (a) Each Member shall make available to the Commission the following information with respect to narrow-barred Spanish mackerel *Scomberomorus commerson* taken in any fishery in the country:

(i) catch in live-weight equivalent on a monthly basis to the extent possible, if not on an annual basis;
(ii) fork length composition of catch on a monthly basis to the extent possible, if not on an annual basis, either based on fishery monitoring or obtained from other sources, and
(iii) for operations targeting narrow-barred Spanish mackerel (e.g. kingfish fixed net, gillnet and hook-and-line), monthly catch with fork length composition and effort by gear type, together with clear description of kinds of effort used, to the extent possible.

(b) Each Member shall make available to the Commission any results obtained through surveys and research works relevant to narrow-barred Spanish mackerel, including fishery-dependent and fishery-independent stock indicators, biological parameters (e.g. growth rate, length frequency data obtained by projects, age-length relationship, reproductive information, natural mortality) and ecological information (e.g. distribution, feeding habitat, habitat preferences).

5. Each Member shall, to the extent practicable, make available to the Commission the following additional information:

(a) shrimp species composition within the shrimp trawl catch; and
(b) species composition of discards.

6. Each Member shall submit to the Commission the information required under paragraphs 2, 3, 4 and 5 of this recommendation, and any modification to information reported previously, before the end of August of the following year. Each Member shall cooperate in exchanging historical information relevant to those described in this recommendation.

7. Each Member shall cooperate in sharing survey plans and protocols prior to their implementation, as well as results of such surveys upon their conclusion, to the relevant Members through the Commission.

8. The Commission shall collate, maintain and promptly disseminate to Members the information provided under paragraphs 2, 3, 4 and 5 of this recommendation. The Commission may, subject to the request from a Member who provided information, impose restrictions on access to the information by the public.

9. The Commission shall monitor and evaluate regularly the status of implementation of this recommendation.

Appendix 1

List of key species supporting main reference fisheries in the RECOFI Area

FAO name	ASFIS code	Common name	Scientific name
Penaeid shrimps nei	PEZ	Shrimps	Penaeidae
Blue swimming crabs	SCD	Blue swimming crab	*Portunus pelagicus*
Pharaoh cuttlefish	IAH	Cuttlefish	*Sepia pharaonis*
Stolephorus anchovies	STO	Anchovies	*Stolephorus* spp.
Indian oil sardine	IOS	Indian oil sardine	*Sardinella longiceps*
Bludger	NGY	Jacks	*Carangoide gymnostethus*
Golden trevally	GLT	Golden trevally	*Gnathanodon speciosus*
Indian mackerel	RAG	Indian mackerel	*Rastrelliger Kanagurta*
Snubnose emperor	LBW	Orange finned emperor	*Lethrinus borbonicus*
Pink ear emperor	LTS	Redspot emperor	*Lethrinus lentjan*
Spangled emperor	LHN	Spangled emperor	*Lethrinus nebulosus*
Coral hind	CFI	Coral grouper/Bluespotted grouper	*Cephalopholis miniata*
Orange-spotted grouper	ENI	Orange-spotted grouper	*Epinephelus coioides*
White-spotted spinefoot	SCN	Rabbitfish	*Siganus canaliculatus*
Narrow-barred Spanish mackerel	COM	King mackerel/Narrow-barred Spanish mackerel	*Scomberomorus commerson*
Longtail tuna	LOT	Longtail tuna	*Thunnus tonggol*
Requiem sharks nei	RSK	Sharks	Carcharhinidae

Appendix J

RECOFI Workshop on Social and Economic Aspects of Fisheries in the RECOFI Region

Manama, Kingdom of Bahrain, 22–24 April 2012

Summary of discussions and main conclusions

ADOPTED 24 April 2012

The RECOFI Workshop on Social and Economic Aspects of Fisheries in the RECOFI Region was held at Al Safir Hotel in Manama, Kingdom of Bahrain from 22 to 24 April 2012, following the agreement at the Sixth Session of the Regional Commission for Fisheries held in Rome, 10 to 12 May 2011. The meeting was convened by the RECOFI Secretary. The meeting was attended by 18 delegates from four member countries and 2 observers, as well as the RECOFI Secretariat.

The workshop discussed the social and economic aspects of fisheries in RECOFI, reviewed the availability of data on the socio-economic statistics, analysis work and other relevant research activities in member countries and formulated a RECOFI action plan for regional cooperation in assessment of socio-economic aspects through identifying regional socio-economic indicators to be used at both national and regional levels.

The integration of the human dimension, including the social and economic aspects, is essential in the context of the ecosystem approach of fisheries management. For this purpose, it was recognized that key issues in social and economic aspects in the management of fisheries and of the people fishing in the Region must be identified together with necessary information indicators to monitor their status.

The workshop reviewed the country reports to gain a better understanding of the existing information at individual member countries and the types of information available. A set of indicators was presented to the workshop in the categories of macro-economic, micro-economic and social aspects of fisheries, which would be used to guide member countries in enhancing its understandings on the general status of its social and economic condition and in identifying the area of prioritization to plan for types of social and economic issues they need to gather in the future. It was recognized that the data to be collected through the RECOFI Recommendation on Minimum Data Reporting (Recommendation RECOFI/6/2011/1) would cover some of the socio-economic indicators presented.

Additionally, the workshop concluded as follows:

- There is a general need to enhance the collection of socio-economic information with a matter of priority by the member countries;
- Non-fisheries related activities have substantial and sometimes serious impacts on sustainability of fisheries and fishers livelihoods and the enhanced communication and collaboration with the relevant sectors need to be taken into consideration;
- The social and economic contribution and issues must include those by the secondary and tertiary sectors, in addition to the primary production sector;
- There are challenges in collecting socio-economic information and the further collaboration with other ministries, e.g. those responsible for statistics, economic, rural development, need to be addressed;
- Information available and data collection method varies across member countries (amount, quality);
- Dynamics of employment (crew, owners, captains, hiring labor) and licensing is an important issue;

- Fishing as a full-time/part-time activity as well as those under recreational/occasional/subsistent fishers – all people fishing should be considered;
- Economic compensation for management measures (closed seasons) are in place in some countries as well as different kind of subsidies, which should be taken into account;
- Fishers are often hold less power in the supply chain and are reliant on the decisions of middlemen for income.

The workshop made the following recommendations:

- The regional work plan on socio-economic work should be formulated to support technical capacity development to advance knowledge on the socio-economics in the region.
- Such work plan must be applicable, practical and useful, including the recommended socio-economic survey questionnaires in manner that can be easily understood by the target questionnaire respondents and with clear definitions of terminologies used.
- Social and economic aspects must be integrated and incorporated into the RECOFI fisheries management framework to ensure a more holistic approach in line with the ecosystem approach.
- The Task Group would be established to address the above mentioned issues with the Terms of Reference in Annex 1.

Finally, the workshop agreed to use the draft questionnaire presented as the basis for work of the Task Group gathering the required information using the technical resources available in their respective countries. The workshop also considered a potential in developing a regional field project on the social and economic aspects of fisheries in the region. The workshop emphasized the need to enhance communication among all RECOFI members as well as with the relevant organizations such as the GCC fisheries committee to technically cooperate for adequately responding to the challenges faced by the regional fisheries including their social and economic performance.

It was felt that the workshop had constituted an important and first ever opportunity to discuss the fisheries social and economic issues in the region. This was much appreciated and it was hoped that this participatory and collaborative process will be continued.

Workshop participants thanked the Kingdom of Bahrain for its warm welcome and excellent organisation of the event.

Annex 1: Terms of Reference for the Task Group to address the socio-economic dimension of fisheries in RECOFI

The meeting agreed on the need to formulate a plan of work focused on the comprehension and assessment of the social and economic aspects in the RECOFI region relating to and in support of the sustainable management of marine fisheries in the region.

The meeting agreed on the establishment of a Task Group to address the socio-economic dimension of fisheries in the region. The Task Group is established to support and facilitate the work of the Working Group on Fisheries Management (WGFM) focused on the social and economic aspects of RECOFI fisheries. The Task Group carries out advisory and liaison functions with respect to the WGFM's programme of work in the field of fishery socio-economics. In addition, the Task Group, through its Coordinator maintains contact with the Commission's Secretariat on issues related to the socio-economic work plan and related activities.

The regional Task Group is composed by the following national experts:

Bahrain: Nasser Al-Saffar/ Ebtissam Khalaf

Qatar: Adel Suliman Al-Ali

Oman: Ruqaiya Al-Bulushi

Saudi Arabia: Waleed Krimly

Iraq: Vartan Azzad Serkess[5]

The RECOFI Task Group on Social and Economic issues is coordinated by Mr Nasser Al-Saffar/ Ms Ebtissam Khalaf (henceforth Task Group Coordinator)

The meeting agreed on the following terms of reference for the Task Group:

- Keep informed the relevant national authorities and counterparts on the RECOFI socio-economic work plan and related activities;
- Identify and liaise with the existing social and economic expertise in each country;
- Promote and coordinate the implementation of the fishery socio-economic activities in the member countries including basic information gathering, collation and compilation;
- Contribute to the implementation of the RECOFI socio-economic work including the revision and pilot execution a survey questionnaire;
- To ensure the effective flow of communications regarding the RECOFI activities to and from national scientific and institutional counterparts, and from relevant stakeholders;
- Assist the Task Group Coordinator to formulate a regional work plan for consideration by the WGFM at its sixth meeting (Qatar, October 2012);

[5] Mr Vartan Azzad Serkess was nominated after the conclusion of the workshop and inserted at the time of writing this final report.

- Identify the needs for capacity development requirements in the member countries; and
- Present and discuss the draft work plan at the sixth meeting the WGFM and at the seventh session of RECOFI if appropriate.
- The meeting agreed on the following schedule:

➢ Before 1 May 2012	Establishment of the Task Group
➢ Before 30 June 2012	Draft survey questionnaire reviewed and finalized by the Task Group
➢ Before 30 September 2012	Draft regional work plan available
➢ October 2012	Draft regional work plan discussed at the 6th WGFM meeting
➢ Before 31 December 2012	Draft regional work plan finalized
➢ May 2013	Regional work plan submitted at the seventh session of RECOFI for endorsement

The WGFM and the Commission may review these terms of reference from time to time and amend them as appropriate.

The RECOFI Workshop on Social and Economic Aspects of Fisheries in the RECOFI region was held in Manama, Kingdom of Bahrain from 22 to 24 April 2012, following the agreement at the sixth session of the Regional Commission for Fisheries held in Rome from 10 to 12 May 2011. The meeting was convened by the RECOFI Secretary. The meeting was attended by 18 delegates from four member countries and two observers, as well as the RECOFI Secretariat. The workshop discussed the social and economic aspects of fisheries in RECOFI, reviewed the availability of data on the socio-economic statistics, analysis work and other relevant research activities in member countries and formulated a RECOFI action plan for regional cooperation in assessment of socio-economic aspects through identifying regional socio-economic indicators to be used at both national and regional levels. The integration of the human dimension, including the social and economic aspects, is essential in the context of the ecosystem approach of fisheries management. For this purpose, it was recognized that key issues in social and economic aspects in the management of fisheries and of the people fishing in the region must be identified together with necessary information indicators to monitor their status. The workshop concluded, among other things, that there is a need to enhance the collection of socio-economic information with a matter of priority by the member countries, and recommended that an applicable, practical and useful work plan on socio-economic work should be formulated to support technical capacity development to advance knowledge and that social and economic aspects must be integrated and incorporated into the RECOFI fisheries management framework to ensure a more holistic approach in line with the ecosystem approach.

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