



Report of the

FAO/CRFM/MALMR REGIONAL WORKSHOP ON THE COLLECTION OF DEMOGRAPHIC INFORMATION ON COASTAL FISHING COMMUNITIES AND ITS USE IN COMMUNITY-BASED FISHERIES AND INTEGRATED COASTAL ZONE MANAGEMENT IN THE CARIBBEAN

Ambassador Hotel, Trinidad and Tobago, 13-17 June 2005

TABLE OF CONTENT

LIST OF ACRONYMS AND ABBREVIATIONS

1.0	INTRODUCTION.....	1
2.0	OPENING CEREMONY	2
3.0	INTRODUCTION OF PARTICIPANTS AND WORKSHOP ARRANGEMENTS	6
4.0	PRESENTATIONS AND DISCUSSIONS.....	6
4.1	<i>Report of the Asian Comparative Study Mission</i>	<i>7</i>
4.2	<i>Supporting Small-Scale Fisheries through an Enabling Environment.....</i>	<i>9</i>
4.3	<i>Country Specific Case Studies on the Consideration of Socio-economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning: Belize Case Study</i>	<i>10</i>
4.4	<i>Country Specific Case Studies – The Considerations of Socio-Economic and Demographic concerns in Fisheries and Coastal Area Management and Planning: Dominica Case Study ...</i>	<i>12</i>
4.5	<i>Fisheries Management in the Philippines: A focus on the Fisheries Resources Management Project (FRMP).....</i>	<i>13</i>
4.6	<i>Country Specific Case Studies – The Consideration of Socio-Economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning: Jamaica Case Study.....</i>	<i>15</i>
4.7	<i>Country Specific Case Studies – The Consideration of Socio-Economic and Demographic Concerns in Fisheries and coastal Area Management and Planning: St. Lucia Case Study.....</i>	<i>17</i>
4.8	<i>Aspects of CERMES Regional Research and Training with Emphasis on Socio-Economic and Demographic Information.....</i>	<i>22</i>
4.9	<i>The Role of the Fisheries Development Authority of Malaysia in the Conservation and Management of Fisheries Resources and the Welfare of Fishing Communities in Malaysia</i>	<i>22</i>
4.10	<i>Country Specific Case Studies – The Consideration of Socio-Economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning: Trinidad and Tobago Case Study</i>	<i>24</i>
4.11	<i>Country Specific Case Studies – The Consideration of Socio-Economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning: Turks and Caicos Islands Case Study</i>	<i>27</i>

4.12	<i>Progressing Towards Community-Based Fisheries Management: A Case Study of Fishing Communities from Ortoire to Guayaguayare, Trinidad</i>	28
4.13	<i>. Latest Developments in Small/medium-scale Fisheries and Aquaculture enterprises and Products with Regional and Global Export Markets.....</i>	29
4.14	<i>Coastal Fisheries Management and Community-Based Fisheries Management in the Pacific</i>	31
5.0	WORKING GROUP REPORTS.....	31
5.1	<i>Group I – Terms of Reference</i>	31
5.2	<i>Group II – Terms of Reference</i>	32
6.0	CLOSING REMARKS.....	40

APPENDICES

APPENDIX I	LIST OF PARTICIPANTS
APPENDIX II	AGENDA

List of Acronyms and Abbreviations

CAC	Coastal Advisory Council
CANARI	Caribbean Natural Resources Institute
CARICOM	Caribbean Community
CARIFORUM	Caribbean Forum of ACP States
CBO	Community Based Organisation
CCA	Caribbean Conservation Association
CCRF	Code of Conduct for Responsible Fisheries
CERMES	Centre for Resource Management and Environmental Studies
CFRAMP	CARICOM Fisheries Resource Assessment and Management Programme
CFR	Common Fisheries Regime
CFU	CARICOM Fisheries Unit
CRFM	Caribbean Regional Fisheries Mechanism
CSO	Central Statistical Office
CZM	Coastal Zone Management
CZMA/I	Coastal Zone Management Authority/Institute
EIA	Environmental Impact Assessment
EMA	Environmental Management Authority
EU	European Union
FAB	Fishery Advisory Board
FAD	Fish Aggregating Device
FAO	Food and Agriculture Organization of the United Nations
FMP	Fisheries Management Plan
FRMP	Fisheries Resource Management Project
GDP	Gross Domestic Product
IDRC	International Resource Centre of Canada
IMA	Institute of Marine Affairs
INFOFISH	Intergovernmental Organization for Marketing Information and Technical Advisory Services for Fishery Products in the Asia and Pacific Region
MALMR	Ministry of Agriculture, Lands and Marine Resources
NGO	Non Governmental Organization
OECS	Organization of Eastern Caribbean States
PhilFIS	Philippines Fishery Information System
REP	Resource Enhancement Projects
RSA	Resource and Social Assessment
SMMA	Soufriere Marine Management Association
SPS	Sanitary and Phytosanitary
TBT	Technical Barriers to Trade
UNECLAC	United Nations Economic Commission for Latin America and the Caribbean
UNDP	United Nations Development Programme
US	United States
WECAFC	Western Central Atlantic Fishery Commission
WTO	World Trade Organization

1.0 INTRODUCTION

1. Article 10 of the Code of Conduct for Responsible Fisheries (CCRF) sets out principles and standards for the Integration of Fisheries in Coastal Management. Article 10.2.4 of the CCRF suggests that states establish systems to monitor the coastal environment, as part of the coastal management process, using among other things economic and social parameters.

2. During the fiscal year 2002/03, the CRFM Secretariat requested FAO's assistance in undertaking a study on the use of socio-economic and demographic indicators in integrated coastal area management and fisheries management in the CARICOM region. The study involved three main components. Firstly, country specific case studies to be undertaken in selected Caribbean countries, namely, Belize, Dominica, Jamaica, St. Lucia, Barbados, Trinidad and Tobago and the Turks and Caicos Islands. These were aimed at documenting past and current initiatives in the CARICOM region, in which socio-economic and demographic indicators were used in integrated coastal and fisheries management, and also to identify ways and means of incorporating such information in on-going coastal zone and fisheries management programmes. The second component was a comparative study on the use of socio-economic and demographic indicators in coastal management and fisheries management in the Southeast Asian countries, Malaysia and the Philippines, which are more advanced in this respect, in order to learn from their experiences. The third component was a regional workshop to present, discuss and refine the country specific and comparative studies, by obtaining input from all the CARICOM countries, and to make recommendations for follow-up actions to improve integrated management of coastal resources, through, *inter alia*, incorporating the use of socio-economic and demographic indicators in the planning and decision-making process, improving the standard of living of fishing communities, and, promoting sustainable development.

3. Country specific case studies were prepared for Belize, Dominica, Jamaica, St. Lucia, Trinidad and Tobago and the Turks and Caicos Islands between June 2004 and May 2005, by short-term consultants engaged by the CRFM Secretariat.

4. The comparative study tour to Malaysia and the Philippines, involving representatives from The Bahamas, St. Kitts and Nevis, St. Vincent and the Grenadines and the CRFM Secretariat, took place during August 2004, with the objectives being: to examine and determine how socio-economic and demographic information was used by fisheries and other government administrations and the fisher associations in the preparation of management and development plans as well as in monitoring the impact of these plans and programmes on fishers and their families; and to study and determine how the socio-economic well-being of fishers and their families was improved through special programmes and projects, which were being implemented in the context of fisheries and coastal management, development and conservation programmes.

5. The third component was implemented from June 13-17, 2005, when the CRFM Secretariat in collaboration with the FAO and the Fisheries Division of the Ministry of Agriculture, Land and Marine Resources (MALMR), Trinidad & Tobago, organized and convened a Regional Workshop on the *Collection of Demographic Information on Coastal Fishing Communities and Its use in Community Based Fisheries and Integrated Coastal Zone Management in the Caribbean*.

6. The aim of the Workshop was to review the findings of the country case studies on the status of coastal zone and fisheries/aquatic resources management and on the incorporation of demographic/socio-economic considerations/indicators in selected Caribbean countries, and the comparative study on the use of demographic indicators in coastal area and fisheries management between the Caribbean and selected countries in Southeast Asia with a view to making recommendations for improving the standard in living of fishing communities, and, the strengthening of integrated coastal zone and fisheries management in the Caribbean, through, *inter alia*, the collection and use of demographic information on coastal fishing communities.

2.0 OPENING CEREMONY

7. The workshop was held at the Ambassador Hotel, Trinidad and Tobago, at the kind invitation of the Government of Trinidad and Tobago.

8. Thirty-five participants from Barbados, Belize, Commonwealth of Dominica, Grenada, Malaysia, the Philippines, Saint Christopher and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Turks and Caicos Islands, Caribbean Natural Resources Institute (CANARI), Caribbean Regional Fisheries Mechanism (CRFM), Food and Agriculture Organization of the United Nations (FAO), Intergovernmental Organization for Marketing Information and Technical Advisory Services for Fishery Products in the Asia and Pacific Region (INFOFISH), Institute of Marine Affairs (IMA), University of the West Indies, Cave Hill and St. Augustine Campuses, attended the Workshop. The List of Participants is given in Appendix I of this Report.

9. At the Opening Ceremony, the Chairperson, Ms Ann Marie Jobity, Director of Fisheries, Trinidad and Tobago, acknowledged the presence of the Minister, Ministry of Agriculture, Land and Marine Resources, Honourable Jarette Narine, and welcomed all invitees and Workshop participants to the Opening Ceremony, with special mention being made of the participants from Italy, Malaysia and the Philippines. She, on behalf of the MALMR, expressed her gratitude to the CRFM and FAO for organising and convening the Regional Workshop and welcomed their initiative to examine and develop mechanisms to conduct research and develop management measures using a more consultative approach.

10. In his remarks, Mr Terrence Phillips, Deputy Executive Director (Ag), CRFM Secretariat, expressed sincere appreciation on behalf of the CRFM Secretariat to the MALMR for agreeing to host this Regional Workshop and for the support of the

Fisheries Division in organising the logistics of the workshop. He expressed thanks to the FAO for providing the financial and technical assistance necessary to organize and convene the Workshop. He provided the background to and aim of the Regional Workshop, and highlighted the socio-economic importance of the fisheries sector in the region, noting that it was mainly artisanal in scale and employed, directly or indirectly, about 130,000 persons mainly from rural communities.

11. He pointed out that in most of the Member States of the Caribbean Regional Fisheries Mechanism (CRFM) social and economic data on fishers or industry personnel are not captured at the primary production stage, but noted that during the implementation of the CFRAMP Programme, the Member States had identified a need to capture social and economic data in order to better understand the contribution of fisheries to their national economies. Also, he indicated that the CARICOM Fisheries Unit had undertaken a consultancy to develop guidelines and methods for the expansion of the present data collection systems in order capture socio-economic data on fishers.

12. He pointed out to those present that the mission of the recently inaugurated CRFM was to promote and facilitate the responsible utilization of the fisheries and other aquatic resources in the region for the economic and social benefits of the current and future population of the region, and stated that among programme areas identified by Member States for continued attention during the 2003 to 2007 period was the strengthening of Fisher's Organisations, Improved Community Participation and the Development and Promotion of Risk Reduction Programme for Fishers.

13. The DED (Ag) indicated that an examination of the comparative study and the Caribbean studies suggested that the South East Asian countries had made great progress in improving the socio-economic standards of their fishermen, particularly in Malaysia where great strides have been made in terms of poverty reduction among fishermen by promoting improvement in resource management in addition to diversification of sources of income through aquaculture and the operations of small restaurants and hotels in fishing villages. In closing, the DED (Ag) noted that the South East Asian experiences could provide new ideas for the Caribbean.

14. In his opening remarks, Mr. Bisessar Chakalall, FAO Regional Fisheries Officer, welcomed the guests and Workshop participants to the Opening Ceremony of the Regional Workshop, and extended greetings from the Director-General of FAO, Dr. Jacques Diouf.

15. He pointed out that the Workshop was the second to be held by FAO on this subject, with the first being in the Philippines for South East and South Asian countries, and it – involved a real team effort on the part of staff from the FAO Fisheries Department (Rome), the FAO Sub-regional Office for the Caribbean and for the Pacific Islands, the FAO Office in Trinidad and Tobago, the CRFM and the Fisheries Division of Trinidad and Tobago, noting that one of the reasons for involving the FAO Sub-regional Office of the Pacific Islands was to promote inter-regional exchange and cooperation

between two similar regions in which the majority of states are Small Island Developing States (SIDS).

16. He stated that the mandate of the FAO was to contribute towards ensuring humanity's freedom from hunger, by improving the efficiency of the production and distribution of all food and agriculture products, including fisheries, in a sustainable manner, and by raising the levels of nutrition and standards of living of the peoples and bettering the condition of rural populations, noting that fish is a vital source of food for the peoples of the Caribbean, with the average per capita consumption being about 14kg.

17. He indicated that one of the major and outstanding efforts of FAO and its member nations in moving towards sustainable fisheries production globally is the elaboration of the Code of Conduct for Responsible Fisheries, which had been unanimously adopted in October 1995 by the FAO Conference.

18. He pointed out that Article 10 of the Code and the accompanying FAO Technical Guidelines for Responsible Fisheries No. 3 – Integration of Fisheries into coastal Area Management, set out the principles and standards for the integration of fisheries into coastal area management and specify the broad socio-economic and demographic parameters to be taken into consideration, noting that the Workshop would address the collection of demographic and socio-economic data and information on fishing communities for use in aquatic and coastal resources management and for monitoring the impact of management measures on the socio-economic well-being of fishing communities.

19. He expressed the hope that the Workshop would produce guidelines for the collection and use of demographic and socio-economic data that could lead to policy changes for integrated coastal zone management and community based fisheries management that would be of ultimate benefit to the fishing communities of the Caribbean. He also noted that this was the fourth workshop to be hosted by the Government of Trinidad and Tobago, since July 2004, on the implementation of various aspects of the Code of Conduct for Responsible Fisheries, which was an indication that the Fisheries Administration and Government of Trinidad and Tobago were very keen to implement the Code.

20. In closing, the FAO Regional Fisheries Officer encouraged the participants to do all within their capabilities to put in place action plans, in their respective countries, for the implementation of the Code of Conduct for Responsible Fisheries so that the Caribbean region can achieve sustainable fisheries.

21. In his feature address, the Minister, Honourable Jarette Narine, Ministry of Agriculture, Land and Marine Resources, welcomed the invitees and Workshop participants, noting that the MALMR was pleased to be co-hosting the Workshop with the CRFM and FAO, as it was seen as an important initiative. He praised the Workshop's good fortune in having experts from Italy, Malaysia, the Philippines and South Pacific Islands and the Caribbean region to share their knowledge concerning community-based

fisheries and integrated coastal zone management and their importance to sustainable regional fisheries management.

22. The Minister pointed out that as Small Island Developing States in the Caribbean, our aquatic and fisheries resources were pivotal to our food security, our ability to earn foreign exchange and more importantly to the development and sustenance of our coastal communities, noting that it was instructive that the organizers of the Workshop had chosen the South East Asian countries, Malaysia and the Philippines for comparative case studies, since these coastal states share common challenges with the Caribbean, in terms of the integration of fisheries and coastal zone management in the thrust towards greater social and economic development.

23. The Minister further noted that the FAO Code of Conduct for Responsible Fisheries recommended that states establish systems to monitor the coastal environment as part of the coastal management process using, among other things, economic and social parameters. He however pointed out that in most fisheries management systems, data collection regimes to support analyses to determine stock abundance such as data on fish catches and biological information on the species targeted were well established, but in many instances in the Caribbean there were constraints to the determination of the relationship between fisheries management decisions and impacts on the coastal communities due to a dearth of socio-economic data and information. He also indicated that the implementation of fisheries management decisions without prior analyses of the socio-economic impacts on communities can negate the efforts of the fisheries managers in terms of the resistance of fisherfolk to compliance with management rules, which resistance places their livelihood at risk.

24. He then pointed out that a proper understanding of socio-economic considerations provided benchmarks by which to ascertain the feasibility of management decisions and provided guidance in the formulation of regulations, which served to underscore the priority that must be accorded to the strengthening of the regional capability to collect and utilize socio-economic data and information as input into fisheries management decision-making.

25. In continuing his address, the Minister indicated that coastal resources were multi-use, and subject to high demand from a variety of competing economic sectors which meant that coastal zone management required a multi-sectoral approach to deal with these complexities. He also indicated that his Ministry was determined that decisions related to coastal development should always consider fisheries interests, and was firm in the position that fisheries resources and fisheries habitats be protected from the risk of being lost and the fishermen displaced due the absence of proper coastal zone planning and stakeholder involvement in decisions relating to coastal zone development and management.

26. He recognised the importance of coastal ecosystems to fisheries sustainability as well as the fragility of such systems and pointed out that coastal zones needed to be properly managed and protected and a balance struck between the broader economic

developmental aspirations, the protection and conservation of the fisheries resources and survival of coastal fishing communities. He also added that the incorporation of ecosystem considerations into integrated coastal fisheries management and coastal zone planning was immediately relevant and timely, with such a holistic approach encompassing the use of fisheries and environmental data as well as giving consideration to the impacts of human activities on the ecosystem.

27. The Minister reiterated the critical importance of participatory fisheries management and stakeholder involvement in the formulation and implementation of fisheries management decision-making, noting that fishermen were more likely to comply with management decisions when they have been part of the process in the formulation of management plans. He pointed out that participatory fisheries management decision-making was the first step in the process towards community-based management, with the fishermen having a vested interest in the resources and accepting ownership in order to achieve self-regulation at the community level. He further noted that fisheries managers had a duty and responsibility to ensure that the fisheries resources were being managed in a sustainable manner and therefore the ultimate goal of fisheries management was to assist the fisherfolk as the primary users of the resource to participate effectively in the management of these resources.

28. In closing, the Minister noted that the Workshop presented a unique opportunity for consensus building among participants, regarding recommendations to strengthen integrated coastal fisheries management and community-based fisheries and on the collection and use of socio-economic indicators in these two aspects of fisheries, and formally declared the Workshop open.

3.0 INTRODUCTION OF PARTICIPANTS AND WORKSHOP ARRANGEMENTS

29. Participants and resource persons introduced themselves. The Agenda for the Workshop was reviewed and approved by participants.

30. The Agenda is included as Appendix II of this report. Ms. Michele Picou-Gill, Fisheries Officer and Mr. Carl Baptiste, Scientific Assistant, MALMR served as rapporteurs for the duration of the workshop.

4.0 PRESENTATIONS AND DISCUSSIONS

31. Based on the Agenda presentations were made and discussions held on the following:

- Comparative Study Mission to the Philippines and Malaysia for the Study of the Use of Demographic and Socio-economic Information in Coastal and Fisheries Management, Planning and Conservation;

- 26th Session of the FAO Committee on Fisheries and the Contribution of Small-scale Fisheries to Rural Development;
- Country Specific Case Studies on the Consideration of Socio-economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning (Belize, Dominica, Jamaica, St. Lucia, Trinidad & Tobago, Turks and Caicos Islands);
- Fisheries Management in the Philippines: A Focus on the Fisheries Resource Management Project;
- Aspects of CERMES Regional Research and Training with Emphasis on Socio-economic and Demographic Information;
- The Role of the Fisheries Development Authority of Malaysia in the Collaboration and Management of the Fisheries Resources and the Welfare of the Fishing Communities in Malaysia;
- Progressing towards Community-based Fisheries Management: A Case Study of Fishing Communities from Ortoire to Guayaguayare;
- Latest Developments in Small-Medium-scale Fisheries and Aquaculture Enterprises and Products with Regional and Global Export Markets; and
- Coastal Fisheries and Community-Based Fisheries Management in the Pacific.

32. Set out below are the summaries from these presentations and the salient points from the discussions held.

4.1 Report of the Asian Comparative Study Mission

33. In an effort to improve the standard of living of fishers and their communities, while at the same time improving fisheries conservation and management, Malaysia and the Philippines have, over the past three decades, refocused their efforts on the human factor. This was evidenced by the increased use and reliance on socio-economic and demographic data and information in the formulation of policies and development and implementation of programmes to address, in a direct manner, the social and economic needs of fishers and their communities. Fisheries management has shifted from the traditional narrow focus on fisheries biology, ecology and conservation, towards a wider developmental perspective based on the principles of integrated coastal resource management.

34. The importance of socio-economic and demographic studies as it relates to fisheries development policies and the formulation of programmes to address concerns and issues such as those noted above and which aim to balance human population dynamics and demographic trends with marine resources and the environment has been highlighted and effectively utilized in Malaysia and the Philippines, but much more so in Malaysia. In Malaysia, the establishment of FDAM in 1971 under the authority of the Department of Fisheries, to deal specifically with fishers' economic empowerment, especially in coastal regions has dealt effectively with coastal fishers concerns.

35. The findings of the study tour of Malaysia and the Philippines suggested that the fisheries sector no longer seemed to be a last resort employment opportunity as it used to be for people in coastal areas. In Malaysia, where there was an overall increase in the standard of living and decline in the number of coastal fishers, it was also reflected in an occupational mobility out of fishing into other occupations in the service sector such as tourism and eco-tourism. In the Philippines, the decline has recently become more evident. One plausible explanation for the changes in both countries, in the context of declining catches and income per fisher on the one hand, and economic growth and rising levels of education on the other hand, was that alternative and economically more rewarding employment opportunities have developed outside the fisheries sector facilitating vocational mobility. Government policies aimed at a reduction and limitation of fishing effort, conservation, the introduction and formation of fishermen associations and the rehabilitation of fisheries resources have played a role in moving fishers and their families out of their traditional occupation.

36. Results of the study tour of Malaysia and the Philippines have indicated that there could be great value in using socio-economic and demographic data in assessing, evaluating, planning, monitoring and managing fisheries in the Caribbean. Although already being utilized in some countries in the Caribbean, it was being done to a greater degree in Asia, where they continue to experience and realize positive results arising from the programmes that have been implemented and were being implemented as a result of studies. Fisheries development and management in the Caribbean was still largely dependent on the use of biological and ecological data and information and the achievement of sustainable fisheries.

37. Socio-economic and demographic studies, which basically illustrate conditions of life in a community, could have far reaching positive effects in the Caribbean if utilized more effectively to improve the quality of life for small-scale fishers in the region. Results of such studies could assist in designing programmes specific to entrepreneurial development of fishers, the importance and advantages of fishers' associations/cooperatives especially in small communities such as the Caribbean region, as well as assist in poverty alleviation.

Discussion

38. Participants commented on the illegal use of cyanide and dynamite to catch fish, with it being pointed out that cyanide was used by some fishers in the Philippines to catch fish for the aquarium trade. The serious effect that the use of dynamite could cause to coral reefs was pointed out, with the participant from Malaysia noting that the Government of Malaysia was committed to the enforcement of the regulations prohibiting dynamite as well as sensitising fishers about the negative impact of dynamite on fish habitats.

39. Participants commended the Malaysian Fishery Authorities for their work aimed at reducing poverty among the large population of fishers by creating opportunities for other forms of employment. They also opined that the legal framework put in place for

the development of fishers association as well as the systems for networking among the associations and with other relevant agencies contributed to the success of the programmes for development in the fishing communities.

4.2 *Supporting Small-Scale Fisheries through an Enabling Environment*

40. The presentation was divided into three sections: Section 1 discussed some figures showing trends in fish production, consumption and trade between 1973 and 1997 and projected to 2020. The data were taken from the book entitled “Fish to 2020” by Delgado *et al.* (2003). The following trends were emphasized: (1) the shift in the contribution to total food fish production from developed to developing countries; (2) the increasing contribution of aquaculture to total food fish production, and (3) the shift among developing countries from being total net food importers to total net food exporters. Two major questions were posed at the end of the section, which became the starting point for the next section. These are: (1) how to ensure the sustainability of capture fisheries and aquaculture and (2) how the poor and small-scale fishers can capture the benefits from increases in production and trade.

41. Section 2 discussed the summary of the paper presented in the session on small-scale fisheries during the recently held 26th Session of the Committee on Fisheries in Rome in March 2005. The title of the paper discussed during the session was “Supporting small-scale fisheries through an enabling environment.” The vision for small-scale fisheries presented in the paper was one where the contribution of small-scale fisheries to sustainable development is fully realized. To achieve this vision, changes within and outside the sector are needed, e.g., changes in both fisheries and non-fisheries legislation. Initiatives that may be done include the following: tailoring management regimes (e.g., ensuring preferential access to small-scale fishers, decentralization of management responsibilities, co-management arrangements); facilitating financial arrangements (e.g., microfinance); improving information (e.g., access to good information for decision making, systems low on data requirements); developing capacity (e.g., needs assessment, curriculum development, good governance), and making markets work for small-scale fishers (e.g., access to input and output markets, information regarding changes to international trade policy and regulations, improving access to markets by poor traders).

42. The presentation concluded with a short remark on the importance of socio-economic and demographic information within the context of small-scale fisheries development: (1) need for access to good information on which to base policies and strategies; (2) need to balance resource use and protection; and (3) the importance of stakeholder participation in community-based and integrated coastal zone management.

Discussion

43. In response to a query about the high level of fish production in China, it was indicated that the figure was elevated as a result of aquaculture, especially seaweed culture that accounted for about 70% of the production figure.

44. There was some discussion on the shift in levels of production of fish and fish products from developed and developing countries so that by 2020 developed countries could be net importers and developing countries net exporters and the likely economic impacts of such shifts. It was indicated that several scenarios could occur, among which were: (a) in order to achieve higher levels of fish production the fishery would be fished beyond its sustainability; (b) fishers move to other employment areas so those left in the fishery enjoy larger catches. It was also pointed out that the developing countries could put emphasis on satisfying the foreign market at the expense of the local market, with the products from aquaculture being included in the export drive.

45. The need for fisheries policies and legislation to be in tandem was recognised, with it being pointed out that in some instances they tend to contradict each other.

46. Participants noted that the imposition of stringent quality assurance and safety requirements for fish and fish products by some developed countries was becoming an impediment to free trade as the development, maintenance and upgrading, when new requirements are put in place, of such systems are becoming more and more costly. However, it was pointed out that developing countries needed to review and research any requirement which could be considered unscientific and challenge the requirement in the appropriate fora, like the WTO.

4.3 Country Specific Case Studies on the Consideration of Socio-economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning: Belize Case Study

47. The presentation of the Belize Case Study was divided into four (4) sections. The first section focused on the general information of Belize and included information on location, demography, economy, fishery and political, legal and administrative structure.

48. The second section dealt with the institutional and legal environment in Belize. The major areas presented included information on the management and regulation of fisheries and aquaculture. It also emphasized that although responsibility for marine resource conservation in Belize is divided among eighteen (18) agencies of ten (10) ministries, the Ministry of Agriculture and Fisheries is the Government agency with primary responsibilities for formulating, executing, monitoring and coordinating policies related to fisheries management through the Fisheries Act (1980), Chapter 210 of the Laws of Belize, which was revised in 2003.

49. In respect to regional planning and development in coastal areas, five (5) primary pieces of legislation were presented, together with information on the formation and responsibilities of the Coastal Zone Management Authority/Institute (CZMA/I).

50. This section also included information on the co-management of fisheries and coastal aquatic resources and focused on the role of the Belize Fisheries Advisory Board (FAB) and the five (5) co-management agreements for the management of marine areas.

51. The integration of fisheries and coastal aquaculture management into coastal area management, planning and conservation was also presented, with the composition of the board of the (CZMA/I), the FAB and the Coastal Advisory Council (CAC) and their functions being discussed. The constraints in the execution of the mandate of the CZMA/I were highlighted.

52. In the third section, the availability of socio-economic and demographic information was discussed as well as the use of such data. The work of three (3) field studies done by different organizations was discussed. In addition, the main findings and the principal socio-economic indicators of five (5) case studies were presented. These included research work done in Caye Caulker, Sarteneja, Gladden Spit and Silk Caye Marine Reserve, Glover's Reef Marine Reserve and in the Port Honduras Marine Reserve.

53. The final section discussed the extent to which socio-economic and demographic concerns have been addressed. It also included various recommendations in regards to legal issues, awareness of data and accessibility and improved understanding for the strengthening of the use of socio-economic and demographic indicators. The need for improvements in Belize's fisheries management plans, coastal zone plans and marine protected areas plan was presented as a general conclusion.

Discussion

54. There was some discussion on the inability of the Belize's fisher associations to improve the social standards of their members, with it being suggested that in many instances the management committee, which tended to remain unchanged year after year, of these organizations focused primarily on personal interests as opposed to the needs of their members.

55. The paucity of information on non-Belizean fishers operating illegally in Belize's waters was noted, with it being observed that in terms of national planning, this data would prove very challenging to obtain.

56. It was noted that in terms of providing fishers with alternate employment opportunities, for example, in the tourism sector, the high rate of illiteracy among fishers would have to be addressed.

4.4 Country Specific Case Studies – The Considerations of Socio-Economic and Demographic concerns in Fisheries and Coastal Area Management and Planning: Dominica Case Study

57. The use of socio-economic and demographic information in coastal areas was considered against the general background of the economy, legal system, type of government, government agencies involved, overall population and number of fishermen in Dominica. The existing institutional and administrative capacity of Dominica in terms of government institutions and non-government organizations involved in fisheries and coastal zone management were highlighted, with the Fisheries Division of the Ministry of Agriculture and the Environment being identified as the lead agency, with varying degrees of overlap of responsibilities and jurisdictions.

58. Some examples of studies where the use of socio-economic and demographic information had been used in fisheries and coastal area management and development were indicated. Such studies included a poverty alleviation study and the Dominica Rural Enterprise Project. Specific projects geared towards the improvement of the welfare of the fishermen where socio-economic and demographic information were utilized in the planning stages were presented, with these being the Roseau Fisheries Complex and the Marigot Fisheries Facility Projects.

59. Efforts at promoting co-management, such as, the formation of fishermen cooperatives and marine protected areas in Dominica were highlighted, with it being pointed out that such initiatives were ongoing.

60. The problems, constraints and difficulties encountered in collecting socio economic and demographic information on fishing communities were highlighted, with it being noted that no such dedicated fisheries studies had been done in Dominica. However, demographic information relevant to fishing communities was extracted from the national census data and from other studies that incidentally included and addressed the situation of the fishing communities.

61. In conclusion it was explained that the extent to which the use of socio economic and demographic concerns had been taken into consideration in fisheries and coastal area management and development in Dominica was incidental rather than by common practice or established principle.

Discussion

62. There were no queries or comments after this presentation.

4.5 *Fisheries Management in the Philippines: A focus on the Fisheries Resources Management Project (FRMP)*

63. The Philippines is an archipelagic country composed of about 7,100 islands. Interspaced between these islands are coral reefs, mangrove forests, seagrass beds and other coastal habitats that are sources of food, livelihood and income to people. The country's fish production in 2002 amounted to about 3.4 million metric tons. Fishery exports amounted to \$506 million while imports were \$97million. The fisheries sector's share to the overall agriculture sector production is about 20%. It contributed 4% (P41.77 B) to the GDP. The fishing industry absorbed 5% of the country's labor force, with 991,000 persons engaged in the commercial, municipal and aquaculture sub-sectors.

64. Despite the richness of the country's coastal and marine resources, there has been issues and problems related to the fisheries sector. Most of the coastal habitats in nearshore areas are degraded, with only 5% of the corals being in excellent condition and the mangroves have been overexploited. Almost all bays and gulfs are overfished. Silt deposits from deforested upland areas have rendered estuaries unproductive. Pollution coming from factories, aquaculture ponds and residential areas contributed to the low productivity of the coastal waters. The use of fine-meshed nets, dynamite fishing and cyanide fishing are the most common illegal fishing methods used in coastal areas.

65. The FRMP addresses the two critical issues of fisheries resource depletion and poverty. The Project focuses on reversing the trend of fisheries depletion by controlling illegal fishing and overfishing. The Project has adopted approaches such as the promotion of income diversification, promotion of mariculture and other micro-enterprise activities and a municipal licensing system. Activities in the Project are being implemented at the national, regional, local and the community levels, with partnerships have been forged among people's organizations, nongovernmental organizations and the academia, among others. The components of the Project are: (1) fisheries resource management, (2) income diversification, and (3) capacity building.

66. The Fisheries Resource Management Component is aimed at strengthening fisheries regulations, rationalizing the utilization of fisheries resources and rehabilitating damaged habitats. The Philippine Fisheries Information System (PhilFIS) has been placed under this component and it serves as the repository of data and information gathered in the Resource and Social Assessments (RSAs) that are being used to formulate CRM plans. Fisheries regulations and legislation are aimed at strengthening the capability at the national and local levels to implement the regulations on licensing and municipal ordinance formulation. This component promotes the deputation of fishers as fish wardens.

67. The Income Diversification Component involved community organizing, micro-enterprise and mariculture development, and is focused on the preparation of fishers to carry out CRM activities on a long-term basis.

68. The Capacity Building Component provided long and short training courses to implementers of the Project as well as major stakeholders.

69. A number of milestones have been accomplished towards the realization of the goals and objectives of the Project. Resource enhancement projects (REPs) have been established in the form of fish sanctuaries, mangrove reforestation and stock enhancement of some species. The riverbank bio-engineering was done to rehabilitate dying and stagnant river systems. Information, education and communication activities have been undertaken to assist stakeholders of the Project. Production of print materials and networking with the media, NGOs, the Department of Education and the Department of Natural Resources have been strengthened to be able to reach a greater mass base as well as maximize the use of shared resources. Livelihood projects have been provided to add to the income of fishers. Through the years, the project implementers have been trained formally and informally to increase their capability in project implementation.

70. Some of the constraints encountered were as follows:

- (a) There were still weaknesses in law enforcement at the local government level.
- (b) There was no credit facility provided by the project as fishers lack capital to be able to venture into livelihood options.
- (c) There was no provision for capital outlay to finance the small equipment needed for post-harvest.
- (d) The present organizational set-up of the national agency needed strengthening.

71. Recommendations for improved implementation of the project include:

- (a) Enhancement the capability of law enforcers to implement laws.
- (b) Link the fishers to existing financial assistance programs.
- (c) Provision of post-harvest facilities in order to avoid wastage of fishery resources.
- (d) Provision of appropriate logistics and training of the staff who will implement fisheries management.

Discussion

72. There was some discussion on the levels of commercialisation of bottled sardines in the Philippines.

73. There was a query regarding the types of baseline information collected, with an observation that sometimes there was a shifting of baselines within a community and that in order to counteract this at least 10 years of data needed to be collected to evaluate whether any trends appeared.

4.6 Country Specific Case Studies – The Consideration of Socio-Economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning: Jamaica Case Study

74. The presentation provided general information on Jamaica's status as an archipelagic state and the extent of the marine waters under its jurisdiction; a description of the characteristics of the population based on the 2002 Census; the national economy, with the fisheries sector contributing about 0.4 % to the GDP; an overview of the current structure of the fisheries sector, with data being provided on the number of fishers and their literacy levels and family status, their level of organisation, the role of women in the sector and fish production and exports; and the institutional and legal arrangements for the development of fisheries, aquatic and other coastal resources.

75. In terms of the administrative arrangements for planning, development and conservation of the coastal environment and the protection of aquatic resources, the agency with the overall responsibility for the conservation of the coastal environment and aquatic resources and the planning and development in coastal regions was identified as the National Environment and Planning Agency (NEPA), which resulted from a merger of the Natural Resources Conservation Authority (NRCA), the Town Planning Department (TPD) and the Land Development and Utilization Commission (LDCUC) which took effect on April 1, 2001. However, it was noted that there was currently no comprehensive legislation incorporating the mandates of the abovementioned agencies. It was noted that NEPA worked in very close co-operation with various affiliate agencies with specific jurisdiction and legal mandate such as the Fisheries Division and the Forestry Department in respect of matters related to fisheries and forestry respectively.

76. Jamaica's effort at achieving co-management of fisheries has been at best sluggish and limited, and, especially with respect to the integration of fisheries and coastal aquaculture into ocean and coastal area management and development, restricted to, in most if not all cases, the so-called "consultation with stakeholders" which in actuality is just providing information to stakeholders who are powerless to effect any significant changes to the given management or development plan. There have been several attempts at achieving some level of co-management of fisheries, with the more important examples being:

- a. The management and development of the Jamaica's conch industry,
- b. The establishment of the Portland Bight Fisheries Management Council (PBFMC),
- c. The Fisheries Division/CARICOM Fisheries Resource Assessment and Management Project (CFRAMP): Community Involvement and Education Sub-Project.
- d. The FAO/Government of Jamaica: "Development of Policy Framework and Strategic Plan for Sustainable Fisheries Development in Jamaica.

77. The availability of social, economic and demographic information on fishing communities was patchy and disjointed simply because no focus was being actually placed on a "fishing community" per se. Some social, economic and broad demographic

data were captured during the Fisheries Division's fisher registration process, but for the most part detailed information has to be disaggregated from more general population data. The main agencies responsible for the collection, analysis, interpretation and publication of social, economic and demographic data are the Planning Institute of Jamaica (PIOJ) and the Statistical Institute of Jamaica (STATIN).

78. The use of socio-economic and demographic indicators in the preparation of coastal area profiles and management/development plans was highlighted by way of the work done by CCAM in the Portland Bight Protected Area. The work involved a house-to-house census of the coastal communities where detail social and demographic data was collected. The data collected was utilized to fine tune existing data on the communities in PBPA, refine the profile on the protected area and assisted in the development of the comprehensive PBPA's management and development plan entitled: the Portland Bight Sustainable Development Area, Management Plan: 1998-2003.

79. Since 2002 the Government of Jamaica, spear-headed by the Tourism Product Development Company (TPDco.) in conjunction with various stakeholders including other government agencies (e.g., Fisheries Division) and NGOs (e.g., Caribbean Coastal Area Management Foundation (CCAM)) have been preparing a project, the Jamaica South Coast Sustainable Development Project. This very broad project has a Sustainable Fisheries Management Component with activities geared towards fisheries and coastal area management and conservation programmes, and is aimed at improving the socio-economic well-being of coastal fishers and their families. The major constraint to the execution of this Project is the unavailability of government counterpart funding to begin it. The Project if implemented will go a very far way in furthering the development of fisheries co-management

80. In conclusion, it was noted that in Jamaica socio-economic and demographic data is traditionally used only as a measurement of the socio-economic status of the Jamaican population in general. Coastal fishers, their families and other segments of the coastal population, were not specifically targeted for socio-economic and demographic information unless there is a specific project or programme requiring such data. As such, there was a critical need to meaningfully incorporate into the planning and development process social, economic and demographic information of all the stakeholders that may potentially be impacted by a given development.

81. In terms of the interventions necessary to ensure the routine collection and use of social, economic and demographic data into the management process of coastal and aquatic resources the Case Study identified the following:

- a. The development of a legal framework mandating the relevant agencies to incorporate social, economic and demographic considerations into the planning and developmental process.
- b. The building of the capacity of the stakeholder groups especially those within the so called "politically weak" sectors such as the fisheries sector.

Discussion

82. Mention was made of the fact that some countries have legislative frameworks that mandated the use of socio-economic indicators in fisheries management plans. It was also pointed out that the same set of socio-economic indicators needed to be observed over time as the social landscape was constantly changing due to the entry of new fishers into the industry and the shifting of fishers to other occupational areas in addition to the seasonal movement of fishers.

4.7 Country Specific Case Studies – The Consideration of Socio-Economic and Demographic Concerns in Fisheries and coastal Area Management and Planning: St. Lucia Case Study

83. The presentation provided general information on the geography of St. Lucia; characteristics of the population; national economy, with the fisheries sector contributing 1.03 % to the GDP; an overview of the fisheries sector, and the political, legal and administrative structure.

84. The presentation indicated that the ultimate responsibility for the fisheries sector rests with the Minister of Agriculture, Forestry and Fisheries (MAFF), with the mandate for fisheries management and development residing with the Department of Fisheries in MAFF. The core legal framework for fisheries management and development is provided by the Fisheries Act, No. 10 of 1984, and Fisheries Regulations No. 9 of 1994, with these being reinforced by the Fishing Industry (Assistance) Act No. 33 of 1972; Maritime Areas Act No. 6 of 1984; and Fisheries (Snorkelling Licence) Regulations No. 223 of 2000.

85. Governmental agencies which also played some role in sustainable fisheries development and regulation include the Attorney General's Chambers (legal support and advice in fisheries matters); Customs and Excise Department (control of imports/exports seafood, fishing gear and vessels); Ministry of Communications, Works, Transport and Public Utilities (coastal infrastructure and mining); Development Control Authority (regulation of coastal development and coordination of physical planning and sustainable development); Ministry of Health (environmental health and pollution monitoring); and Saint Lucia Solid Waste Management Authority (solid waste management). There was also coordination and collaboration with various non-governmental organisations, such as the Saint Lucia National Trust (management of certain designated protected areas adjacent to marine reserves); Soufriere Marine Management Area Association (responsible for Soufriere Marine Management Area and the Canaries/ Anse la Raye Marine Management Area); Aupicon Charcoal Producers Group (assistance in the management of the Mankote mangrove); and Desbarras Sea Turtle Watch Group (coordinates data collection and turtle watches on a nesting beach at Grand Anse).

86. The presentation noted that the approach taken for the conservation and rehabilitation of specific coastal marine and aquatic living resources is articulated within the Fisheries Management Plan for Saint Lucia, and that programmes were being implemented which focused on specific resources, habitats or fisheries (e.g., lobsters, turtles, conch, freshwater shrimps/crayfish, reef fishes; coral reefs, mangroves, beaches; conch fishery, lobster fishery). It also pointed out that wherever necessary, programmes in fisheries and marine resource management were set up and administered in such a way so as to ensure collaboration with relevant external agencies and stakeholders.

87. It also pointed out that in certain cases, community groups had been designated as Local Fisheries Management Authorities under the Fisheries Act, and were therefore granted certain management responsibilities along with opportunities to benefit from sustainable resource use. An example cited was the SMMA, which has been granted authority for day-to-day management of the Soufriere Marine Management Area for integrating coastal fisheries with a range of tourism and recreational activities. Other management arrangements have been built with groups such as the Aupicon Charcoal Producers Group (granted access to the mangrove marine reserve for sustainable harvesting and for eco-tours within the habitat), the Debarras Turtle Watching Group (granted permission to conduct turtle watches and given the responsibility to collect nesting data), and the Saint Lucia National Trust (which assists in the management of marine protected areas which exist congruent to protected land areas under National Trust jurisdiction).

88. As part of national efforts to facilitate the establishment of stronger national mechanisms for maintaining the integrity and productivity of the coastal zone and resources; optimising the contribution of the coastal zone to social and economic development through sustainable use of resources and equitable sharing of benefits; harmonising uses of the coastal zone; and providing a framework for the management and resolution of resource use conflicts, the Department of Fisheries, enabled by a project funded by the European Union, had spearheaded development of a policy and guidelines for use and management of the coastal zone. As a consequence, a new administrative arrangement has recently been agreed by Government of Saint Lucia and will place the administration of coastal zone management (CZM) within a CZM Unit housed in the Ministry of Planning, Development, Housing and the Environment. An integrated approach will be enabled through a CZM Advisory Committee comprising membership from ministries responsible for physical planning, environment, fisheries, forestry, agriculture, works, environmental health and tourism, as well as the National Emergency Management Office and the Saint Lucia Air and Sea Ports Authority. The Committee is to operate under the Physical Development and Planning Act No. 29 of 2001 and would help guide coordination among the respective government and non-government agencies and institutions involved in coastal management and development within the context of broader national development planning and development.

89. Since the 1980s, the Department of Fisheries has embraced the concept of co-management of resources as a means to effect sustainable conservation, empowerment of resource users, effective regulatory systems and community-based resource management.

This approach was supported by the Fisheries Act of 1984, which allows for the establishment of Local Fisheries Management Areas. The Department has balanced this more “formal” approach with a number of less-formal, resource based co-management arrangements, which have also produced some positive results. Examples illustrating the range of co-management initiatives included the SMMA: a formal co-management arrangement; and Co-management of Sea Urchins: an informal approach.

90. In terms of efforts undertaken in the field of integrating fisheries and coastal aquaculture into coastal area management, planning and conservation, the SMMA, was highlighted as a successful approach to integrating fisheries within a coastal area where new and emerging uses were creating incidents of confrontation among users and also leading to declining resource availability. Having become regionally and internationally renowned as a ‘success story’, the SMMA is now able to play a key advisory and advocacy role within on-going coastal zone management and integrated resource management initiatives at the national level and beyond.

91. The presenter noted that the most recent national census conducted by the Government of Saint Lucia was carried out in 2001. All communities were assessed, including coastal communities where fishing is either a primary or at a least significant source of livelihood. Limitations in the availability of detailed socio-economic information specific to fishers and their families led the Department of Fisheries, in 2001, to conduct an island-wide survey to gather such information. The results are presently being assessed.

92. Neither socio-economic nor detailed demographic data were used in the process of compiling the current Fisheries Management Plan. The document was prepared based on a template provided by the CIDA-funded CARICOM Fisheries Resources Assessment and Management Project (CFRAMP), which assisted member countries in the development of such plans, as required in national legislation. The Department of Fisheries is presently conducting a review of the plan, given its impending expiry, and has suggested that it be made broader to reflect the status and potential management role of all stakeholders. Results of the recent socio-economic survey conducted by the Department could also be used to broaden the information base on which specific fisheries are interpreted and options selected for specific management approaches.

93. The presentation noted that the mandate of the Department of Fisheries necessitated a range of approaches that tied the dual responsibilities of conservation of natural coastal and marine resources and secure the socio-economic development of fishers and their families. As such, many resource management programmes and activities seek opportunities for sustainable resource use while aiming for conservation of a very limited resource base (species, habitats, ecosystems) on which such economic activities depended. Examples of such integrated approaches were given as. Seamos Farming Project which was developed as an alternative to wild harvest; Fisheries infrastructure development and community-based management Projects; The People and the Sea Project, which recognized the socio-economic importance and potential of coastal

marine resources to the people of Laborie; and the FAD Development Programme aimed at moving fishers away from the reef.

94. It was noted in the presentation that there were extremely few cases where socio-economic assessments of coastal communities or fishing industry stakeholders have been conducted with the objective of better understanding levels of dependency on coastal and marine resources, the costs and benefits thus derived, or opportunities available to further develop and improve livelihoods generated through the sustainable use and management of such resources. Neither has there been substantial work in monitoring the impacts (both positive and negative) of management regulations on the socio-economic well-being of coastal fishers and their communities.

95. In conclusion, the presentation noted that the limited integration of socio-economic considerations into management and conservation planning and action does not mean that the management and conservation work outlined in earlier sections have failed in bringing tangible benefits to fishers, their families and communities, as communities heavily dependent on fishing as a source of employment and sustenance have progressed in terms of physical development and social services, although it has not been determined to what extent these assets have been generated through fishery-based earnings and employment. Also, it pointed out that in most communities, more and more fishers are interested in becoming active participants in resource and fisheries management, fisher education and training programs, and negotiations with other marine users. In addition, it acknowledged that in the context of Saint Lucia little work has been carried out in making the link between regulation/management and livelihood benefits, which would appear to be largely due to the limitations in human and financial resources faced by small island states which yield little in-depth focused work, involving the full range of environmental indicators/factors.

96. In terms of recommendations to better integrate the use of socio-economic and demographic indicators into coastal and fisheries management, the presentation suggested the activities set out in Table 1, noting that although they were specifically prepared for Saint Lucia, the suggested activities were nevertheless applicable to other countries within the region.

Table 1 Target activities for integrating socio-economic and demographic indicators into coastal and fisheries management.

Need/Constraint to be Addressed	Activity	Implementing Agency	Support Agencies
<ul style="list-style-type: none"> Need for country-specific estimates for economic and social contribution of fisheries sector/individual fisheries to GDP and to national development. 	<ul style="list-style-type: none"> Create survey format to guide national baseline studies (for assessing a range of factors and aimed at identifying appropriate indicators for long-term national monitoring). 	<ul style="list-style-type: none"> CRFM: draft survey format; provide implementation guidelines/training; seek funding to support national efforts. 	<ul style="list-style-type: none"> National governments (ministries/departments responsible for fisheries, trade, economic, social development).
	<ul style="list-style-type: none"> Facilitate focused socio-economic/demographic graduate/post graduate studies related to the fisheries sectors by students enrolled in educational institutions. 	<ul style="list-style-type: none"> CRFM working with relevant tertiary education institutions within the region and beyond: provide study grants for priority research areas. 	<ul style="list-style-type: none"> National governments to generate country-specific priority areas for such research.
<ul style="list-style-type: none"> More effective integration of socio-economic and demographic considerations in fisheries/coastal area planning and development. 	<ul style="list-style-type: none"> Improved sharing of information among fisheries authorities and economic planning authorities 	<ul style="list-style-type: none"> National fisheries agencies; economic/social agencies: production and circulation of annual/biannual statistics/information 	<ul style="list-style-type: none"> Funding and technical assistance: <ul style="list-style-type: none"> - CRFM/OECS/FAO - Donor governments - Other national/regional/international agencies
	<ul style="list-style-type: none"> Improved integrated planning among agencies responsible for fisheries, coastal and national development through joint planning and review initiatives 	<ul style="list-style-type: none"> CZM advisory committee/permanent/ad-hoc national economic and social advisory bodies 	<ul style="list-style-type: none"> Fisheries Department; other Departments/Units and community/user organisations responsible for elements of coastal and marine use and management
	<ul style="list-style-type: none"> Providing support to projects which assess and integrate socio-economic factors for sustainable coastal and marine resource use and management. 	<ul style="list-style-type: none"> Fisheries Department, community development organisations, fisher organisations Donor agencies: national, regional and international 	<ul style="list-style-type: none"> Government and community organisations in assisting in the design and implementation of such projects.

4.8 *Aspects of CERMES Regional Research and Training with Emphasis on Socio-Economic and Demographic Information*

97. The brief presentation focused on the content and application of the Socioeconomic Monitoring Guidelines for Coastal Managers in the Caribbean (SocMon Caribbean) (Bunce and Pomeroy 2003) and its companion Socioeconomic Manual for Coral Reef Management (Bunce *et al* 2000). SocMon Caribbean consists of guidelines on how to do simple socioeconomic monitoring useful for coastal management at the site level. CERMES supports use of SocMon Caribbean through distributing and promoting the documents, training as outreach, assisting studies, facilitating presentation of results, disseminating papers on outcomes.

98. SocMon Caribbean methods have been applied at, or are planned for, sites in Anguilla, Antigua and Barbuda Barbados, Belize, Grenada, Jamaica, Mexico, Nicaragua, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago. The studies have been undertaken by students, coastal area managers and non-governmental organisations.

99. The presenter outlined the social and economic variables or indicators used for monitoring in terms of community level demographics, coastal and marine activities, governance, household demographics, attitudes and perceptions.

100. The example of the Negril Marine Park Fisheries Management Plan, currently in preparation, was used to illustrate how SocMon was relevant to both fisheries and marine protected areas. The study is intended to describe the fisheries, their status and threats; the socio-economic status and the activities of the stakeholders; as well as the approach and programmes to be undertaken in order to manage the site for conservation of the resources and sustainable development in the area of the Negril Marine Park. The Negril project uses an approach to fisheries planning based on *Managing Small-scale Fisheries: Alternative Directions and Methods* (Berkes et al 2001) that sets out ways for planning and managing small-scale fisheries in small countries that are more people-centred and feasible than conventional approaches.

Discussion

101. There were no queries or comments after this Presentation, save for an enquiry as to the meaning of CERMES.

4.9 *The Role of the Fisheries Development Authority of Malaysia in the Conservation and Management of Fisheries Resources and the Welfare of Fishing Communities in Malaysia*

102. FDAM was established under the Ministry of Agriculture and Agro-based Industry of Malaysia when the Parliament of Malaysia enacted the Fisheries Development Authority Acts, 1971. The Law went into force in Peninsular Malaysia in 1971, Sarawak in 1973 and Sabah in 1995, with the prime objectives being to uplift the

socio economic status of the fishers and to expand and modernize the fishing industry in Malaysia.

103. FDAM was given the responsibility to carry out developmental programs to alleviate poverty among the fishermen, which was 73.2% in 1970. The Department of Fisheries, which is responsible for the planning, management of fisheries resources coupled with the regulatory and extension function for fisheries development was not empowered to carry out programs to alleviate poverty.

104. Socio-economic and demographic information on coastal fishing communities were collected from time to time to gauge the effectiveness of the developmental programme in improving the socio economic status of the fisher communities. FDAM carried out a comprehensive socio economic and demographic study in 1995, which showed a vast improvement in poverty alleviation, as it was then 11.8% in comparison to 1970.

105. The success in alleviating poverty has been due to an effective partnership between the government machinery and the Fishermen Associations direct involvement in the development programme. Fishermen Associations were established under the Parliament Act – The Fishermen Association Acts, 1971, with the objective being to uplift the social and economic well-being of the fishers through their active participation in the organizations at area, state and federal level (apex body). The role played by the Fishermen Association as an agent of change from within the fishermen community was empowered by the government through the aegis of FDAM, due to the failure of fishermen cooperative to improve the socio economic well-being of the fishers.

106. The regular reporting on the performance of FA's and the monitoring of the socio-economic indicators, coupled with feedback from the political directorate on the fishers progress, showed that the integration of activities between fisheries, eco/agro tourism and regional planning on coastal zone development planning required effective coordination from a high powered authority to ensure the success of the plan.

107. Allocation for the fish aggregating devices for FDAM vis a vis the artificial reefs programme carried out by the Department of Fisheries for conservation purposes always engendered some debate. However, due to very strong lobbying from the Fishermen Associations, supported by the local leaders, the government allocated more funds to FDAM. Area FAs were given the authority by FDAM, to manage the fisheries complexes and to carry out marketing and agro tourism program, which demonstrated much improvement in AFAs to increase income among their members. FDAM as registrar for FAs has given approval to AFAs to provide dividends and allocations for social benefits to the members.

108. The fishermen attitudes towards AFAs, as their body corporate, to spearhead the changes only came into being by having regular motivational and educational training among the fishermen's leader and women. Special attention was paid to the women's role in developing the winning fishers family by FDAM, recognising that the towering

personality of the fisherman's wife, would be able to manage good household income generating activities, the children's education, savings and uplifting of their socio economic status.

Discussion

109. With regards a query on the materials used in the construction of FADs, participants were informed that they were usually made of PVC.

110. Participants complimented the FDAM with regards Malaysia's ability to initiate significant poverty alleviation through diversification programmes the fisher community considering that they were dealing with such a large population. Participants also commented on the organizational complexity regarding the management of the fisheries sector, and suggested that such complexity was mirrored in the Caribbean and must be considered in fisheries management. There was also discussion in regard to the good networking relationship, which existed amongst the various Fishing Associations and the FDAM.

4.10 Country Specific Case Studies – The Consideration of Socio-Economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning: Trinidad and Tobago Case Study

111. The presentation gave a summary of the case study that was prepared for Trinidad and Tobago and then focused on directed efforts at collection of socio-economic and demographic information from fishing communities.

112. Trinidad and Tobago is an archipelagic state comprising the two southernmost islands of the Lesser Antilles and located on the north-east coast of Venezuela. Due to its location on the Brazil-Guianas Continental shelf the marine resources are characterized by a high diversity of species harvested by many gear types and fishing fleets, including commercial and recreational components. The Gulf of Paria coastal zone, on the west coast of Trinidad, is the site of all the major human settlements and it is estimated that 90% of the population lives in this area. The Gulf of Paria coastal zone is the most affected by developmental pressures because of its importance as a fishing ground and as a site for industrial activity, agriculture and shipping. Many studies have focused on the Gulf of Paria coastal zone and have defined the management issues facing the marine fisheries in the area.

113. A number of public and private sector agencies and committees at the national level, regional and international organisations, and foreign governments provide support for the fisheries sector and the Fisheries Division interacts with these agencies in implementing its programmes and meeting its responsibilities. The national agencies that play a lead role in the administration of the fisheries sector, including resource and coastal zone management, include government agencies, inter-ministerial and inter-sectoral committees. The Fisheries Division of the Ministry of Agriculture Land and

Marine Resources has the responsibility of managing the sustainable development of the fisheries sector of Trinidad and Tobago.

114. The Town and Country Planning Division of the Ministry of Finance and Planning is the responsible agency for development planning, development control and coastal zone management in Trinidad and Tobago. The key agencies involved in environmental and coastal zone management including efforts in rehabilitation of the coastal environment are the Institute of Marine Affairs (IMA) and the Environmental Management Authority (EMA), which are both housed under the Ministry of Public Utilities and the Environment. The Institute of Marine Affairs (IMA) was established in 1976 and its initial focus was the development of a coastal zone management plan for the country and conducting supporting multi-disciplinary research. The Environmental Management Authority (EMA) was established in 1995 and its mandate is to coordinate and oversee environmental management functions.

Table 2 Institutional Sources of Socio-economic and demographic information on coastal fishing communities

Responsible Institution/Data Sources	Data available	Data usage
Central Statistical Office (CSO)	Population census Continuous surveys in interval	Information collected by administrative boundaries and under broad categories, not collected specifically for fishing communities.
	Sector analysis	Information on the fisheries sector commonly included in statistics for the agriculture sector
Fisheries Division/ Marine Affairs Section (Tobago House of Assembly)	Fishing Vessel Censuses	Describe the size of fishery by gear type and landing site and used to derive estimates of total fishing effort and landings.
	Licensing and Registration System	Voluntary system of registration and linked to the government's fiscal incentives programme.
	Fishery profiles for use in stock assessments studies and regional initiatives	Focus on the technical aspects of fishery. Management recommendations consider social and economic aspects of the fishery and associated fishing communities.
Institute of Marine Affairs (IMA)	Research Projects EIAs	Information collected in the preparation of socio-economic profiles of selected fisheries.

115. Under the 1995 Government of Trinidad and Tobago/UNDP/FAO Project INT/91/001 "Integrated Coastal Fisheries Management of the Gulf of Paria", profiles were prepared for two fishing communities on the Gulf of Paria coastal zone in the towns of Orange Valley and Otaheite. Data sources were the 1990 Population & Housing Census (CSO), and interviews conducted by the Fisheries Division. Project INT/91/007 recognised the multi-sectoral and multi-disciplinary characteristics of integrated coastal fisheries management and was of an investigative and experimental nature, focusing on

three main elements (i) information gathering and research; (ii) awareness-building; and (iii) integrated planning, coordination and consultation.

116. A community based co-management approach to protect nesting turtles was introduced by the Wildlife Section of the Forestry Division in 1989. The main objective of the project was to promote conservation and eco-tourism through the education of rural communities residing in areas where there was a high incidence of wildlife. Community participation was encouraged in developing income-generating activities in addition to conducting turtle watching tours and volunteers from the community were trained as nature tour-guides.

117. The Fisheries Division initiated two community-based aquaculture projects in 1999-2000. The primary objective of the projects was to encourage income-generating activity by creating opportunities for self-employment in rural communities. The principal targets of this project were un-employed youth, fishermen displaced from traditional fishing areas, aging agricultural workers and women. The project involved training in aspects of culture of tilapia, establishment of community-management units and the actual aquaculture project.

118. The Poverty Eradication Programme under the Office of the Prime Minister provides services with specific regard to fishing programmes to all communities in an “Adopt a Community Programme” which involves Government, the community and corporate donor. The UNDP small grant facility targets community projects aimed at stakeholder empowerment. A number of UNDP/FAO projects have been implemented by various stakeholders in fishing communities, in liaison with the Fisheries Division, in the areas of fisheries resource assessment and management and integrated coastal fisheries management.

119. A few studies have gathered local knowledge information and perceptions of fishermen on fisheries and management from the trawl communities as part of this country’s participation in the WECAFC Shrimp and Groundfish *ad hoc* Working Group and in international projects such as the FAO/UNDP Project INT/91/001 and EP/GLO/201/GEF Project “Reduction of Environmental Impact from Tropical Shrimp Trawling through the Introduction of By-Catch Reduction Technologies and Change of Management”. Information related to the trawl fishery is mainly available since it is the most regulated fishery. This includes cost and earnings studies and local knowledge surveys, which include perceptions and attitudes of the fishing industry on resource management issues in the coastal area.

120. Institutional arrangements for resource management and coastal zone planning are fragmented and there is a sectoral approach to the management of coastal activities where different government agencies have jurisdictional control over various aspects of the same coastal resource. Multi-disciplinary agencies were able to address some institutional problems and the lack of knowledge and expertise but not the existing jurisdictional problems.

121. With regards to the fisheries sector and its influence on development decisions that impact the environment and ultimately the resources, some progress was made in 1995 through the Government of Trinidad and Tobago/UNDP/FAO Project INT/91/001 in terms of data collection and the fisheries sector has been included in the process of review of Environmental Impact Assessments (EIAs) for coastal development projects. Management of resources and the assessment of the well being of coastal communities require interdisciplinary research (biological, social, economic).

122. The Study made the following recommendations:

- Consolidation of all sectoral components of coastal zone planning and information sources under one umbrella organisation and the establishment of a dedicated administrative unit to develop this area.
- Need for government's commitment to incorporate socio-economic issues in coastal zone planning and the allocation of financial and technical resources to conduct interdisciplinary research.
- Formulation of special projects focused on consolidation of socio-economic data and information for both fishing and non-fishing communities in the coastal zone.
- Establishment of formal linkages between the Fisheries Division and other government agencies with primary responsibility for collection of social, economic and demographic information.
- Strengthening of the institutional capabilities of the Ministry of Agriculture, Land and Marine Resources and specifically the Fisheries Division to enable socio-economic data collection and relevant analyses.
- Strengthen fishing organisations that will facilitate successful implementation of the co-management approach to managing fisheries.

Discussion

123. No queries were raised or comments made after this presentation.

4.11 Country Specific Case Studies – The Consideration of Socio-Economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning: Turks and Caicos Islands Case Study

124. The Turks and Caicos Islands (TCI) are a small group of low lying calcareous limestone islands to the end of the Bahamas island chain and to the north of Hispaniola.

125. The TCI has a population size of 20,014 persons growing at a rate of 3.14% per annum with approximately 63.7% of the population within the age group of 15-64 years. Like most other islands throughout the region, TCI's economy is based predominantly on tourism, fishing, and offshore financial services.

126. The management of the coastal zone is carried out by a multi-disciplinary approach and as such requires strong inter-agency collaboration. The three main

Government Departments that are involved in conservation, management and rehabilitation of the coastal environment are the Department of Environment and Coastal Resources (DECR), the Planning Department and the Environmental Health Department.

127. Literature that focuses largely on socio-economic and demographics of the fisheries has been difficult to obtain. Very few formal publications have been identified that speaks specifically to the socio-economic, demographic and political characteristics of the fisheries resource users and uses in TCI.

128. Although research on the socio-economic characteristics of the fisheries industry has been limited, it is increasingly being recognised as an area in need of greater understanding. As such this area has been highlighted in the Research Plans for the Fisheries Division of the DECR. More recently, the staff members at the DECR were trained in the Socio-economic Monitoring (SocMon) protocol in an effort to build capacity in this area.

129. Although socio-economic data is some what lacking, both bio-physical and socio-economic factors as well as factors influencing environmental deterioration and mismanagement are considered in the development of various coastal area management/development plans, including the management plans for several protected areas and the fisheries.

130. At present there are no initiatives to monitor or assess the management effectiveness of the various fisheries management strategies. However, one component of the Draft Fisheries Management Plan (DFMP) involves regular (every 3-5 years) evaluation of the effectiveness of the plan. The DFMP proposes a research plan and incorporates socio-economic studies that will assist in evaluating the impacts of management, among other things. To address the need for information on key economic indicators, the DFMP presents a plan for periodic user-surveys to acquire information on fishermen and consumer expenditures, preferences, and demand regarding the commercial and sports fishery as well as non-extractive uses and environmental qualities.

Discussion

131. No queries were raised or comments made after this presentation.

4.12 Progressing Towards Community-Based Fisheries Management: A Case Study of Fishing Communities from Ortoire to Guayaguayare, Trinidad

132. Fisheries co-management is an alternative to the more traditional strategies of managing fisheries, such as gear restrictions and catch quotas. It is a more inclusive approach to decision-making through the participation of industry stakeholders. The presentation was based on a study conducted by the IMA entitled “An Investigation of the Fisheries Resource, Resource Users and Fisheries Management by communities to establish a framework for co-management: Ortoire to Guayaguayare, Trinidad” as part of

a regional community-based coastal resource management project funded by the International Research Centre of Canada (IDRC) with technical support from IO-Costa Rica, CARICOM Fisheries Unit and Larval University, Quebec Ontario involving fifteen (15) countries from the Caribbean, Central America and Venezuela.

133. The research focused on an extension of co-management: community-based co-management in fishing communities from Ortoire to Guayaguayare, and examined a variety of factors which were intrinsic to this community-based approach. These factors included the nature of the resource base, the socio-cultural environment, the format of the fishery, the nature of social cohesion and the strength of community institutions. The research methodology included the use of face-to-face interviews guided by questionnaires to capture information on fishing operations, fisher households socio-economic and cultural aspects of the fishery and fisheries local knowledge, inclusive of a perception and attitude survey on resource conditions and fisheries management issues.

134. Other research techniques included the use of key informants, focus group meetings, and cognitive mapping of fishing grounds and fish resources. There were approximately 350 fishers operating from 7 fish landing sites and 8 residential communities, utilizing approximately 92 boats. They shared common fishing areas and fishing methods facilitating a migration of boats and crew members across the 7 fishing landing sites. This migration supported the concept of a functional community, which in addition to kinship and fishing as a traditional and intergenerational livelihood option, added social cohesion and gave rise to the notion that ‘Ortoire is Mayaro is Guayaguayare’. The participation of key community leaders, formation of two fishing associations, and the ability to negotiate on their own behalf with other resource users, allowed for these fishing communities to engage in a participatory approach with government, research institutions and other resource users in developing a co-management framework for the fishing industry from Ortoire to Guayaguayare.

Discussion

135. No queries were raised or comments made after this presentation.

4.13 Latest Developments in Small/medium-scale Fisheries and Aquaculture enterprises and Products with Regional and Global Export Markets

136. The paper broadly discussed the growing demand for fish and fishery products in the global market and the increasing role of aquaculture in the expanding global trade. Specific supply/ demand patterns for major fishery commodities such as shrimp, tuna and fin-fish species and other aquatic resources in the major markets were presented. Discussion also highlighted the wide range of products processed and successfully marketed by small and medium scale enterprises in South and South East Asia. Products discussed included a wide range of fresh, frozen, dried, cured, prepared products which have been successfully marketed not only in the domestic/ regional markets but also have penetrated international markets as well. Case studies on some success stories of small-medium scale enterprise development activities in Bangladesh (shrimp) and island

countries in the Asia-Pacific (tuna based products in Maldives and Papua Guinea) were presented. Furthermore, organizational/ operational aspects of small-medium scale commercial operations based on low-cost small pelagic species and fish waste were also discussed.

137. Emerging market / consumer expectations were highlighted while making special emphasis on increased focus among consumers on sustainability of resources and safety of products. The paper also touched on SPS (Sanitary and Phytosanitary) and TBT (Technical Barriers to Trade) issues related to international trade while examining key safety/ quality issues related to fish exports from developing countries to major markets. The discussion also examined economic feasibility of commercial operations of several traditional Asian products. The paper also highlighted emerging marketing strategies in global trade of fish and fishery products while examining such possibilities for Caribbean nations.

138. It was recommended that the region further explores income and employment generation opportunities through improved utilization of low-valued / by-catch fish and incidental catches for the development of minced fish products for the domestic / regional markets, as appropriate. While the region should also explore greater involvement of national fisheries in exploiting their large pelagic resources through target fisheries. In this respect, tuna long-lining using small-medium sized boats, which comprise a very large percentage of their national fleets, can be recommended, thus enabling the countries in the region to tap the rapidly growing US and EU markets for fresh fish. Tourism oriented industries such as shell craft, improved presentation of traditional fishery products in gift souvenir/ packs are employment /income generation opportunities open to the Caribbean nations.

Discussion

139. There was some discussion in relation to the cost of machinery for the production of valued added ham and sausage products and the availability of export market for such products. There was also discussion in relation to the use of fish skins in the fashioning of leather products, with response being that this was not a common practice, but enquiries had been made in connection with the use of fish skins for gelatine production, as there was a movement away from the traditional bovine gelatine.

140. With regard a query on organic aquaculture, it was pointed out that at a recent Organic Aquaculture conference in Vietnam, guidelines were developed in relation to the conditions under which the product is grown eg. organic feed, density of fingerlings per unit area, non-destruction of mangroves to create ponds etc.

4.14 Coastal Fisheries Management and Community-Based Fisheries Management in the Pacific

141. The presentation on the Pacific Case Study highlighted the on-going activities on coastal fisheries management and community-based fisheries management at the regional and national level in the Pacific region.

142. It addressed the ‘Strategic plan for fisheries management and sustainable coastal fisheries in the Pacific’ which was developed by the Secretariat of the Pacific Community (SPC), and its background, process and the actions taken in cooperation with FAO. Also, there was some elaboration in relation to Samoa’s case on the development of community-based fisheries management with emphasis on its traditional social (village community) systems and the on-going activities of data collection in subsistence fisheries. In addition, the presentation addressed the on-going socioeconomic surveys carried out by the SPC’s PROCFish Project (funded by the EU) and the Secretariat of Pacific Regional Environment Programme’s International Water Project funded (by GEF) in the region.

Discussion

143. No queries were raised or comments made after this presentation.

144. Based on the Agenda, participants were formed into two Working Groups to address the following topics:

5.0 WORKING GROUP REPORTS

5.1 Group I – Terms of Reference

Policy: Facilitate and promote development of the fishing communities through fisherfolk and other community-based organizations with the following objectives:-

- Poverty reduction in fishing Communities
- Promote economic activities/benefits through value added/diversification in terms of products and services offered to consumers.
- Expand the social benefits accruing to the membership.
- Overall improvement in standard of living/livelihoods.
- Review and develop new policy directions geared towards the achievement of the above stated policy objectives.

5.2 *Group II – Terms of Reference*

Use of socio-economic, demographic and cultural indicators in Integrated Coastal Zone and Community Fisheries Management.

145: The Summarised outputs/recommendations from the Groups were as follows:

GROUP I - Report and Recommendations

Policy: Facilitate and promote development of the fishing communities through fisherfolk and other community-based organizations with the following objectives:-

- Poverty reduction in fishing Communities
- Promote economic activities/benefits through value added/diversification in terms of products and services offered to consumers.
- Expand the social benefits accruing to the membership.
- Overall improvement in standard of living/livelihoods.
- Review and develop new policy directions geared towards the achievement of the above stated policy objectives.

a) Legal Framework: Enactment of specific legislation to provide for the recognition of fisherfolk and community-based organizations

146. A review of the legal framework in each country was recommended, in order to ensure that the laws support and facilitate programmes geared towards poverty alleviation, promotion of economic activities, and improvement in the standard of living in fishing communities. Countries should consider the establishment of a task force of government agencies and industry and other stakeholders in the community to review the legal framework and to make recommendations for improvements.

b) Institutional framework

147. Caribbean Governments need to prepare new policy instruments at the regional and national levels aimed at promoting economic and social development of fishing communities and the CBOs within them. Government institutions, such as the Fisheries Department, also need to be restructured and strengthened to realize these objectives by include a Fisheries Development Unit within their structure, where such a unit is not already in existence.

148. The Fisheries Development Units would carry out the following functions:

- a) Provide technical support for the growth and development of fisher folk organizations and CBOs.
- b) Encourage the promotion of micro-enterprise and other business activities to broaden/diversify the economic base of the fisher folk organization and other CBOs.
- c) Promote diversification in targeted species, including under/unutilized species of commercial species
- d) Promote value added product development and market diversification, including the domestic market.
- e) Reduce pressure on the inshore fisheries by the promotion of other income generating activities
- f) Provide the enabling environment (regulatory function, infrastructure, incentives, political and diplomatic representation) for the development and growth of the industry.

149. NGO's should be encouraged to facilitate and participate in the promotion of the further social and economic development of the fishing communities and other CBOs.

150. The role of fisher organizations/associations should include the following:

- (a) Promote the socio-economic interest of fishers and fishing communities and other CBOs.
- (b) Promote indigenous and traditional management measures for the sustainability of the fishing community
- (c) Educate the fishers in respect of the use of property rights as a management tool within the community to promote fisheries management.
- (d) Promote diversification of the economic-base.
- (e) Cooperate with government and relevant agencies in the enhancement of the socio-economic welfare of fishers and fishing communities.

- (f) Develop micro-enterprise and other business concerns within the fishing communities to increase their income generation capacity and employment opportunities.
- (g) Participate and develop plans and programmes aimed at promotion of sustainable utilization of coastal resources.
- (h) Enhance institutional strengthening of their organization through the promotion of capacity building programmes for co-management.
- (i) Further enhance institutional strengthening of the national organization through inter-regional cooperation networking with each other and other relevant organizations for information exchange and communication, and subsequently expanding to include other regional and extra-regional organizations.
- (j) With the cooperation of other national organizations develop market promotion strategies in order to obtain maximum economic returns for their product.
- (k) Develop programmes that will enhance the social welfare of fisheries e.g. health insurance, pension scheme
- (l) Develop links with tourism sector and other relevant organizations to foster economic diversification.
- (m) Foster accountability, transparency and good governance in the organization.

151. The following socio-economic and demographic indicators are needed and should be obtained through baseline surveys:

- a. household units
- b. household size
- c. household incomes (fishing and non-fishery)
- d. # of vessels
- e. change in fishery technology
- f. product prices
- g. production levels (export and import)
- h. # of members in organization
- i. changes in infrastructure
- j. population movement (increase and decrease)
- k. education level
- l. medical facilities
- m. fertility and mortality rates
- n. entertainment facilities

- o. # and type of post harvest/value adding facilities (processing plants)
- p. # of women in community involved in fisheries related activities.

Group II – Report and Recommendation

Topic: Use of socio-economic, demographic and cultural indicators in Integrated Coastal Zone and Community Fisheries Management.

152. At the start of the Working Group discussion it was felt that it was necessary to define fishing community and coastal community, with the group identifying that there were various criteria that could be used to define fisherfolk communities, including the location of their residence and where they carry out their fishing activities i.e. landing sites, home port. However, after lengthy deliberation it was agreed that a fishing community could be defined, for the time being, as “the sum total of all the resident and transient individuals operating from a fish landing site”.

153. The Group decided that there was a need for agreement between the government and stakeholders on the collection of data on demographic and cultural indicators. It was also agreed that information, once collected, should be integrated and applied to the planning and development of affected fishing communities.

Substantive issues

154. Steps necessary for the strengthening of Integrated Coastal Zone and Fisheries Management in the Caribbean include the following:

- **Policy**
 - It was agreed that there was general policy commitment towards integrated coastal zone management in the region, but where this was not clearly spelt out there was need for clarification and the preparation of clear policy documents.
 - Present national and regional fisheries policies should be reviewed to include objectives such as poverty alleviation.
 - There was a need for education and public awareness on integrated fisheries management and the value of socio-economic, demographic and cultural information in the management process.
 - As a matter of policy, fishers and other stakeholders should be included in the national development planning process.

- Government and stakeholders should agree on the collection and use of socio-economic, demographic and cultural information in coastal zone and fisheries management.

- **Legal Framework**

155. It was agreed that in most countries legislation needed to be reviewed and updated/drafted, implemented and enforced. The issues to be addressed should include:

- Regulations mandating specific agencies to collect and use socio-economic, demographic and cultural data/information.
- The said agencies should facilitate access to the information and produce periodic reports.
- There needed to be harmonisation between the coastal zone management and fisheries management laws and regulations. As such, there was a need for a coordinated approach by all agencies concerned with the review of legislation.
- The respective mandates for the coastal zone management, fisheries management and other agencies should be clearly defined, as this would facilitate better coordination and collaboration.

- **Institutional Development/Coordination/Collaboration**

156. Depending on the institutional arrangements within the countries some of the options to be examined could be:

- Identify a lead agency for coastal zone management and fisheries management;
- Establish centralized coordinating unit for coastal zone management and fisheries management.
- Improve coordination and collaboration among agencies

157. The existence of informal institutional arrangements between agencies involved in coastal zone and fisheries management was recognized. It was felt, however, that more formal arrangements, such as the use of MOU's, should be put in place.

158. There was need for capacity building in regional and national institutions to ensure that human resources, equipment, etc, were available to carry out mandated functions, and more specifically, the use of socio-economic, demographic and cultural information in coastal zone management and fisheries management. This may involve the recruitment of non-traditional specialties e.g. resource economists, and further training of existing fisheries personnel in these disciplines.

159. There is need to build the capacity of fisherfolk and other community based organizations to enable them to participate in the coastal management process, including the collection and use of socio-economic, demographic and cultural information.

- **Consultative mechanism**

160. Mechanisms should be put in place to promote consultation between government and other stakeholders.

- There was a need for careful stakeholder analysis.
- Awareness of the need for coastal zone and fisheries management can be created by exposing stakeholders to experiences in other countries, regions, etc.
- In the EIA process, there needed to be a greater fisheries representation.

- **Information/data requirements**

161. There was a critical need to meaningfully incorporate into the planning and development process social, economic and demographic information.

162. In many cases, it would be necessary to disaggregate the data required from existing data e.g. census data. In addition, there needs to be coordination among agencies about the data that is to be collected so that fisheries and other interests could be included. The matter of privacy and confidentiality of data was noted as being very important.

163. Information/data to be collected may include: income, nature of household, savings, access to utilities, age structure, migration, employment, production, skills, education and transportation.

164. Quality control of the data needed to be addressed.

- **Socio-economic, demographic and cultural indicators, their collection and use**

Information

165. Depending on the data required, cost of data collection, etc., the regularity of data collection needed to be decided upon.

166. There was a need to give feedback to stakeholders on the results of surveys undertaken, as this would provide a better understanding of changes taking place in the communities, coastal zone, etc. and the effects on their livelihoods.

167. Sources of data:

- Members of communities can be used to assist in the collection of demographic and other data.
- Fisheries registration records could be used as a source of data. There may be need to legislate with respect to mandatory registration of fishers.

- National Statistical Office Census Data

Indicators

168. In terms of the monitoring of coastal zone and community based management and development, some of the likely indicators identified were:

- i. Poverty Alleviation
 - Number of persons with incomes that are above the minimum standards set by the state
 - Percentage of community above/below the poverty line
 - No of persons with access to health services
 - No of persons with access to potable water, electricity and waste disposal
 - Percentage of home ownership
 - Access to education with respect to national level; literacy rate; number of school age children at school
- ii. Governance
 - Percentage of government allocation to social services, community development and fisheries management
 - Percentage of stakeholder organisations capable of and participating in fisheries/coastal zone management
- iii. Environment
 - Air quality of a desired standard
 - Level of bacteria, agro-chemicals and heavy metals in seawater in relation to accepted international/national standards
 - Changes in ground water level and quality and water consumption
 - Change in acreage of wetland cover and functions
 - Percentage forest cover
 - Number of endangered species protected
 - Number of critical habitats protected
 - Number of environmentally sensitive areas designated
 - Change in standing stock of marine resources (conch, lobster, shrimp, groupers, snappers and sharks)
 - Volume of waste disposed/recycled per capita

Constraints and Solutions

169. **Inadequate institutional capacity to collect and analyse data.** There was thus a need for training, financial resources, equipment and institutional enhancement, including the hiring of non-traditional specialists (social scientists, environmental engineers).

170. **Accessibility of information.** This could be remedied by using MOU's, legislation, making use of web technology, improved collaboration and networking.

171. **Information gaps.** This could be solved by collecting information through original surveys/studies. Training, technical assistance, financial resources and equipment will be required to do this.

172. **Lack political will in some instances.** This could be partially solved by creating greater awareness among decision makers, the population and political directorate.

- **Strengthening regional and inter-regional networking on use of socio-economic, demographic and cultural indicators in integrated coastal zone and fisheries management**

173. It was felt that this could be achieved in several ways and these are as follows:

- The CRFM should be mandated to pay more attention to matters pertaining to the collection and use of socio-economic, demographic and cultural information in regional and national planning and policy formulation
- Utilize the OECS linkage
- Continue to maintain linkages with FAO
- Establish linkages with other regions e.g. south east Asia (this workshop is an example)
- Networking among agencies involved in data collection (CANARI, IMA, UWI, CCA, FAO, UNECLAC, UNDP)
- Develop and strengthen networking (more workshops, more study team visits, sharing of information)
- Increasing the receptiveness of respondents to Data Collection by:
 - creating awareness
 - providing feedback
 - training enumerators
 - respecting confidentiality of information

- **Role to be played by FAO**

174. Provide support for comparative study of coastal zone and community based management approaches in other regions by way of study tours that include other persons besides fisheries personnel.

175. Continue to work with the CRFM in coordinating and promoting greater use of socio-economic, demographic and cultural indicators in integrated coastal zone and fisheries management within the CARICOM region.

176. Assist in the preparation and dissemination of materials on community based fisheries management, and the collection and use of socio-economic, demographic and cultural information by national planners, fisheries extension personnel and fisher folk organizations.

177. Provide support, through the CRFM, for national workshops on coastal zone and community based fisheries management and collection and use of socio-economic, demographic and cultural information.

178. Provide technical assistance for reviewing existing legislation and the drafting of new legislation in the region (A request needs to come from the respective governments).

179. Provide technical assistance with respect to fish port development and management in coastal communities.

6.0 CLOSING REMARKS

179. The Chairperson, Ms. Jobity, thanked all present for making the Workshop a success in terms of the achievement of its objective. She also thanked the CRFM Secretariat and FAO for providing sound advice to the chair, and wished all overseas participants a safe trip to their respective countries.

180. In his closing remarks, Dr. Tietze thanked the Fisheries Division of the Ministry of Agriculture, Lands and marine Resources of Trinidad and Tobago, particularly, Ms. Ann Marie Jobity and her team for kindly hosting this regional workshop, and for the very cordial hospitality extended to all workshop participants. He then thanked both the Fisheries Division of T&T and the CRFM Secretariat, particularly Mr. Terrence Phillips, Mr. Anthony Mills and Dr. David Brown for the excellent arrangements made for the Workshop, and the participants from the Caribbean countries as well as the participants from South East Asia and the south Pacific for their valuable contributions to the Workshop deliberations, making special mention of the long hours they spent in the Working Groups formulating the workshop recommendations.

181. He pointed out that the recommendations and discussions of this Workshop were a very good example for the usefulness of inter regional, south-south exchange on the opportunities for and constraints to the sustainable development and management of coastal and fisheries resources for the benefits of coastal populations, fishing communities and national economies. Also, he noted that the recommendations formulated at the Workshop contained many useful suggestions and provided directions for future efforts to promote the recognition and development of the fishing community through fisherfolk and the community based organizations and through the use of socio-economic, demographic and cultural indicators in integrated coastal zone and community based fisheries management. Dr. Tietze indicated that the FAO would be glad to assist in the implementation of the recommendations of the Workshop, noting that the proceedings

and recommendations of the Workshop together with the case studies and the comparative study presented in this workshop would be jointly published and disseminated by CRFM and FAO.

Appendix I

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Appendix II

CRFM/FAO/MALMR Regional Workshop on the Collection of Demographic Information on Coastal Fishing Communities and Its Use in Community Based Fisheries and Integrated Coastal Zone Management in the Caribbean

Ambassador Hotel, Trinidad and Tobago, June 13-17, 2005

A G E N D A

Day I – Monday June 13, 2005

Opening Ceremony
Registration of Participants

C O F F E E B R E A K

Introduction to the Workshop And Workshop Arrangements
(Meeting Chair)

Presentation and Discussion:

- Comparative Study Mission to the Philippines and Malaysia for the study of the use of demographic and socio-economic information in coastal and fisheries management, planning and conservation –
Mr. Leslie Straker, Fisheries Officer, St. Vincent and the Grenadines.

Presentation and Discussion:

- The 26th Session of the FAO Committee on Fisheries and the Contribution of Small-scale Fisheries to Rural Development –
Ms. Susana Siar, FAO Fishery Industry Officer, Rome.

L U N C H

Presentation and Discussion of Country Specific Case Studies:

- The Consideration of Socio-economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning: Belize Case Study – *Mr. Mauro Gongora, Inland Aquaculture Fisheries Officer, Belize.*
- Consideration of Socio-economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning –
Mr. Harold Guiste, Senior Fisheries Officer, Dominica.

C O F F E E B R E A K

Presentation and Discussion:

- Fisheries Management in the Philippines: A Focus on the Fisheries Resource Management Project – *Ms. Jessica Munoz, Project Director, Fisheries Research Management Project, Philippines.*

DAY II – Tuesday June 14, 2005

Presentation and Discussion of Country Specific Case Studies (cont'd):

- The Consideration of Socio-economic and Demographic concerns in Fisheries and Coastal Area Management and Planning in Jamaica – *Dr. David Brown, Co-ordinator, Advocacy, Policy and Planning, CRFM Secretariat, Belize.*
- The Consideration of Socio-Economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning in St. Lucia – *Mr. Rufus George, Fisheries Officer, St. Lucia.*
- Aspects of CERMES Regional Research and Training with Emphasis on Socio- economic and Demographic Information – *Dr. Patrick Mc Conney, Lecturer, University of the West Indies, Barbados.*

C O F F E E B R E A K

Presentation:

- The Role of the Fisheries Development Authority of Malaysia in the collaboration and management of the Fisheries Resources and the welfare of the Fishing Communities in Malaysia. – *Mr. Mohd Nor Hassan, Deputy Director – General of the Fisheries Development Authority of Malaysia, Malaysia.*

Presentation and Discussion of Country Specific Case Studies (cont'd):

- Status of Coastal Zone and Fisheries Resources Management and the Incorporation of Demographic and Socio-economic Considerations/ Indicators – *Ms. Suzuette Soomai, Fisheries Officer, Trinidad and Tobago.*

- Use of Demographic Information from Coastal Fishing Communities in Fisheries and Integrated Coastal Zone Management: Case Study, Turks and Caicos Islands – *Mr. Wesley Clerveaux, Deputy Director, Turks and Caicos Islands.*
- Progressing Towards Community-based Fisheries Management: A Case Study of Fishing Communities from Ortoire to Guayaguayare – *Rosemarie Kishore, Research Officer, Institute of Marine Affairs, Trinidad and Tobago.*

L U N C H

Presentation:

- Latest Developments in Small/medium-scale Fisheries and Aquaculture Enterprises and Products with Regional and Global Export Markets – *Dr. S. Subasinghe, Director, INFOFISH, Malaysia.*

Presentation:

- Coastal Fisheries Management and Community-Based Fisheries Management in the Pacific – *Mr. Masanami Izumi, Fishery Officer, Somoa.*

COFFEE BREAK

Formation of Working Groups

DAY III– Wednesday June 15, 2005

Working Group Session

COFFEE BREAK

Working Group Session cont'd

L U N C H

Working Group Session cont'd

COFFEE BREAK

Preparation of Working Group Presentations

DAY IV – Thursday June 16 2005

Preparation of Working Group Presentations cont'd

COFFEE BREAK

Presentation of Working Group Reports and Discussion

Closing Remarks

DAY V – Friday June 17 2005

Field Trip to Nature Seekers, Matura and Toco Fishing Centre, North-east Trinidad