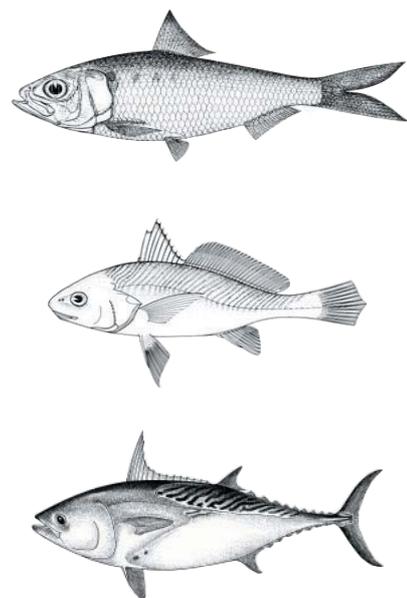


# ASIA-PACIFIC FISHERY COMMISSION

## Report of the Thirty-second Session





**Report of the Thirty-second Session of the**

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**ASIA-PACIFIC FISHERY COMMISSION (APFIC)**

**Da Nang, Viet Nam, 20–22 September 2012**

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ISBN 978-92-5-107430-5

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For copies write to:

The Senior Fishery Officer

Asia-Pacific Fishery Commission

FAO Regional Office for Asia and the Pacific

Maliwan Mansion, 39 Phra Athit Road

Bangkok 10200

THAILAND

Tel: (+66) 2 697 4000

Fax: (+66) 2 697 4445

E-mail: [FAO-RAP@fao.org](mailto:FAO-RAP@fao.org)

## PREPARATION OF THIS REPORT

This is the edited version of the report approved by the Thirty-second Session of the Asia-Pacific Fishery Commission.

For bibliographic purposes this document should be cited as follows:

**APFIC (2012).** *Report of the Thirty-second Session of the Asia-Pacific Fishery Commission*, Da Nang, Viet Nam, 20–22 September 2012. FAO Regional Office for Asia and the Pacific, Bangkok, Thailand, RAP Publication 2012/24, 125 p.

### ***ABSTRACT***

This is the final report of the Thirty-second Session of the Asia-Pacific Fishery Commission (APFIC) hosted by the Ministry for Agriculture and Rural Development, Socialist Republic of Viet Nam and convened in Da Nang, Viet Nam, on 20–22 September 2012.

The principal objectives of the 32<sup>nd</sup> Session were to review Member countries' progress on the recommendations of the previous session of the Commission and emerging regional policy issues in fisheries and aquaculture. The Commission considered the status of fisheries and aquaculture in the Asia-Pacific region and the outcomes and recommendations of the fourth APFIC Regional Consultative Forum Meeting. The Commission was informed of the work undertaken by APFIC regarding ways to strengthen assessments in fisheries and aquaculture to improve management and the adaptation and mitigation of climate change in fisheries and aquaculture. The Commission reviewed its work over the past biennium and endorsed the major themes and activities of APFIC in the forthcoming biennium of work (2012–2014), including the APFIC Strategy 2012–2018. The Commission was also informed of the work programmes of other regional organizations competent in fisheries and aquaculture and how they relate to the work of APFIC. In its recommendations, the Commission highlighted: the importance of aquatic products, especially from inland fisheries, and their role in nutrition; the collaborative development of a regional training course on the Ecosystem Approach to Fisheries; the threat of transboundary disease in aquatic animals; and the need to improve reporting on the FAO Code of Conduct for Responsible Fisheries (CCRF).

### **Distribution:**

Participants of the Session  
Members of APFIC  
Other interested nations and international organizations  
FAO Fisheries and Aquaculture Department  
FAO Regional Fishery Officers



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## OPENING OF THE SESSION

1. The Asia-Pacific Fishery Commission (APFIC) held its Thirty-second Session from 20 to 22 September 2012, in Da Nang, Viet Nam. Twenty-seven representatives from 15 of the Commission's member countries and the APFIC Secretariat attended the Session. There were also 21 representatives of partner organizations, namely the Bay of Bengal Large Marine Ecosystem Project (BOBLME), the FAO Committee on Fisheries (COFI), the Southeast Asian Fisheries Development Center (SEAFDEC), the Intergovernmental Organization for Marketing Information and Technical Advisory Services for Fishery Products in Asia and the Pacific Region (INFOFISH), the International Collective in Support of Fishworkers (ICSF), the Mekong River Commission (MRC), the Network of Aquaculture Centres in Asia-Pacific (NACA), the USAID Regional Development Mission Asia (USAID/RDMA), the WorldFish Center and the Food and Agriculture Organization of the United Nations (FAO). A list of the delegates and observers is appended to this report (Appendix B).

2. At the official opening of the Session, Mr Vo Duy Khuong, Vice-Chairman of Da Nang People's Committee, Viet Nam, welcomed the APFIC member country delegates and observers.

3. Mr Vo Duy Khuong noted that APFIC, as a regional fishery body of the FAO, is an inter-governmental advisory body for fisheries and aquaculture with 21 member countries, working towards the development of capture fisheries and aquaculture in the Asia-Pacific region. Its goals are to strengthen its members' awareness and understanding of the issues affecting capture fisheries and aquaculture, as well as to promote and support members' collaboration in these sectors. He noted that the Session would review the information related to the status and trends of fisheries and aquaculture in the Asia-Pacific region, looking for solutions to the sectors' problems, standards for resource assessment, examples of climate change adaptation and mitigation and evidence of improvements in the livelihoods of fisher communities. He concluded that the recommendations of the Thirty-second Session of APFIC would be used for planning and decision-making related to fisheries and aquaculture in the Asia-Pacific region in the future.

4. Mr Simon Funge-Smith, Secretary of APFIC, delivered the welcome speech on behalf of Mr Hiroyuki Konuma, Assistant Director-General and Regional Representative, FAO Regional Office for Asia and the Pacific. Mr Funge-Smith expressed his gratitude to the Government of Viet Nam and to the chairman of APFIC, for hosting the Thirty-second Session of APFIC and the Fourth APFIC Regional Consultative Forum Meeting (Fourth RCFM) in Da Nang, Viet Nam. He thanked the hosts for the excellent hospitality, and requested them to convey to the Government of Viet Nam, FAO's gratitude for the excellent arrangements made for the two meetings. He welcomed the participants, specially noting the presence of Timor-Leste as a new member of APFIC.

5. Mr Funge-Smith described the proposed work programme of the Commission during the Thirty-second Session, namely to review the work of the Commission over the past two years, including their efforts to implement the recommendations of previous Sessions and the Code of Conduct for Responsible Fisheries, to consider the recommendations of the Fourth RCFM and to deliberate and endorse the major themes and activities of APFIC and the forthcoming biennium of work (2013-2014). In his remarks, he noted that the APFIC Session was now recognized as a priority setting body for the sector that reported to the FAO Asia-Pacific Regional Conference. This emphasizes the importance of the Commission's deliberations and recommendations.

6. Mr Nguyen Huy Dien, welcomed the participants on behalf of the Ministry of Agriculture and Rural Development (MARD), Viet Nam and expressed his sincere gratitude for their active support of the Fourth RCFM and for enlivening it with very fruitful discussions, as well as for their practical approach to identifying regional challenges and sharing success stories. He noted that these outputs will make a valuable contribution to the Thirty-second Session. He expressed his desire for APFIC member countries to reconfirm their commitment to the promotion and development of sustainable fisheries and aquaculture. The full statements are appended to this report (Appendix C).

## **ADOPTION OF THE AGENDA**

7. The Commission adopted the agenda presented in Appendix A and agreed on the arrangements for the Thirty-second Session. The Commission requested a report on the outcomes of the FAO Committee on Fisheries (COFI) and was informed that the current chair of COFI, Mr Johan Williams, was present at the Thirty-second Session and had agreed to make a presentation on the COFI outcomes during the second day of the Session. The documents considered and reviewed by APFIC are listed in Appendix D.

## **ACTIVITIES OF APFIC SINCE THE THIRTY-FIRST SESSION**

8. The APFIC Secretary introduced document APFIC/12/02 summarizing the main events and activities undertaken by APFIC and the Secretariat since the Thirty-first Session of APFIC, which was held in Jeju, Republic of Korea, from 6 to 8 September 2010.

9. The Secretariat has participated in FAO meetings related to the Commission's role, namely the Twenty-ninth and Thirtieth Sessions of the Committee on Fisheries (COFI), the Third Meeting of the Regional Fisheries Bodies Secretariats Network, the Fifth Session of the COFI Sub-Committee on Aquaculture, and the Thirtieth Asia-Pacific Regional Conference (APRC), Gyeongju, Republic of Korea, 27 to 29 September 2010. An account of the outcomes of these meetings relevant to APFIC members was presented under Agenda Item 10.

10. The Secretariat has organized or jointly organized five regional and international consultative workshops, notable for the participation of APFIC member countries and the excellent partnerships with a range of regional fishery and aquaculture organizations, institutions and projects. Three of these workshops covered the development of an instrument for small-scale fisheries, assessment tools for aquaculture, and implementation of the FAO Port State Measures Agreement.

11. Two of these workshops were convened on the recommendation of the Thirtieth APFIC Session:

- APFIC Regional Consultative Workshop on *Implications of climate change for fisheries and aquaculture: challenges for adaptation and mitigation in the Asia-Pacific region*, held in Kathmandu, Nepal, 24–26 May 2011. (Agenda Item 9). There were 58 participants from 15 member countries and ten regional and international organizations.
- APFIC Regional Consultative Workshop on *Strengthening assessments of fisheries and aquaculture in the Asia-Pacific region for policy development*, held in Yangon, Myanmar, 4–6 October 2011. (Agenda Item 7). There were 50 participants from 14 APFIC member countries, two FAO member countries and seven regional and international organizations.

12. The APFIC Secretariat has actively pursued collaboration with 12 regional and international organizations, providing advisory inputs or acting as technical resource persons (41 meetings and workshops). The APFIC Secretariat has also provided direct advice to members addressing national level fisheries and aquaculture development issues, including technical assistance to national workshops and technical support and backstopping to twelve FAO Technical Cooperation Programme (TCP) projects and six trust fund supported national and regional projects. There are also several regional Global Environment Facility (GEF) projects under development or consideration.

13. There are three operational FAO regional projects that support the work and objectives of the Commission: the five-year Bay of Bengal Large Marine Ecosystem Project (BOBLME); the Spanish funded Regional Fisheries Livelihoods Programme for South and Southeast Asia (RFLP) and the FAO/GEF “Strategies for trawl fisheries bycatch management” (REBYC-II CTI), which was declared operational at the end of 2011.

14. The Secretariat has produced 15 publications and maintains the APFIC Web site to support communication related to the work of the Commission.

15. The Commission was informed of the completion of the Fourth APFIC RCFM in Da Nang, Viet Nam, from 17 to 19 September 2012 with the collaboration and assistance of the Ministry of Agriculture and Rural Development, Government of Viet Nam.

16. The Commission noted the wide range of activities that had been undertaken in response to the recommendations of the Thirty-first Session, and expressed its appreciation of the work undertaken by APFIC and the APFIC Secretariat during the current biennium (2011-2012).

17. The Republic of Korea, which hosted the Thirty-first Session of APFIC, and Third APFIC RCFM in 2010, expressed sincere appreciation to Viet Nam and the Secretariat and stated that the government fully supported the activities of Secretariat. The Republic of Korea emphasized the need for more research in improving aquaculture development. In this regard, the Republic of Korea invited APFIC members and fisheries and aquaculture experts to participate in the International Workshop on Green Growth in Aquaculture to be held in Yeosu, Korea, which was the venue for Yeosu Expo Korea, 12-13 December 2012. The Republic of Korea also expressed sincere appreciation for the interest and participation of APFIC members in the Yeosu Expo Korea.

18. The United States of America expressed its gratitude to the APFIC Secretariat and Viet Nam for facilitating its greater involvement in the activities of APFIC, particularly the APFIC Regional consultative workshops in which US agencies such as the National Oceanic and Atmospheric Administration (NOAA) actively participated.

19. The Commission adopted the report of the intersessional activities.

## **REPORT OF THE SEVENTY-THIRD MEETING OF THE APFIC EXECUTIVE COMMITTEE**

20. The Secretary reported on the activities of the APFIC Executive Committee and the Seventy-third Meeting (APFIC/12/03, APFIC/12/INF 03) which was convened in Nha Trang, Viet Nam, from 23 to 25 August 2011.

21. He drew the Commission's attention to the principal recommendations of the Seventy-third meeting, as they related to the APFIC's function of facilitating regional cooperation and to priority setting in the fishery and aquaculture sector. The Executive Committee emphasized the region's need to reduce bycatch and to improve fisheries and aquaculture management. The recommendations also covered the focus of APFIC's programme of work and the budget of APFIC.

22. The Secretariat was requested to clarify how the APFIC priorities setting mechanism operated and the role of the APFIC Executive Committee. The Secretariat clarified that the APFIC Executive Committee is the inter-sessional mechanism to support the Secretariat in identifying the priority work of the Commission. These priorities recommended by the APFIC Executive Committee, together with the outcomes of the APFIC RCFM are considered and endorsed by the Commission as priorities.

23. Several members noted that their inland fishery priorities were not identified, yet are of significant importance for a number of APFIC member countries that have the potential to increase the contribution of these sectors to food security and nutritional well being.

### **Responses by the Commission**

24. The Commission recommended that more work be done to increase the awareness of APFIC member governments of the significance of aquatic products for nutritional security.

25. The Commission was informed of a suggestion presented to the Thirtieth Session of COFI to declare 2015 or subsequent years as the International Year of Aquaculture. The Commission **agreed** that the Secretariat would follow up this development with FAO, to ensure that the APFIC Members, which represent the majority of aquaculture producers in the world, were engaged and that APFIC could ensure its programme supported this initiative in 2014.

26. The Commission endorsed the priorities recommended by the APFIC Executive Committee, particularly noting the need for capacity building for combating illegal, unreported and unregulated (IUU) fishing, which is affecting all the member countries.

27. The Commission endorsed the report of the meeting of the Seventy-third APFIC Executive Committee.

## **OVERVIEW OF FISHERIES AND AQUACULTURE IN ASIA AND THE PACIFIC REGION**

28. The Commission considered the summary of the draft *Regional overview of fisheries and aquaculture in Asia and the Pacific region 2012* (APFIC/12/INF 04). This draft overview document will be finalized and published by APFIC following the Thirty-second Session. The full text of the draft regional overview presented is appended to this report (Appendix E).

29. The regional overview presented to the Commission covered both capture fisheries and aquaculture trends, focusing particularly on changes and trends over the past decade. The marine capture fisheries section provided a subregional picture of three key subregions: the South China Sea, the Bay of Bengal and the Sulu and Sulawesi Seas/Timor and Arafura Seas. The principal fishery indicators that were covered in the overview are as follows:

- Resource related: Catch composition by groupings of species; catch trends; fishing status of species groups; fishmeal production; surimi production.
- Effort related: CPUE of gears and target species groups; vessel numbers and types.
- Socio-economic related indicator: employment.
- Management related: zoning measures; types of management measures; definitions/classifications of small-scale and commercial fisheries; existence of protected areas or fisheries closed seasons/areas; status of international agreements.

30. The general trends in fisheries were described, noting that Asia is the largest fish producer in the world reaching 48.7 million tonnes in 2010, with APFIC members as the top six producers in the world, and China as the global leader.

31. The Commission was informed of the trends in these subregions and that generally the fishery resources were fully fished for most groups, and overfished in several areas. Whereas the global fish catch remained stable, catches continue to increase in Southeast Asia and South Asia. The drivers of this were largely the expansion of fishing areas and the gradual increase in fishing capacity and effort. This is linked to fishing effects and the increased targeting of smaller, fast recruiting species.

32. The large proportion of fish catch that is not clearly identified, continues to hamper trend reporting.

33. The Commission was informed that a considerable proportion of the region's capture production comprises low value fish and this is linked to the region's demand for fishmeal and aquaculture feeds. There is increasing concern in some markets regarding the use of these feeds and the region needs to consider how to strengthen the responsible management of the fisheries that generate these types of fish.

34. Fishery management is challenged by the large number of vessels, the diversity of catch and gears and by the complexity of governance arrangements. Spatial measures were generally the favoured method for fishery management, with additional gear measures in some fisheries. There are few fishing vessel capacity limits in place.

35. The data available for fisheries and aquaculture employment is not particularly comprehensive and there is a need to know more about the composition of the fishing sector, the scale of fishing and the social and economic factors of fishing.

36. Inland fisheries are considered very important for food security, however, it is still difficult for the Secretariat to account for the volume and value of inland fisheries. These are not covered in detail in the regional overview because of the limitations of available data, and this section needs to be strengthened in future overviews, in cooperation with the FAO Fisheries and Aquaculture Department.

37. The trends reviewed for aquaculture in Asia and the Pacific region covered ten-year and two-year trends, as well as some major issues that affect the development and sustainability of aquaculture in the region. The main species groups covered were:

- Freshwater carnivorous species
- Marine and brackishwater carnivorous species
- Finfish species requiring lower feed inputs

- Tilapia and catfish
- Crustaceans
- Molluscs
- Aquatic plants.

38. The Commission was informed that the region remains the global leader in aquaculture production with a value exceeding that of its capture fishery production. Growth of aquaculture remains high in South Asia and Southeast Asia, but is slower in China. Freshwater carnivorous fish production remains a small but fast growing sector, however brackishwater production is slowing down. Higher value species are of increasing interest in the region, but the bulk of the region's aquaculture production is composed of lower value species that contribute significantly to domestic food security.

39. The Commission was informed that 95 percent of fish produced in freshwater fisheries comprised lower value omnivorous species and that these contributed directly to the food and nutritional security of the Asian region (30 million tonnes). Of particular note is that these species do not use large quantities of fishmeal and remain affordable at prices of about US\$1.5 per kg.

40. The Commission was informed that six new species have entered the top ranks of cultured species in Asia (including whiteleg shrimp, pangas catfish, red swamp crawfish). The diversity of production in Southeast Asia and China was notable, with 101 and 112 different species being cultured respectively.

41. The APFIC members were requested to comment on the report, *Regional overview of fisheries and aquaculture in Asia and the Pacific region 2012* and to reflect on its recommendation to improve reporting.

### **Responses by the Commission**

42. The Commission thanked the Secretariat for the comprehensive draft *Regional overview of fisheries and aquaculture in Asia and the Pacific region 2012*.

43. The Commission noted that the overview is a biennial effort to summarize information, that is not available through the official system of FAO statistics, such as vessel numbers, employment, CPUE, fishmeal, and other indicators of fisheries. The Commission was informed that the review uses both the officially submitted statistics as well as secondary data from APFIC member research institutions and fishery agencies.

44. The Commission noted the need to look into the reduction of post-harvest losses that still remain very high in the region and that more information on the supply chain would be useful.

45. The Commission noted the importance of inland fisheries, particularly their contribution to food security and livelihoods in rural areas. The Commission appreciated the proposed development of the Regional Inland Fishery Center in Indonesia, supported by SEAFDEC. The APFIC Secretariat noted its wish to interact closely with the Inland Fishery Center and SEAFDEC.

46. The Commission emphasized that the development of aquaculture faces many challenges, and should take into account the need for sustainable intensification of aquaculture, especially as this is linked to demand for feeds and the need for better management.

47. Noting that the Secretariat has been requested to update a number of tables, the Commission endorsed the draft report and the recommendations for improving information in the region. The Commission was informed by the Secretariat that the finalized document would be available shortly after the Session.

## **REPORT FROM THE FOURTH APFIC REGIONAL CONSULTATIVE FORUM MEETING**

48. The Secretary reviewed the report of the Fourth APFIC Regional Consultative Forum Meeting (Fourth RCFM) based on APFIC/12/05, and the summary recommendations that were presented in APFIC/12/INF 05. He thanked the Ministry of Agriculture and Rural Development, Government of Viet Nam for hosting the event and the FAO regional projects and partners for their generous support to the convening of the Fourth RCFM. This had enabled 74 people from 16 countries in the APFIC region and 13 regional and international organizations to participate.

49. The participants to the Fourth RCFM identified 73 regional outcomes, which would contribute to addressing the key challenges facing fisheries and aquaculture in the APFIC region. The Commission was invited to comment on the Fourth RCFM's recommendations that are appended to this report (Appendix F).

50. The chairman congratulated the Secretariat for preparing the comprehensive recommendations following the Fourth RCFM.

51. Noting that the recommendations of the Fourth RCFM were broadly applicable to both inland and marine fisheries and aquaculture, the Commission emphasized that member countries would need to prioritize actions that were relevant to their national context.

52. The Commission emphasized that these recommendations were intended to act as a catalyst to inform national planning and policy development, as well as the work of other regional organizations and arrangements.

53. The Commission endorsed the recommendations of the Fourth RCFM in full.

## **MEMBER COUNTRY REPORTS ON DEVELOPMENTS THAT HAVE RESPONDED TO PREVIOUS APFIC RECOMMENDATIONS**

54. The Secretary introduced documents numbered APFIC/12/06 that comprised country reports of developments that have responded to the principal recommendations of the previous three Sessions of the Commission (2006, 2008 and 2010).

55. Prior to the Fourth Session, the Commission's members had been invited to report on significant national developments that had responded to the recommendations of the previous three APFIC sessions and to recommend any substantive actions that could be taken by APFIC member countries to improve implementation of the recommendations. The recommendations covered a number of thematic areas such as:

- strengthening management of fisheries;
- strengthening the implementation of ecosystem approaches to fisheries and aquaculture;
- strengthening the assessment of fisheries for management decision-making;

- reduction of fishing overcapacity;
- strengthening the governance of fisheries and aquaculture, especially co-management;
- increasing contributions towards combating IUU fishing;
- certifying fisheries and aquaculture;
- improving livelihoods of fishing and aquaculture communities;
- improving the management of inland fisheries;
- Improving the management of aquaculture;
- improving feeds for aquaculture;
- improving information and statistics;
- integrating fisheries and aquaculture into other sectoral planning processes more effectively;
- adapting fisheries and aquaculture to climate change and mitigating the adverse effects of climate change; and
- capacity building of government staff and fishers/aquaculture farmers.

### **Responses by the member countries**

56. Member countries reported a wide range of activities undertaken in response to the recommendations of the previous Sessions of APFIC. Members' reports pertaining to these activities are provided in Appendix G and are summarized below.

#### **Australia**

57. Australia has initiated a process of changing its fisheries legislation to better reflect environmental, economic and social considerations. This process is part of the country's effort to establish a modern fisheries management system. Australia has also, through its Commonwealth Scientific and Industrial Research Organisation (CSIRO), completed a study report, *Fisheries in a future ocean: impacts of climate change* (2011) which identified several areas of likely impacts on fisheries and aquaculture. Australia has been collaborating with Indonesia in developing and implementing a regional plan of action (RPOA). Australia is continuing its efforts to combat IUU through the RPOA and IUU vessel listing. The country is supporting Southeast Asian countries in capacity building in information systems, surveillance and monitoring systems and legal support for combating IUU. The chairman complimented Australia for its support to the Southeast Asian countries to improve their fisheries management.

#### **Cambodia**

58. The Cambodia delegate informed the Commission that on 21 March 2011, the Government of Cambodia adopted the Strategic Planning Framework for Fisheries 2010–2019 and the Cambodian Code of Conduct for Responsible Fisheries. These documents provide comprehensive policy, strategy for conservation, management and development of the fishery and aquaculture sectors. As these plans are relatively new and as implementation only recently started there are no reports available. However, regular monitoring is ongoing and Cambodia will report in the next APFIC Session. The Commission was also informed of Cambodia's intention to develop a mechanism for combating IUU with regional and subregional bodies.

#### **India**

59. The Commission was informed that aquaculture was seen as an important avenue for further diversification of food production in India, however, there were challenges to overcome in water management. In addition, climate change impacts on fisheries and aquaculture are being

addressed as a high priority at the national level through research and development by the Ministry of Agriculture in association with the Ministry of Environment and Forestry. India has made progress in fisheries assessments, co-management, zoning regulations and is starting to implement an ecosystem approach to fisheries (EAF) through the BOBLME project. An investigation is underway to determine what would be required to reduce fishing capacity. India noted that because of decreasing catches of shrimp, there is an increase in the catch of low value/trash fish for use as fishmeal and food during certain seasons. Efforts are being made to reduce and combat IUU fishing through strengthening the coastguard and enacting new legislation. The International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU) and the FAO Port State Measures Agreement are under review by the Legal and Treaties Division with a view to preparing a national strategy.

### **Indonesia**

60. Indonesia has undertaken efforts, both at national level and with other countries in the Southeast Asian region, to protect fishery resources. Indonesia is concerned about IUU fishing and is complying with international instruments on monitoring, control and surveillance (MCS) and Port State Measures, to which Indonesia is a signatory and will soon ratify. Indonesia has also established a vessel monitoring system, a national vessel registration system and records, and a Capture Fisheries Business in High Seas Regulation, among other regulations. Indonesia seeks to enhance cooperation, information exchange, and to share knowledge technologies as well as take action against IUU fishing. With respect to strengthening the management of fisheries, Indonesia has approved a bycatch management project to reduce bycatch and strengthen the responsible use of marine fishery resources. Indonesia reiterated its support to the Coral Triangle Initiative (CTI). Together with five other countries, Indonesia is working to implement the RPOA of the CTI on responsible fisheries and welcomes APFIC countries to cooperate with this initiative.

### **Republic of Korea**

61. The Republic of Korea informed the Commission that the Korean government made substantial efforts to implement the recommendations of the last Session. The government has implemented a number of policies to enhance fish stocks, such as the total allowable catch (TAC) system for vulnerable species, a marine ranching project, and fry releasing, which has seen positive results in some major commercial fish stocks. The government is putting efforts into combating IUU fishing by rearranging its legal frameworks and cooperating with international organizations. Local fishers are contributing to combating IUU fishing through community-based management projects. The Korean government is strengthening the regulation of vessel overcapacity in marine capture fisheries, by implementing a vessel reduction plan. This controls the type of fisheries and gear types through relevant acts. By amending the Fishery Resources Management Act, the Korean government can now execute a vessel reduction plan rather than rely on fisher's own responsibility. The government is also implementing the Management of Recreational Fishing Act, which covers fish gear, transportation and protection of marine resources. The Act regulates fishing in marine areas as well as inland areas. For sustainable and responsible aquaculture and ecological aquaculture farm management, the Korean government has established a "strategy for cultivating eco-friendly and high value-added offshore aquaculture" in order to transform inland-oriented aquaculture into offshore aquaculture. The government has built five offshore aquaculture farms to cultivate tuna, and is researching alternative feeds and the management of marine diseases.

## **Malaysia**

62. Malaysia is implementing an ecosystem approach to fisheries/ecosystem approach to aquaculture (EAF/EAA) through the development of several national plans of action targeting the management of fishing capacity, aquatic invasive alien species and turtles. The country is also reviewing the NPOA on sharks, is in the process of finalizing the NPOA-IUU and has outlined a national plan to mitigate climate change. Malaysia has adopted a new approach to bring investment into the aquaculture industry through a public-private partnership programme. This will ensure the competitiveness of the industry and the sustainability of the resources by encouraging investment by selected private companies that comply with Malaysian aquaculture standards. Malaysia has also reviewed the Inland Fisheries Regulations (Aquaculture) 2012 and is currently applying aquaculture import risk analysis (IRA) on indigenous species as well as carrying out certification of fisheries and aquaculture. It is envisaged that certification protocols will be strengthened further to ensure their effectiveness. Malaysia supports the RPOA to promote responsible fishing practices including combating IUU fishing in the region. The Department of Fisheries is a committee member of the National Steering Committee on Strategic Planning for Climate Change. Malaysia noted the need to harmonize all aquaculture certification protocols amongst the member countries of the APFIC.

## **Myanmar**

63. The Commission was informed that Myanmar was making progress in many areas in fisheries and aquaculture. Myanmar has prepared the Plan for Fisheries and Food Security, which includes the conservation and management of fisheries and aquaculture, the implementation of fishery assessment surveys, improved statistics, better planning, fishery protected areas, fish shelters and mangrove conservation among other activities. Myanmar has also prepared a plan for food safety, which includes implementation of the Good Aquaculture Practices (GAP) in aquaculture, the Hazard Analysis and Critical Control Points (HACCP) system in fishery products industries, including investigations to detect chemical and drug residues in fish and fishery products.

## **Nepal**

64. Nepal reported that the government gives a high priority to fisheries and aquaculture although EAF is not being consistently applied at this time. Progress has been made on fish health controls and is carried out by the Central Fish Laboratory and the Regional Fisheries Centre and reported to the World Organisation for Animal Health (OIE) quarterly. Legislation and quarantine regulations are in place. The country has received FAO TCP support to develop pure line broodstock management and improved fish seed distribution. Organic pond culture and trout farming are being introduced. The Directorate of Fisheries Development is in the process of restructuring. The delegate reported that there was a need for a separate Aquatic and Fisheries Development Act and that there were challenges related to decreasing water supply in the artesian layer in the Southern Plain Areas because of the competition with other users. Nepal requested FAO/APFIC support to expand riverine fisheries and aquaculture in mid hill and high hill areas, to sustainably exploit available natural resources to improve rural livelihoods and nutrition.

## **Pakistan**

65. Pakistan informed the Commission that rice-fish culture for integrated agro-aquaculture management has started in five districts with resulting decreases in the use of pesticides. The floods in 2010 and 2011 provided opportunities for stocking resulting in people in the affected

area being able to fish and in some cases improved livelihoods. The Commission was also informed that the government of Sindh province of Pakistan abolished the lease (contract) system for fishers and has introduced a license system, as well as providing boats, gears and processing and conservation equipment with income increases and this has resulted in livelihood improvements. In addition, human capacity building and training programmes were implemented and there has been improved statistical data gathering.

### **Philippines**

66. Philippines is looking to integrate the concepts of EAF and integrated coastal management (ICM), as ICM has been the preliminary approach to management in coastal fisheries. There remains a general lack of understanding of how to implement the EAF practically. Philippines informed the Commission that it sought a forum where it would be possible to discuss EAF and ICM and to understand their differences and to use them appropriately. Philippines has a stock assessment programme for some key species. This supports various management measures that have been put in place. Co-management has been institutionalized and capacity building is being undertaken. Philippines has made an effort to combat IUU fishing, with the allocated budget for 2012/2013 increasing 40 times over previous periods. Philippines is working on ratifying the Port States Measures. Regarding aquaculture management, steps have been taken to reduce overcrowding through improved zoning. The national standard for aquaculture feeds has been approved in 2010 and is being implemented in the country.

### **Sri Lanka**

67. Sri Lanka has taken note of the recommendations of the previous sessions and of special note is the work done on the following: the effective integration of fisheries and aquaculture into other sectors that has prevented intersectoral conflicts; the setting up of a Climate Change Secretariat under the Ministry of Environment to coordinate activities at national level; the strengthening of the EAF, particularly in small-scale fisheries and aquaculture; and the development of management tools and capacity-building programmes. There is also work being done to strengthen fisheries assessment for decision-making, and other management measures, such as the banning of destructive gears and methods, size limits and closed seasons. In addition, all commercial fishing operations need to be licensed (including traditional fisheries). Fisheries governance is being strengthened through co-management mechanisms. There is also work being done to deal with vessel overcapacity and to combat IUU fishing, through surveillance activities and the installation of a vessel monitoring system (VMS) on high seas vessels.

### **Thailand**

68. Thailand reported that the Master Plan for Marine Fisheries has been adopted and is being implemented. A strategic action plan for aquaculture development is underway and a strategic action plan for inland fisheries is being drafted. The Fisheries Department is contributing to the preparation of the Ministerial Plan for Climate Change with implementation planned for 2013 and it is expected that fisheries and aquaculture will be included in the Fifth National Communication to the United Nations Framework Convention on Climate Change (UNFCCC). In addition, the NPOA on sharks is under review for improvement and an NPOA-IUU fishing is being drafted with implementation foreseen upon its finalization. The Commission was informed that the fisheries legislation of 1947 is being revised and it is hoped that it will come into force soon. A VMS system for small-scale fisheries is at the experimental stage in preparation for a wider roll out.

## **Timor-Leste**

69. Timor-Leste noted that being a new member, this is the first time it has reported to the Commission. Of special mention is the development of the 2012–2030 National Strategy Plan, which includes development goals for all sectors including fisheries and aquaculture, as well as the five-year strategy plan for the Ministry of Agriculture and Fisheries in which all sectors are represented. The recently developed Online National Fisheries Statistical System allows for a comprehensive data gathering and data management system, which includes the newly established National Census of Fishers and Boats, the Fish Price and Catch Statistic Series, and the Accident Reporting System. The comprehensive system has given the government of Timor-Leste the possibility to conduct some preliminary but accurate assessments for the first time. Timor-Leste has carried out a pilot project involving documenting and mapping fishing resources and promulgating a customary law by which fishing communities self-manage the resources. In order to combat IUU fishing, Timor-Leste has introduced a feasible and inexpensive IUU reporting system that engages the communities in combating illegal fishing in their waters. The National Directorate of Fisheries and Aquaculture has developed a Human Resources Development Plan. Timor-Leste has also undertaken the first analysis to determine the potential for aquaculture development in the country, the results of which informed the first National Aquaculture Strategy Plan, a document that it is expected to be approved soon by the Council of Ministers.

## **United States of America**

70. The United States informed the Commission that the NOAA has recently created a Fisheries Climate Change Coordinator position at its headquarters. The person will be active in the coordination and facilitation of climate change research and policy in both the domestic and international fisheries arena. The Commission was also informed that a new “Catch Shares” programme is being implemented in New England. This programme gives more flexibility and responsibility to the fishermen to manage the resource in conjunction with NOAA Fisheries. Fishermen who decided not to opt in to the new programme are being managed under the old fisheries management system. Since 2009, the US Government, through NOAA Fisheries, has produced a biennial report on IUU activities on the high seas. In the past, it was focused only on the individual activities of fishing vessels though the flag country was cited in the report as failing to ensure proper management of its vessels. In the 2013 report, countries that target the catch of protected living marine resources or have high levels of bycatch of these will also be cited. The potential outcome of countries failing to improve their management of vessels could be trade sanctions placed on marine products. There are some processed fisheries products coming from APFIC countries that are being rejected at US ports of entry because of improper processing and mislabelling. A focus on quality of processing and labelling would reduce the number of discards at the ports. NOAA Fisheries is part of the US Government’s International Trade Data System (ITDS) that will make the export of fish to the US more efficient as it provides for e-documentation rather than hard copies of required paperwork. The full roll-out is expected in 2013.

## **Viet Nam**

71. Viet Nam has recently completed a Fisheries Sector Development Master Plan which is a ten-year strategy document covering the entire fisheries sector, including fisheries research. Viet Nam is in the process of formulating a National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated fishing. The Fishery Law is being updated to

include key references to Port State Measures, EC-IUU regulation, and traceability of fish to point of origin, United Nations Fish Stock Agreement (UNFSA) and the Western Central Pacific Fishery Commission (WCPFC). With regard to strengthening the management of fisheries, special attention is given to the zoning of fishing grounds, and strengthening the log-book system, implementation of the vessel monitoring system, a ten-year programme on fisheries resources, and strengthening of the co-management system using a rights-based approach. With regard to the strengthening of the assessment of fisheries resources for fisheries management, there has also been a strong effort to enhance fisheries research to improve the knowledge of marine resources status for management purposes. Viet Nam has developed the Viet GAP guidelines to include aspects related to safety, animal welfare, environmental integrity and social responsibility.

72. The Secretary noted the commendable efforts of the APFIC member countries in upgrading legislation and developing improved regulations and policies with respect to several subsectors of fisheries and aquaculture. He noted that several countries are already making sure that fisheries and aquaculture are incorporated into their national climate change planning process. He urged the countries to share with the Secretariat any documents that would enable APFIC to report on the actions of member countries that have responded to the APFIC recommendations.

## **ASSESSMENTS OF FISHERIES AND AQUACULTURE TO IMPROVE MANAGEMENT**

73. The Secretary introduced document APFIC/12/07 summarizing the findings and recommendations of two APFIC regional consultative workshops.

74. The first APFIC regional consultative workshop *Strengthening assessment of fisheries and aquaculture in the Asia-Pacific region for policy development* was convened in Yangon, Myanmar, 4–6 October 2011 and hosted by the Department of Fisheries, Myanmar. The summary recommendations of the report of this workshop were provided to the meeting as APFIC/12/INF 6.

75. The Commission was informed that the workshop reviewed how existing assessment approaches in capture fisheries could contribute to the different phases of the fisheries management process. The workshop also considered how to help develop standards for environmental impact assessments (EIAs) and ecological footprint type activities to support ecosystem approaches to aquaculture sector management. In particular, the workshop addressed how the range of assessment methods considered could be tailored to the characteristics of fisheries/aquaculture within the region.

76. The second FAO/NACA/APFIC regional study/workshop on *Adoption of aquaculture assessment tools for sustainability in the Asia-Pacific region* was jointly convened by FAO, the Network of Aquaculture Centres in Asia-Pacific (NACA) and APFIC in Pattaya, Thailand, 3–5 July 2012. The summary recommendations of the report of this workshop were provided to the meeting as APFIC/12/INF 07.

77. The Commission was informed that the workshop evaluated the status of the application of existing aquaculture assessment tools for planning and management in the participating countries and included awareness of the available tools, the scope and level of application, capacity and

legal support for their application, and the usefulness/applicability of the tools in different countries. It also identified the major constraints on expanding the application of the tools.

78. Key messages from the workshops included:

- There is a need to start or strengthen fishery and aquaculture management planning processes in most countries in the region.
- Effective fishery management remains highly constrained by the lack of awareness of tools and approaches to address the complex fisheries of the region.
- All the countries have made progress in adopting aquaculture assessment tools for improved planning and management.
- Capacity to use assessments tools, and enabling management frameworks remain a constraint on the effective use of the tools.
- There is the need to develop a toolbox and training, tailored to APFIC regional needs, to strengthen aquaculture management in the region.

### **Responses by the Commission**

79. Some member countries requested clarification on the terminology used, and more specifically on the process and effect of the recommendations endorsed by the Commission. The Secretary provided clarification to the members' queries.

80. The Commission recommended routine fishery assessments to enable adequate tracking of resources for management decision-making.

81. The Commission noted the focus on small-scale fisheries, and the need to collect improved statistical data and the need for fisheries and aquaculture assessment tools.

82. The Commission suggested that fish stock assessment models be incorporated into climate change considerations.

83. The Commission appreciated the work on developing aquaculture assessments tools and encouraged NACA and APFIC to continue this work.

84. The Commission recommended the adoption of aquaculture assessment tools for better planning and management of the aquaculture sector.

85. The Commission requested that information on the fisheries and aquaculture assessments be shared with member countries during the next Session of the Commission.

### **REPORT OF THE BAY OF BENGAL LARGE MARINE ECOSYSTEM'S REGIONAL FISHERIES MANAGEMENT ADVISORY COMMITTEE (BOBLME-RFMAC)**

86. At its Thirty-first Session, the Commission was informed that BOBLME would form a Regional Fisheries Management Advisory Committee (RFMAC). This committee would provide ecosystem-based advice to the BOBLME project countries. The Commission was further informed that this committee could also provide information on the Bay of Bengal region to APFIC. The Commission invited the BOBLME Project to report on the RFMAC and its activities at its Thirty-second Session.

87. Responding to this request from APFIC, the chairman of the BOBLME-RFMAC informed the Commission of the work and outputs of the Committee in 2012.

88. The Commission was also informed by a member country representative of the RFMAC [Maldives] that the RFMAC had reviewed ecosystem-related information on the status of two key species that form significant fisheries in the BOBLME region, namely hilsa (*Tenualosa ilisha*) and the Indian mackerel (*Rastrelliger kanagurta*).

### **Responses by the Commission**

89. The Commission noted the principal conclusions and recommendations from two RFMAC advisory notes for hilsa and Indian mackerel based on the full text of the advisory note presented as APFIC/12/INF 08.

90. The Commission noted, in particular, that the RFMAC advisories for hilsa and Indian mackerel included information on stock status, ecosystem impacts, socio-economics and governance, and agreed that the RFMAC advisory format was a good example of a policy advisory that was framed using the ecosystem approach to fisheries management, and that the approach could be used by member countries in their national context. The Commission noted that the approach was useful for communicating broader information to policy-makers, over and above the more standard fishery science messages.

91. The Commission also noted that APFIC did not have technical sub-committees, therefore subregional bodies and countries that have relevant regional fishery or aquaculture management information, processes or materials that might enhance fisheries and aquaculture management in the Asia-Pacific region, may be invited to present this information to the Commission at future meetings.

## **ADAPTATION AND MITIGATION OF CLIMATE CHANGE IN FISHERIES AND AQUACULTURE**

92. The Thirty-first Session of APFIC emphasized that the adaptation to and mitigation of the impacts of climate change related to fisheries and aquaculture is a very important issue in the region. It recommended that APFIC should review the effects of climate change on fisheries and aquaculture in the region and provide advice to member countries on strategic planning for adaptation and mitigation measures for the sector.

93. The Secretary introduced document APFIC/12/09, which outlined the findings of the APFIC regional review entitled *The potential impact of climate change on fisheries and aquaculture in the Asian region* and the outcomes and recommendations of the APFIC/FAO regional consultative workshop *Implications of climate change on fisheries and aquaculture: challenges for adaptation and mitigation in the Asia-Pacific region* convened in Kathmandu, Nepal, 24–26 May 2011 and hosted by the Directorate of Fisheries Development, Department of Agriculture, Ministry of Agriculture and Cooperatives of the Government of Nepal. The workshop was supported by FAO, the Regional Fisheries Livelihoods Programme for South and Southeast Asia (RFLP) and the Bay of Bengal Large Marine Ecosystem Project (BOBLME) and the report is available as APFIC/12/INF 09.

94. The Commission was informed that the understanding of the sectoral effects of climate change remains very limited, partly because of a lack of capacity-building in this emerging area of concern, but also because of the lack of systematic information collection to allow tracking of climate change related impacts.

95. There is considerable variation on how countries have implemented climate related planning in the fishery and aquaculture sector, and especially the degree to which this has been integrated into broader climate change related planning at the agriculture sector level and beyond. It was noted that there is currently insufficient capacity available to deal with such effects in the region.

96. Member countries at the workshop underlined the need for integration of the fishery and aquaculture sectors into the national climate change planning process.

97. A key recommendation of the workshop was the need to assist countries to integrate fisheries and aquaculture into national and regional climate change and related disaster risk management (DRM) plans and strategies effectively. Member countries requested assistance to develop policy and legal guidance and awareness raising for integrating climate change into fisheries and aquaculture.

### **Responses by the Commission**

98. There was a consensus of the Commission that climate change is real and has already been felt in fisheries and aquaculture and the coastal communities. The effects include sea level rise and extreme weather events making fishing more dangerous and causing damage to aquaculture.

99. The Commission concurred that awareness of climate change impacts on fisheries and aquaculture is low, even within the fisheries sector. Some members noted that when discussing climate change with fisheries agencies, they were told that the agency was not the competent body to address climate change mitigation and adaptation issues and that it is considered to be the responsibility of the Ministry of Environment.

100. The Commission noted that some member countries have already initiated a climate change action plan at national level, including fisheries and aquaculture. The Association of Southeast Asian Nations (ASEAN) has established a working group on climate change issues in order to prepare a climate change mitigation and adaptation framework for member countries.

101. The Commission noted that APFIC has an important role to play in raising awareness of climate change and providing technical advice to member countries.

102. The Commission **recommended** that APFIC should work with FAO together with other international and regional organizations to prepare guidance and organize training on practical ways for mitigating and adapting to climate change and climate variability in the fishery and aquaculture subsectors.

103. The Commission emphasized the importance of raising awareness of climate change, particularly for policy-makers in this region. It encouraged delegates to return to their agencies and engage with relevant people to make sure that fisheries and aquaculture was being incorporated into national planning for climate change mitigation and adaptation.

104. The Commission **recommended** that member countries report to the Thirty-third Session on their progress.

105. The Commission endorsed the recommendations of the APFIC regional consultative workshop.

## **APFIC PILOT QUESTIONNAIRE ON RESPONSIBLE FISHERIES AND AQUACULTURE**

106. The Seventy-third Session of the APFIC Executive Committee agreed that the APFIC Secretariat would undertake a simple survey on the implementation of the FAO Code of Conduct for Responsible Fisheries (CCRF) by APFIC member countries and that the results of this were subsequently presented to the Thirty-second Session (document APFIC/12/10).

107. The questionnaire consisted of 40 questions and was placed on the APFIC Web site. Fishery professionals in the region were contacted and asked to complete the questionnaire. There were 62 respondents from 16 countries in the APFIC region.

108. The Commission was informed that since the results of the pilot APFIC CCRF questionnaire were based on a collation of individual responses, it was not possible to present a consolidated picture of any national situation, or even of the opinion of the national fishery institutions. There was a high degree of variability in responses even among fishery colleagues within the same government agency. The subjective nature of the questions in the questionnaire is clearly a problem, and this underlines the challenge of gathering information on the implementation of the CCRF.

109. Document APFIC/12/10 provided a summary of the analysis of the responses to the questionnaire under the following themes:

- Fishery management
- Aquaculture management
- Legal frameworks
- Information
- Social dimensions and participation in decision-making
- Policies for fisheries and aquaculture
- Cooperation
- IUU fishing.

110. The results of the questionnaire provided a general impression of fisheries and aquaculture management in the region. However, it is clear that a questionnaire approach will not be able to provide a complete picture of the state of the implementation of the CCRF in a particular country, unless a coordinated national process for completion of the questionnaire is considered and agreed beforehand.

### **Responses by the Commission**

111. The Commission noted the findings of working paper APFIC/12/10 and concurred with its conclusion that individual responses to a questionnaire cannot provide a coherent national picture.

112. The Commission also noted the unsatisfactory response rate to the FAO CCRF questionnaire. The Commission suggested that this might be because of the diverse characteristics of the region's fisheries and aquaculture, which makes reporting by the member countries challenging.

113. The Commission suggested that the APFIC Secretariat could make the APFIC questionnaire available to the FAO Fisheries and Aquaculture Department to consider as this might improve coverage of the small-scale sector.

114. The Commission suggested that the quality of responses to questionnaires of this type could be improved if the appropriate government agencies convened a group of respondents to cover the parts relevant to their technical or institutional competence.

115. The Commission agreed that APFIC member countries could better inform the APFIC on the region's progress in implementing the FAO CCRF by providing country feedback prior to the Session of the Commission. In this regard the Commission recommended that the Secretariat could develop a more open question format along the lines of the APFIC survey questionnaire. A summary of these responses would then be covered under the APFIC Session agenda item on members progress in implementing responsible fisheries and aquaculture.

## **EMERGING ISSUES IN FISHERIES AND AQUACULTURE**

116. The Commission was introduced to the document on emerging issues in fisheries and aquaculture and their implications for APFIC and member countries in the region (APFIC/12/11) by Mr Johan Williams, the chairman of the FAO Committee on Fisheries, who presented the outcomes of the Thirtieth Session of the FAO Committee on Fisheries (COFI 30) to the Commission.

117. The Commission was informed of the following:

- outcomes and recommendations of COFI 30;
- implications for fisheries and aquaculture of United Nations Conference on Sustainable Development (Rio+20);
- recommendations of the Thirty-first Session of the FAO Regional Conference for Asia and the Pacific region (Thirty-first APRC);
- the ASEAN-SEAFDEC *Resolution and plan of action on sustainable fisheries for food security for the ASEAN region towards 2020*;
- the development of instruments for fishers' rights, safety and labour conditions in capture fisheries and aquaculture;
- development of FAO technical guidelines for responsible fisheries and aquaculture;
- GEF Areas Beyond National Jurisdiction programme (ABNJ);
- the UNGA regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects; and
- recent developments in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention on Migratory Species (CMS).

## **Responses by the Commission**

118. The Commission thanked the Secretariat for the working paper and the comprehensive information document, and for the presentation by the chairman of COFI regarding the COFI 30 outcomes.

119. The Commission noted the importance of the section on the implications for fisheries and aquaculture of the United Nations Conference on Sustainable Development Rio+20 point 15, in particular the implementation of a blue economy approach and for members to work with FAO for the implementation of the outcomes of Rio+20.

120. The Commission reaffirmed its consideration that FAO is the most appropriate UN agency for global fisheries and aquaculture governance.

121. The Commission noted that consumers in importing markets were increasingly requesting information on the sustainable management of fisheries and aquaculture production and on the origin of products of IUU fishing. It further noted the difficulties of developing countries in complying with the catch certification schemes in fisheries and production standards in aquaculture.

122. The Commission noted that the demands from trading partners have put pressure on members to prioritize actions to meet these requirements. The use of the limited national financial resources to comply with these trade barrier demands often reduces the amount of resources that can be used by members in responding to other international obligations and to comply with various international agreements related to the sector.

123. The Commission noted the importance of the inclusion of transboundary aquatic animal diseases in fisheries and aquaculture in the regional priorities of the APRC. Specifically, the importance of strengthening a regional mechanism to report, mitigate and control transboundary aquatic animal diseases.

## **APFIC STRATEGIC PLAN AND REGIONAL OUTCOMES**

124. The Secretary introduced the APFIC Strategic Plan, 2012–2018 based on document APFIC/12/12. The plan supports responsible fisheries and aquaculture in the region and serves as a guiding document for the Secretariat in steering and organizing the activities of the Commission.

125. The Commission was informed that the first APFIC Strategic Plan 2006–2012 was endorsed by the Thirtieth Session of APFIC (held in 2008 in Manado, North Sulawesi, Indonesia) and that the Secretariat developed an update for 2012–2018, which was presented to the Seventy-third Executive Committee Meeting.

126. The updated APFIC Strategic Plan 2012–2018, provides a clear strategy to assist planning and coordination, and assists APFIC to maintain a strategic direction for the next six years. It will facilitate the coordination of the Commission's work with FAO, other regional fishery organizations and member countries.

127. The updated plan also contains a number of strategic outcomes that will guide the work of the Commission over the next six years. These outcomes have emerged from the conclusions and

recommendations of the workshops and Sessions of the Commission and fall into the following broad areas:

- strengthening of fishery management, particularly trawling and related impacts;
- improving aquaculture management and regulation;
- improving regional coordination;
- improving information and statistics to support management, and advocacy for the sector;
- promoting best practices and development of regional tools; and
- capacity-building and awareness-raising.

128. The updated draft strategic plan was presented as document APFIC/12/INF-11 and the Commission was invited to advise the Secretariat on the relevance of the regional outcomes contained in the plan, and on any alterations and additions necessary to improve the strategic plan.

### **Responses by the Commission**

129. The Commission recommended the incorporation of subregions into the strategic plan, namely the Sulu and Sulawesi Seas and the Timor and Arafura and Java Seas, in order to have a more comprehensive subregional coverage. The Commission also suggested the inclusion of both permanent and temporary subregional arrangements and cooperation mechanisms (e.g. Sulu and Sulawesi Marine Ecoregion project, Coral Triangle Initiative, Arafura and Timor Seas Ecosystem Action).

130. Noting the huge importance of inland fisheries in the region, the Commission suggested that the strategic plan should place more emphasis on increasing capacity for information collection and the management of inland fisheries. The Commission recommended that this be brought to the attention of the APFIC Executive Committee as a regional theme of work in the next biennium.

131. The Commission also recommended that the APFIC vision should be developed based on the strategic outcomes obtained during the Fourth RCFM and that this should be appended to the APFIC strategy.

132. The Commission noted the regular absence of some member states and requested the Secretariat to maintain contact with those members.

133. The Commission endorsed the updated strategic plan 2012–2018, and noted that the Session schedule had been adjusted to better synchronize with the work of the FAO Asia-Pacific Regional Conference and FAO Committee on Fisheries.

### **APFIC'S WORK FOR BIENNIUM 2013-2014**

134. The Secretary introduced the detailed framework for the biennial workplan 2013-2014 as document APFIC/12/13.

135. The calendar of activities was presented covering planned regional workshops and regular meetings of the Commission as endorsed by the Seventy-third Executive Committee.

136. Two regional workshops under the biennial programme are foreseen, and several other ad hoc workshops relevant to the work and strategic outcomes of the Commission are anticipated.

137. A notable consideration was the proposal to bring forward the Seventy-fourth Executive Committee meeting to May 2013, and the Thirty-third Session and Fifth RCFM to May 2014. This is intended to allow the synchronization of the work of the Commission with the FAO Committee on Fisheries and FAO Asia-Pacific Regional Conference.

138. Other activities of the Secretariat relating to coordination and support to member countries and regional organizations are also foreseen as part of the ongoing strategy of the Commission and Secretariat.

## **FINANCIAL MATTERS RELATING TO THE OPERATION OF THE COMMISSION**

139. The budget of APFIC was reported in detail to the Seventy-third Session of the Executive Committee (APFIC/10/INF 05). This report notes that APFIC activities continue to be well supported by member countries, bilateral donors and regional organizations as co-financing to the core FAO financial support to the activities of the Commission.

140. The Secretariat noted that FAO core funding support was fundamental to the ability of the Commission to operate the Secretariat and to undertake its work programme. He noted, with appreciation that member countries had provided in kind support to regional workshops by covering the costs of their delegates' participation. The Secretary also welcomed any initiatives of member countries that might be able to provide ad hoc financial support to workshops or activities.

### **Responses by the Commission**

141. The Commission endorsed the workplan as outlined in the working paper (APFIC/12/13) as recommended in the report of the Seventy-third APFIC Executive Committee meeting with a number of amendments to reflect the rescheduling of COFI to June 2014. The Commission agreed that the following key activities will be undertaken by the Commission and APFIC Secretariat during the coming biennium of work as follows:

#### **October 2012**

The report and recommendations of the Thirty-second Session of APFIC will be communicated to member countries and FAO.

#### **October 2012**

FAO/APFIC and NACA will convene a regional consultative workshop on priority emerging issues identified by the Executive Committee and the Thirtieth Asia-Pacific Regional Conference *Meeting the challenges of sustainable intensification of aquaculture*.

#### **May 2013**

The Seventy-fourth Session of the Executive Committee of APFIC will meet in May 2013.

#### **June 2013**

The Secretariat will organize and implement the second regional consultative workshop entitled *Putting fishery management into action in the APFIC region*.

### **August–November 2013**

The APFIC Secretariat will commence liaison and background information collection from APFIC members and key national and regional correspondents for the preparation of the *Regional overview of fisheries and aquaculture in the Asia-Pacific region 2014*. The Secretariat will also send out the APFIC responsible fisheries and aquaculture reporting questionnaire to APFIC focal points in member countries for their responses, which will be reported to the Thirty-third Session.

### **January 2014**

The APFIC Secretariat will send out invitations for the Thirty-third APFIC Session to all members, regional and subregional organizations and arrangements with relevance to fisheries/aquaculture in the APFIC region.

### **March 2014**

Thirty-second Session of APFIC recommendations will be made available to the Thirty-second APRC.

### **March-April 2014**

Thirty-third Session of APFIC will be convened during March and April 2014. The Fifth RCFM will be organized immediately preceding the Thirty-third Session of APFIC. This will enable the recommendations of the Thirty-third Session to be communicated to FAO prior to COFI (June 2014).

### **June 2014**

The APFIC Secretary will participate in the Thirty-first Session of COFI and the Fifth Meeting of the Network of Secretariats of Regional Fisheries Bodies.

## **STATEMENTS OF REGIONAL ORGANIZATIONS AND PARTNERS**

142. The chairman invited regional organization observers to take the floor to make short statements on the regional priorities identified by their governing bodies or equivalent apex bodies. This is a new action of APFIC, intended to provide a broader summary of the regional priorities of organizations and their memberships in the region, to enable greater coordination, cooperation and harmonization of action. The full text of the statements is provided in Appendix H.

### **ASEAN Sectoral Working Group in Fisheries (ASWGFi)**

143. As the new country chair, Indonesia made a statement on behalf of the ASEAN Sectoral Working Group on Fisheries (ASWGFi). The ASWGFi has a Strategic Plan of Action on ASEAN Cooperation in Fisheries 2011–2015. This was adopted in June 2012 at the Twentieth ASWGFi Meeting in Yogyakarta, Indonesia. ASWGFi's goals are to promote sustainable fisheries in the ASEAN region, improve food security, facilitate poverty alleviation, and improve the livelihoods of those ASEAN citizens that depend on the harvesting, farming and marketing of fish and fishery products. There are several relevant areas in the ASEAN "strategic thrusts" including: governance of fisheries, certification, traceability, food safety, combating IUU fishing, best practice aquaculture, fisheries and aquaculture technology as well as EAF. A number of projects are being implemented in relation to, e.g. the development of guidelines on best practices of

shrimp aquaculture, collaborative activities on combating IUU fishing and the ASEAN Network on Climate Change. Three new initiatives relate to climate change adaptation and mitigation with respect to food security, enhancing coastal community resilience and developing a strategy for trawl fisheries bycatch management. Noting that most of ASEAN member countries are also APFIC members the ASEAN programme is highly complementary to the work of APFIC.

### **Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO)**

144. The representative of the BOBP-IGO was unable to attend the meeting, however, he provided a statement that was read by the APFIC Secretary. BOBP-IGO thanked APFIC for the opportunity to put on record their experiences of fisheries management in the region. He noted that the fisheries sector in the region is largely dominated by small-scale and artisanal fishers who have limited capacity. The member countries being developing nations have their own limitations, and the BOBP-IGO is addressing these issues through the adoption of its Strategic Plan of Action 2010–2014. BOBP-IGO notes that the work carried out by the APFIC in the Bay of Bengal region has helped the countries to strengthen their management regimes further and to contribute to the development of the fisheries sector in the region. The BOBP-IGO suggested that more effort was needed to link regional environmental and fishery organizations into strategic regional partnerships. The BOBP-IGO congratulated Timor-Leste as new member of APFIC.

### **International Collective in Support of Fishworkers (ICSF)**

145. In its statement, the ICSF sought support from governments to implement the FAO Guidelines on Small-Scale Fisheries. Subsequent to the wide consultative process that it has engaged in with civil society organizations, ICSF highlighted the fact that the states should respond to the “zero draft” of the FAO by January 2013. Prior to that it suggested that the states may engage in a participatory process with all stakeholders, particularly the fishworker representatives themselves in developing a vision for the sustainability of a gender just small-scale fishery sector. It also suggested that the states continue to support a participatory process during the upcoming FAO technical consultation in May 2013, drawing on best FAO practices for CSO participation. The key to the implementation of the guidelines will be the follow up discussions on small-scale fisheries. These would best take place in a subcommittee and would require that one member state offer to host such a meeting.

### **INFOFISH**

146. The representative of INFOFISH thanked APFIC for their invitation to the meeting and MARD for the warm hospitality and apologized for not attending the RCFM. He noted the growing cooperation and collaboration between countries in the region to seek sustainable development in the fisheries sector through various programmes and activities carried out by intergovernmental organizations. As the fishery sector in the region has been facing tremendous challenges in recent years as a result of weakening seafood demand in major markets, strengthening regional collaboration is becoming more relevant and INFOFISH is willing to work closer with APFIC in the future. Specific areas of mutual collaboration/cooperation that could be explored are: the strengthening of the fishery information network; the INFOFISH database; collaboration in capacity-building in APFIC member countries; freshwater fish; and other areas of mutual interest that will benefit the member countries.

### **Mekong River Commission, Fisheries Programme (MRC-FP)**

147. MRC-FP informed the Commission that it is working with and helping its four member countries to implement sustainable freshwater fisheries management and development at local, national and regional levels in order to reduce poverty and to improve food security and nutrition in the Mekong region, especially in rural areas. Myanmar and China are currently MRC dialogue partners. Myanmar's accession to MRC is currently under discussion. MRC-FP informed the Commission its five-year Fisheries Programme Implementation Plan 2011–2015 (F-PIP 2011–2015) has been endorsed by the Steering Committee members of the four member countries. This plan has four outcomes, that are complementary to or align with the regional priority outcomes proposed by the Fourth APFIC Regional Consultative Forum Meeting and the outcomes of the endorsed APFIC Strategic Plan (2012–2018), particularly the outcomes in the section on inland fisheries. MRC-FP informed the Commission of its capacity and expertise in inland capture fisheries and its willingness to collaboratively work with FAO/APFIC and other regional organizations and partners to address the issue of improving the valuation of the contribution of inland capture fisheries in the region. MRC-FP also informed the Commission of its major regional events planned in 2012.

### **Network of Aquaculture Centres in Asia-Pacific (NACA)**

148. NACA is dedicated to the promotion of responsible and sustainable aquaculture and recognizes the importance of the APFIC Session in identifying and prioritizing fisheries and aquaculture issues of relevance to member countries in the Asia-Pacific region. Most of the NACA member governments are represented in the APFIC and the outcomes of the APFIC Sessions on aquaculture issues are therefore highly relevant for NACA work programmes and priority setting. NACA, as an established regional institutional arrangement for technical and economic cooperation in the Asian region, is committed to supporting the recommendations arising from the Thirty-second Session of APFIC. The key recommendations of the Thirty-second Session of APFIC on aquaculture are very much in line with the NACA mission and current work programmes. NACA will endeavour to enhance cooperation and collaboration with national governments, regional and international organizations and develop and implement suitable regional projects and programmes to address some of the key recommendations.

### **Regional plan of action (RPOA) to promote responsible fishing practices including combating illegal, unreported and unregulated (IUU) fishing in the Southeast Asia region**

149. The RPOA Coordination Committee last met in Cambodia in November 2011 where the 2012 work plan was agreed. The work plan continues the RPOA's focus on (i) strengthening legal, administrative and policy frameworks, and (ii) introducing measures to enhance regional cooperation with respect to Port State Measures and combating IUU fishing. Signatory countries continue to deny port access, other than for emergency purposes, to vessels on the IUU vessel lists of regional fisheries bodies. Action against IUU listed vessels is coordinated through the RPOA Secretariat and the RPOA Regional MCS Network. The next (Fifth) meeting of the RPOA Coordination Committee will be held in Singapore on 20-21 November 2012.

### **Southeast Asian Fisheries Development Center (SEAFDEC)**

150. The Secretary-General of SEAFDEC, Dr Chumnarn Pongsri, expressed his gratitude for the invitation extended to SEAFDEC, and for the close linkages between activities of SEAFDEC and APFIC during the past years. He described the priority areas of the Southeast Asian region,

particularly improving governance of sustainable fisheries through strengthening initiatives to combat IUU fishing and co-management, enhancing the collection and usage of data and information for science-based fisheries management, and application of EAF. SEAFDEC is also undertaking activities related to the development of aquaculture technologies, with particular emphasis on enhancing the contribution from aquaculture to rural development, fishmeal substitutions, and aquaculture of species of international concern. To enhance catch utilization, initiatives will be strengthened to improve on-board handling technologies for small fishing vessels, and reducing bycatch from trawl fisheries through initiatives under the *Strategies for trawl fisheries bycatch management* (REBYC-II CTI) project. With respect to climate change, the region will continue to promote responsible and good practices for capture fisheries and aquaculture, as well as habitat/resources enhancement to mitigate the possible impacts of climate change, enhance the resilience of fishers/farmers, and minimize the contribution from fishery-related activities to climate change. He then encouraged APFIC as well as other organizations to explore ways and means to support ASEAN member countries in the implementation of the *Resolution and plan of action on sustainable fisheries for food security for the ASEAN region towards 2020*, endorsed by the ASEAN-SEAFDEC ministers and senior officials during the ASEAN-SEAFDEC Conference in June 2011. Dr Chumnarn also stated that he looked forward to closer cooperation between APFIC and SEAFDEC in the future.

### **WorldFish Center**

151. The WorldFish statement informed the Commission of the adoption of the Consultative Group on International Agricultural Research (CGIAR) Strategy and Results Framework in 2009 commitment, particularly towards reducing poverty and sustainably increasing food and nutrition security. The Center is leading the CGIAR Research Program (CRP 1.3) on aquatic agriculture systems (AAS) and plans are underway to roll out the Program in Bangladesh, Cambodia and the Philippines by 2013. The WorldFish Center has collaborated with FAO in the past to raise awareness of the importance of small-scale fisheries via the Big Numbers Project. They are also involved with the Coral Triangle Initiative (CTI) particularly the *Coastal and Marine Resource Management in Coral Triangle: Southeast Asia*. The Center anticipates collaboration with the FAO/APFIC activities related to the development of EAFM training modules that could be rolled out in the aforementioned activities in the Philippines and Malaysia. WorldFish is also continuing its engagement with and participation in the RPOA IUU Fishing Coordination Committee, as a member of the advisory committee. Finally, noting the FAO/GEF REBYC-II CTI project being executed by SEAFDEC, WorldFish would be interested to build on the Trawl Base Project and share their experience especially on data analysis of trash fish and low-value fish as well as in the design of interventions to pursue the sustainable use of fisheries resources and healthier marine ecosystems.

### **OTHER MATTERS**

152. FAO informed the Commission of the development of a concept note for a regional GEF international waters project *Implementing the strategic programme for the South China Sea region – sustainable fisheries and mariculture*.

153. The Commission members noted the project components and noted the importance and timeliness of a project with the objectives and components outlined in the concept note. The Commission also agreed that this project concept met many of the regional outcomes identified by the Commission and the Fourth RCFM, and was timely in responding to these challenges.

154. The Commission agreed that this concept should be pursued and followed-up with the relevant member countries and regional organizations.

## **ELECTION OF OFFICERS**

155. India was elected chair country of the Commission for the coming biennium, subject to confirmation by the Ministry of Agriculture, Government of India.

156. Sri Lanka was elected as vice-chair country of the Commission and thanked the commission for the members' confidence.

157. Philippines and Thailand were elected to serve as members of the Executive Committee, in addition to the new chair country, the vice-chair country and the outgoing chair country, Viet Nam.

## **DATE AND PLACE OF THE THIRTY-THIRD SESSION OF APFIC**

158. India thanked the Commission for entrusting this responsibility to India and informed the Commission that the date and place of the Seventy-fourth Executive Committee Meeting and the Thirty-third Session of APFIC would be set following ministerial confirmation. The Fifth RCFM will be held in conjunction with the Thirty-third Session at the same venue.

159. The Commission agreed that the APFIC Secretariat would coordinate with the chair country over the arrangements for the date and venue of the next meetings of APFIC and inform the member countries as soon as possible.

160. The chairperson of APFIC concluded by expressing his appreciation for the active participation of the delegates and declared the Thirty-second Session of APFIC closed.

## **ADOPTION OF THE REPORT**

161. In adopting the Session report, the Commission unanimously agreed to record its deep appreciation to the Government of Viet Nam for the generous hospitality accorded to the Commission and the excellent organization and arrangements.

162. The report of the Session was adopted on 22 September 2012.

## **APPENDIX A – AGENDA**

1. Opening ceremony
2. Adoption of the agenda and arrangements for the Session
3. Inter-sessional activities of APFIC
4. Report of the Seventy-third Executive Committee Meeting
5. Regional overview of fisheries and aquaculture in Asia and the Pacific region 2012
6. Summary overview report of the outcomes of the Fourth APFIC RCFM
7. Country responses to previous APFIC recommendations
8. Assessment of fisheries and aquaculture to improve management
9. Report of the Bay of Bengal LME RFMAC to the APFIC Session
10. Regional opportunities and needs for adaptation to and mitigation of climate change in fisheries and aquaculture
11. Responses to the APFIC pilot questionnaire on responsible fisheries and aquaculture
12. Emerging issues in fisheries and aquaculture
13. APFIC Strategic Plan 2012–2018
14. APFIC’s work for biennium 2013-2014
15. Statements from regional organizations and partners (regional priorities/issues)
16. Other matters
17. Election of officers
18. Date and place of Thirty-third Session  
Review the report of the Session  
Adoption of report  
Closing of the Session

## APPENDIX B – LIST OF PARTICIPANTS AND OBSERVERS

### Australia

RAMESH PERERA

Director, Aquatic Animal Section  
Animal Biosecurity  
Department of Agriculture, Fisheries and Forestry  
Australian Government  
G.P.O. Box 858  
Canberra ACT 2601, Australia

Tel: (+61) 2 62724675  
Fax: (+61) 2 62723399  
E-mail: ramesh.perera@daff.gov.au

### Bangladesh

### Cambodia

ING TRY

Deputy Director-General  
Fisheries Administration  
186 Preah Norodom Blvd.  
Sangkat Tonle Bassac  
Khan Chamcarmon  
P.O. Box 582  
Phnom Penh, Cambodia

Tel: (+855) 23 219256  
Fax: (+855) 23 219256  
E-mail: ingtry@ymail.com  
tmmp.cam@online.com.kh

### China

### France

### India

R. PAUL RAJ

Member Secretary  
Coastal Aquaculture Authority  
Shastri Bhawan Annexe  
26 Haddows Road  
Chennai 600 006  
Tamil Nadu, India

Tel: (+91) 44 28234683  
Fax: (+91) 44 28250956, 28216552  
E-mail: rpaulraj52@hotmail.com

### Indonesia

ELVI WIJAYANTI (MS)

Deputy Director for Multilateral Cooperation  
Center for International Marine and  
Fisheries Cooperation  
Ministry of Marine Affairs and Fisheries  
Jl. Medan Merdeka Timur No. 16  
Jakarta 10110, Indonesia

Tel: (+62) 21 3519070 Ext. 7155  
Fax: (+62) 21 3864293, 3513308  
E-mail: multilateralmmaf@yahoo.co.id  
elviwijayanti@yahoo.com

SHAHANDRA HANITIYO  
Assistant Deputy Director for United Nations  
Cooperation  
Center for International Marine and  
Fisheries Cooperation  
Ministry of Marine Affairs and Fisheries  
Jl. Medan Merdeka Timur No. 16  
Jakarta 10110, Indonesia

Tel: (+62) 21 3519070 Ext. 7155  
Mobile: (+62) 813 87201772  
Fax: (+62) 21 3864293  
E-mail: shahandrahانيتيyo@yahoo.com

YULIADI KADARMO  
Staff of Multilateral Cooperation Division  
Center for International Marine and  
Fisheries Cooperation  
Ministry of Marine Affairs and Fisheries  
Jl. Medan Merdeka Timur No. 16  
Jakarta 10110, Indonesia

Tel: (+62) 21 3519070 Ext. 7155  
Fax: (+62) 21 3864293, 3513308  
E-mail: multilateralmmaf@yahoo.co.id

## Japan

### Republic of Korea

MIL GA SUH (MS)  
Assistant Director  
International Fisheries Organization Division  
Ministry for Food, Agriculture, Forestry and  
Fisheries (MIFAFF)  
47 Gwanmun-Ro, Gwacheon-si  
Gyeonggi-do, Republic of Korea

Tel: (+82) 2 5002413  
Fax: (+82) 2 5039174  
E-mail: smg1335@korea.kr

DEUKHOON PETER HAN  
Senior Researcher  
Korea Maritime Institute (KMI)  
1652 KBS Media Center  
Sangam-Dong, Mapo-Gu  
Seoul, Republic of Korea

Tel: (+82) 2 21054957  
Fax: (+82) 2 21052859  
E-mail: bansock@kmi.ke.kr  
bansock@gmail.com

### Malaysia

HJ MUNIR BIN HJ MOHD NAWI  
Head, Marine Aquaculture Section  
Aquaculture Development Division  
Department of Fisheries Malaysia  
Level 1, Podium 2, 4G2  
Wisma Tani, Precinct 4  
62628 Putrajaya, Malaysia

Tel: (+60) 3 88704618  
Fax: (+60) 3 88891794  
E-mail: munir@dof.gov.my

ROHANI BINTI MOHD ROSE (MS)  
Head, Sectoral Planning Section  
Planning and International Division  
Department of Fisheries Malaysia  
Level 2, Main Block, 4G2  
Wisma Tani, Precinct 4  
62628 Putrajaya, Malaysia

Tel: (+60) 3 88704211  
Fax: (+60) 3 88891195  
E-mail: rohanimr@dof.gov.my

## **Myanmar**

SAW LAH PAW WAH

Assistant Director

Department of Fisheries

Ministry of Livestock and Fisheries

Nay Pyi Taw, Myanmar

Tel: (+95) 067 408059

Fax: (+95) 067 408048

E-mail: sawlahpaw@gmail.com

## **Nepal**

RAJENDRA KUMAR K.C.

Programme Director

Directorate of Fisheries Development

Department of Agriculture

Ministry of Agriculture Development

Central Fisheries Building, Balaju

Kathmandu, Nepal

Tel: (+977) 1 4350833

Fax: (+977) 1 4350833

E-mail: rajendrkc07@yahoo.com

## **New Zealand**

### **Pakistan**

GHULAM MUJTABA WADAHAR

Director Fisheries Sindh (Inland)

Livestock and Fisheries Department

Government of Sindh

Directorate of Fisheries Sindh Inland

Thandi Sarak Hyderabad

Sindh, Pakistan

Tel: (+92) 22 9200054, 9201096

Fax: (+92) 22 9200042

E-mail: sindhfisheries\_inland@yahoo.com

### **Philippines**

ASIS G. PEREZ

Director

Bureau of Fisheries and Aquatic Resources

PCA Building, Elliptical Road, Diliman

Quezon City 1101, Philippines

Tel: (+63) 2 9299597

Fax: (+63) 2 9298074

E-mail: aperez@bfar.da.gov.ph

ROSARIO SEGUNDINA GAERLAN (MS)

Officer in Charge

Office of the Assistant Regional Director and

Agricultural Center Chief

Bureau of Fisheries and Aquatic Resources,

Regional Office 1

Government Center, Sevilla

City of San Fernando, 2500

La Union, Philippines

Tel: (+63) 920 9105341

Fax: (+63) 072 2421559

E-mail: rosariosegundinagaerlan@yahoo.com

JESSICA MUNOZ (MS)  
National Project Director – RFLP Philippines  
Supervising Aquaculturist  
Bureau of Fisheries and Aquatic Resources  
Department of Agriculture  
PCA Building, Elliptical Road, Diliman  
Quezon City 1101, Philippines

Tel: (+63) 2 4533299  
Fax: (+63) 2 4533299  
E-mail: trisha975@yahoo.com

### **Sri Lanka**

DAMITHA DE ZOYSA (MS)  
Secretary  
Ministry of Fisheries and Aquatic Resources  
Development  
New Secretariat  
Maligawatta  
Colombo 10, Sri Lanka

Tel: (+94) 11 2327060  
Fax: (+94) 11 2541184  
E-mail: secfisherieslk@gmail.com

C.T.D. DADIGAMUWAGE (MS)  
Research Officer  
Marine Biological Resources Division  
National Aquatic Resources Research and  
Development Agency (NARA)  
Crow Island, Colombo 15, Sri Lanka

Tel: (+94) 718 438341  
Fax: (+94) 112 521932  
E-mail: chami\_dt@yahoo.com

### **Thailand**

SMITH THUMMACHUA  
Chief, Overseas Fisheries Management and  
Economic Cooperation Group  
Fisheries Foreign Affairs Division  
Department of Fisheries  
Kaset Klang, Chatuchak  
Bangkok 10900, Thailand

Tel: (+66) 2 5797947, 5796216  
Fax: (+66) 2 5797947  
E-mail: smiththummachua@gmail.com  
thuma98105@yahoo.com

CHUANPID CHANTARAWARATHIT (MS)  
Chief, International Cooperation Group  
Fisheries Foreign Affairs Division  
Department of Fisheries  
Kaset Klang, Chatuchak  
Bangkok 10900, Thailand

Tel: (+66) 2 5798214  
Fax: (+66) 2 5620529  
E-mail: ch\_chuanpid@yahoo.com

### **Timor-Leste**

ACACIO GUTERRES  
Senior Officer  
Fishing Industry Development Department  
National Directorate of Fisheries and Aquaculture  
Ministry of Agriculture, Aquaculture and Fisheries  
5 Presidente Nicolau Lobato Street  
Dili, Timor-Leste

Tel: (+670) 3331250  
Mobile: (+670) 7233280  
E-mail: accguterres@yahoo.com

## **United Kingdom**

## **United States of America**

**MICHAEL ABBEY**

Office of International Affairs (F/IA)  
National Marine Fisheries Service  
National Oceanic and Atmospheric Administration  
(NOAA)  
1315 East-west Highway, Room 12659  
Silver Spring, Maryland 20910, USA

Tel: (+1) 301 9389544  
E-mail: michael.abbey@noaa.gov

## **Viet Nam**

**NGUYEN VIET MANH**

Director  
Department of Science, Technology and  
International Cooperation  
Fisheries Administration  
Ministry of Agriculture and Rural Development  
10 Nguyen Cong Hoan  
Hanoi, Viet Nam

Tel: (+84) 903458885  
Fax: (+84) 4 37245120  
E-mail: manhvn.htqt@mard.gov.vn

**NGUYEN THI TRANG NHUNG (MS)**

Deputy Director  
Department of Science, Technology and  
International Cooperation  
Fisheries Administration  
Ministry of Agriculture and Rural Development  
10 Nguyen Cong Hoan,  
Hanoi, Viet Nam

Tel: (+84) 4 37245374  
Fax: (+84) 4 37245120, 37245374  
E-mail: trangnhung73@yahoo.com

**PHAM HUNG**

Staff, Department of Capture Fisheries and  
Resources Protection  
Fisheries Administration  
Ministry of Agriculture and Rural Development  
10 Nguyen Cong Hoan  
Hanoi, Viet Nam

Tel: (+84) 983804039  
E-mail: hungfam83@gmail.com

**LE TRUNG KIEN**

Deputy Chief of Cabinet  
Fisheries Administration  
Ministry of Agriculture and Rural Development  
10 Nguyen Cong Hoan  
Hanoi, Viet Nam

E-mail: ltkien@mard.gov.vn

**DOAN MANH CUONG**

Officer, International Cooperation Department  
Ministry of Agriculture and Rural Development  
2 Ngoc Ha, Ba Dinh  
Hanoi, Viet Nam

E-mail: doanmanhcuong@gmail.com

## **OBSERVERS FROM INTER-GOVERNMENTAL ORGANIZATIONS/NGO/PROJECTS**

### **Bay of Bengal Large Marine Ecosystem (BOBLME) Project**

CHRIS O'BRIEN

Regional Coordinator

Bay of Bengal Large Marine Ecosystem (BOBLME)  
Project

Andaman Sea Fisheries Research Development  
Center

77 Moo 7 Sakdidej Road

Makham Bay, T. Vichit, A. Mueang

Phuket 83000, Thailand

Tel: (+66) 76 391861

Fax: (+66) 76 391864

E-mail: [chris.obrien@boblme.org](mailto:chris.obrien@boblme.org)

HUSSAIN SINAN

Director

Ministry of Fisheries and Agriculture

Chair of the BOBLME Regional Fisheries

Management Advisory Committee

Velaaanage

P.O. Box 20096

Male, Maldives

Tel: (+960) 3322625

Fax: (+960) 3321168

E-mail: [Hussain.sinan@fishagri.gov.mv](mailto:Hussain.sinan@fishagri.gov.mv)

### **FAO Committee on Fisheries (COFI), Chairman**

JOHAN WILLIAMS

Specialist Director

Royal Norwegian Ministry of Fisheries and  
Coastal Affairs

P.O. Box 8118 Dep.

N-0032 Oslo, Norway

Tel: (+47) 90024446

Fax: (+47) 22242667

E-mail: [jhw@fkd.dep.no](mailto:jhw@fkd.dep.no)

### **Intergovernmental Organization for Marketing Information and Technical Advisory Services for Fishery Products in Asia and the Pacific Region (INFOFISH)**

SUDARI PAWIRO

Trade Promotion Officer

INFOFISH

P.O. Box 10899

50728 Kuala Lumpur, Malaysia

E-mail: [info@infofish.org](mailto:info@infofish.org)

[infofish@po.jaring.my](mailto:infofish@po.jaring.my)

Website: [www.infofish.org](http://www.infofish.org)

### **International Collective in Support of Fishworkers (ICSF)**

NALINI NAYAK (MS)

International Collective in Support of Fishworkers

27 College Road

Chennai 600 006

Tamil Nadu, India

Tel: (+91) 44 28275303

Mobile: (+91) 098 95077961

Fax: (+91) 44 28254457

E-mail: [nalini.nayak@gmail.com](mailto:nalini.nayak@gmail.com)

## **Mekong River Commission (MRC)**

SO NAM

Fisheries Programme Coordinator  
Mekong River Commission Secretariat  
P.O. Box 623, National Road #2  
Sangkat Chak Angre Krom, Khan Meanchey  
Phnom Penh, Cambodia

Tel: (+855) 23 425353 Ext. 3059  
Fax: (+855) 23 425363  
E-mail: sonam@mrcmekong.org

## **Network of Aquaculture Centres in Asia-Pacific (NACA)**

MOHAN CHADAG

Research and Development Program Manager  
Network of Aquaculture Centres in Asia-Pacific  
P.O. Box 1040, Kasetsart Post Office  
Bangkok 10903, Thailand

Tel: (+66) 2 5611728  
Fax: (+66) 2 5611727  
E-mail: mohan@enaca.org

## **Southeast Asian Fisheries Development Center (SEAFDEC)**

CHUMNARN PONGSRI

Secretary-General  
SEAFDEC Secretariat  
P.O. Box 1046, Kasetsart Post Office  
Bangkok 10903, Thailand

Tel: (+66) 2 9405682  
Fax: (+66) 2 9406336  
E-mail: sg@seafdec.org

NUALANONG TONGDEE (MS)

Information Program Coordinator  
SEAFDEC Secretariat  
P.O. Box 1046, Kasetsart Post Office  
Bangkok 10903, Thailand

Tel: (+66) 2 9406326  
Fax: (+66) 2 9406336  
E-mail: nual@seafdec.org  
nualanong@gmail.com

## **USAID Regional Development Mission Asia (USAID/RDMA)**

RENERIO ACOSTA

Regional Environment Program Specialist,  
Regional Environment Office  
USAID/Regional Development Mission Asia  
Athenee Tower, 25<sup>th</sup> Floor  
63 Wireless Road, Lumpini, Pathumwan  
Bangkok 10330, Thailand

Tel: (+66) 2 2573285, 81 9021850  
Fax: (+66) 2 2573099  
E-mail: racosta@usaid.gov

## **WorldFish Center**

LEN GARCES

Research Fellow  
The WorldFish Center  
Philippine Country Office  
c/o SEMEO-SEARCA College  
Los Banos 4031 Laguna, Philippines

Tel: (+63) 49 5360202, 5369246  
Fax: (+63) 49 5360202  
E-mail: l.garces@cgiar.org

## **FAO FISHERIES AND AQUACULTURE DEPARTMENT**

(Viale delle Terme di Caracalla, 00100 Rome, Italy)

YE YIMIN  
Senior Fishery Resources Officer

Tel: (+39) 6 57054592  
Fax: (+39) 6 57052020  
E-mail: yimin.ye@fao.org

## **FAO REPRESENTATION IN VIET NAM**

(3 Rue Nguyen Gia, Thiev, Hanoi, Viet Nam)

YURIKO SHOJI  
FAO Representative in Viet Nam

Tel: (+84) 4 9424649  
E-mail: yuriko.shoji@fao.org

## **FAO REGIONAL OFFICE FOR ASIA AND THE PACIFIC**

(39 Phra Athit Road, Bangkok, Thailand)

SIMON FUNGE-SMITH  
Senior Fishery Officer and Secretary of APFIC

Tel: (+66) 2 6974149  
Fax: (+66) 2 6974445  
E-mail: simon.fungesmith@fao.org

WEIMIN MIAO  
Aquaculture Officer

Tel: (+66) 2 6974119  
Fax: (+66) 2 6974445  
E-mail: weimin.miao@fao.org

ROBERT LEE  
Fishery Industry Officer

Tel: (+66) 2 6974146  
Fax: (+66) 2 6974445  
E-mail: robert.lee@fao.org

ENRIQUE ALONSO POBLACION  
RFLP Timor Advisor, GCP/RAS/237/SPA  
c/o Ministry of Agriculture and Fisheries  
Rua Avenida Presidente, Nicolau Lobato  
No. 5 Comoro, Dili, Timor-Leste

Tel: (+670) 77765033  
E-mail: enrique.alonsopoblacion@fao.org

ANGELA LENTISCO (MS)  
Consultant

E-mail: angela.lentisco@fao.org

KESARA AOTARAYAKUL (MS)  
Secretary

Tel: (+66) 2 6974176  
E-mail: kesara.aotarayakul@fao.org

## **MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT**

**Fisheries Administration, Department of Science, Technology and International Cooperation**

(10 Nguyen Cong Hoan, Hanoi, Viet Nam)

NGUYEN THI HONG NHUNG (MS)  
Tel: (+84) 915 977227  
E-mail: nhung.doa@gmail.com

NGUYEN THI KIM TU (MS)  
E-mail: kimtu08@gmail.com

TRAN THANH DUONG  
E-mail: duong.maji@gmail.com

LE TUAN ANH  
E-mail: anhlt.ntts@mard.gov.vn

## APPENDIX C – OPENING STATEMENTS

Welcome remarks  
by  
Mr Vo Duy Khuong  
Vice-Chairman of Da Nang Provincial People Committee

Distinguished Mr Johan Williams, COFI Chairman,  
Distinguished Mr Simon Funge-Smith, Secretary of Asia-Pacific Fishery Commission,  
Mme Yuriko Shoji, FAO Representative in Viet Nam,  
Mme Damitha De Zoysa, Secretary, Ministry of Fisheries and Aquatic Resources, Sri Lanka,  
Distinguished Mr Chumnarn Pongsri, Secretary-General Southeast Asian Fisheries Development Center,  
Distinguished Guests, Participants, Ladies and Gentlemen,

Good morning!

It is great honour for Da Nang city to be selected as the venue for the APFIC Thirty-second Session. On behalf of the leader of the Da Nang People Committee, I would like to express our sincere thanks to APFIC and the Ministry of Agriculture and Rural Development of Viet Nam for selecting Da Nang to organize this important event.

Distinguished Guests, Ladies and Gentlemen,

The fisheries sector in Viet Nam in general and in Da Nang in particular has a long history, and is a significant source of employment and livelihoods for the people of the country/province. It is also an important export industry. Viet Nam has a coastline of over 3 200 km, an exclusive economic zone (EEZ) of over 1 million square km, 112 rivers running into the sea, two archipelagos, many islands, lagoons and watersheds, which form favourable habitats for aquatic resources. With such favourable conditions, a tropical monsoon climate and very significant attention from the central and local governments, the fisheries sector has made a remarkable contribution to the country's socio-economic development.

The coast of the city of Da Nang is 92 km long, with two estuaries of the Han and the Cu De rivers, forming good potential for the development of fisheries and aquaculture, seafood processing and services, not only for the city but also for the whole of central Viet Nam. The waters in Nam Hai Van and Son Tra peninsulas have highly biodiverse ecosystems of coral reefs, sea grass and seaweed, snappers, etc., which are important for maintaining the marine ecosystems and extremely valuable for marine ecotourism.

At present, the city has thousands of fishing boats and a system of fishery logistics from fishing ports, fish landings and other services, serving not only Da Nang but also the whole of central Viet Nam. However, because of its geographical location, Da Nang is also prone to typhoons and floods, causing numerous hardships, including severe damage to the fisheries sector. The city authority is strongly committed to assisting fishermen and farmers to protect their lives and means of production, to ensure sustainable fisheries development.

APFIC with 21 member countries, and a subsidiary of the FAO, is an intergovernmental advisory organization in fisheries with crucial roles to play in raising awareness of the importance of the

fisheries sector and working towards the advancement of and collaboration in capture fisheries and aquaculture in the Asia-Pacific region. We acknowledge that there is a real need for information on the status and trends of the fisheries and aquaculture in the Asia-Pacific region, with a view to developing solutions, standards for resource assessment, climate change adaptation and mitigation and improving the livelihoods of fishers' communities. We also acknowledge that the recommendations and solutions in this Thirty-second APFIC Session should be used for decision-making and planning in fisheries and aquaculture in the Asia-Pacific region in the future.

I do hope that you will all gain a positive impression of our dynamic and sunny city of Da Nang, as well as of the whole country of Viet Nam. It is our strong hope that this APFIC Session will come up with practical and effective solutions that can help to improve the sustainable management of fisheries in the Asia-Pacific region, and that Viet Nam and the city of Da Nang can implement these to develop further our fisheries sector.

Once again, on behalf of the city authority, managers and fisheries of Da Nang, I would like to wish you all good health, happiness and considerable success in your deliberations.

Thank you very much!

Opening remarks  
by  
Mr Simon Funge-Smith  
Secretary, Asia-Pacific Fishery Commission

Honourable Vo Duy Khuong, Deputy Chairman, Peoples Committee of Da Nang,  
Mr Nguyen Huy Dien, Deputy Director-General, Fisheries Administration,  
Mr Nguyen Viet Manh, APFIC Chairman, Ministry of Agriculture and Rural Development,  
Mme Yuriko Shoji, FAO Representative in Viet Nam,  
Distinguished delegates of APFIC member countries,  
And representatives of observer organizations,  
Ladies and Gentlemen

On behalf of Mr Hiroyuki Konuma, Assistant Director-General and Regional Representative for Asia and the Pacific, FAO Regional Office for Asia and the Pacific, Bangkok, Thailand, I welcome you all to the Thirty-second Session of the Asia-Pacific Fishery Commission (APFIC) to be convened here in Da Nang, Viet Nam, from 20 to 22 September 2012.

This Session of the Asia-Pacific Fishery Commission is being convened immediately following the successful conclusion of the Fourth APFIC Regional Consultative Forum Meeting. This Fourth Forum Meeting has developed a vision for aquaculture and fisheries that will serve as a basis for guiding our strategic planning and priorities for the coming five to ten years. The strategic outcomes identified are built around a number of key challenges facing marine and inland capture fisheries and aquaculture that are facing APFIC member countries in the Asian region.

During the coming Session, the Commission will be considering and discussing a number of key regional issues which have been covered under the Commission's biennial workplan. The Commission will further deliberate working papers that review the current policy issues and development facing the fishery and aquaculture sectors.

Member countries will also be informing the Commission of the important work and developments that they have achieved in response to the previous recommendations of the Commission and particularly how this relates to implementation of the FAO Code of Conduct. The Commission will also cover a number of aspects related to how the Commission is operating and review the biennial plan of work and the six-year strategic plan of the Commission.

The programme is very full and I thank all the delegates who have taken their valuable time to participate in this important biennial event of the Commission. We have much to discuss and I look forward to a productive Session, which will further guide the Commission in ensuring that it continues to act as a regionally-owned body that advocates and raises awareness of the fishery and aquaculture sectors, within the Asian region and in conjunction with other global mechanisms.

This role of APFIC is of increasing importance as the FAO Asia-Pacific Regional Conference now recognizes the recommendations of the Session of APFIC as regional priorities for the fishery and aquaculture sectors in the region. In concluding these short remarks, I would like to take this opportunity to thank all those who have contributed to the organization of this Thirty-second Session of APFIC. In particular, I would like to thank Viet Nam and the Chairman of

APFIC and his team for kindly hosting this meeting and for the excellent arrangements we have enjoyed here in Da Nang. I would also like to thank Mr Vo Duy Khuong, Mr Nguyen Huy Dien, and Mme Yuriko Shoji, FAO Representative for honouring us with their presence at this opening ceremony.

I wish you well in your deliberations during the coming three days and look forward to the recommendations that will emerge from them.

Opening speech  
by  
Mr Nguyen Huy Dien  
Deputy Director General, Fisheries Administration

Distinguished Mr Vo Duy Khuong, Vice-Chairman of Da Nang People's Committee,  
Distinguished Mr Johan Williams, COFI Chairman,  
Distinguished Mr Simon Funge-Smith, Secretary of Asia-Pacific Fishery Commission,  
Mme Damitha De Zoysa, Secretary, Ministry of Fisheries and Aquatic Resources, Sri Lanka,  
Distinguished Mr Chumnarn Pongsri, Secretary-General Southeast Asian Fisheries Development Center,  
Distinguished Guests, Participants,  
Ladies and Gentlemen, Good morning!

First of all, I would like to express my warmest welcome to all delegates from APFIC member countries, representatives from international organizations such as BOBLME, BOBP-IGO, FAO COFI, ICSF, INFOFISH, MRC, NACA, RPOA, SEAFDEC, USAID/RDMA, WorldFish, World Bank to participate in the APFIC Thirty-second Session which will take place from 20 to 22 September in Da Nang City. On behalf of the Vietnamese fisheries sector I also would like to express our sincere thanks to all participants for arranging your valuable time to attend this important biennial meeting.

I have greatly appreciated the active discussions during the Consultative Forum over the last three days as well as the outputs that were achieved, especially the practical assessment tools for strengthening fisheries management, the risk based approach to multispecies management, and the ecosystem approach to fisheries management. The Consultative Forum has provided good opportunities for participants from APFIC member countries and international organizations involved in fisheries to share success stories in fisheries management. These outputs will make valuable contributions to our discussions and the recommendations that we will adopt during the three working days of the Session.

Distinguished Guests, Ladies and Gentlemen,

Over the last biennium, since the APFIC Thirty-first Session, our region has shared the common concerns of implementing the ecosystem approach to fisheries and aquaculture, combatting IUU fishing, Port State Measures and many other important emerging fisheries issues, however with respect to small-scale fisheries, open access and risk assessment for multispecies and in the context of climate change, we are facing many challenges. It is therefore necessary that the region should be able to implement and scale-up innovative successful programmes and best practices that combine sustainable fisheries and aquaculture, through local, regional, subregional and national programmes and institutions as a matter of priority. It is also necessary to gain enhanced support from regional and international organizations in order to support APFIC member countries to address the goals of sustainable fisheries development.

In this connection, I hope strongly that the APFIC Thirty-second Session taking place this time in Viet Nam will create a foundation for the next biennium for APFIC member countries to improve governance and management of fisheries and aquaculture and reaffirm a regional commitment to the sustainable development of fisheries. I also hope that the APFIC strategic plan for the period 2012–2018 will be adopted at this Session, which will make a significant contribution to strengthening the role of APFIC in fisheries development and management.

To close my speech I would like to stress that the commitment to sustainable fisheries development and management has been achieved at the highest levels: nationally, regionally and internationally, and we need to translate our words and commitments into actions that cannot be done alone, but only through effective partnerships.

I would like to declare the opening of the APFIC Thirty-second Session.

I hope that all our guests and participants will have fruitful working days and happy times in Da Nang City, Viet Nam and I wish us all great success for our Thirty-second Session.

Thank you very much for your attention.

## APPENDIX D – LIST OF DOCUMENTS

### A. Working documents

APFIC/12/01	Provisional agenda and timetable
APFIC/12/02	Inter-sessional activities of APFIC
APFIC/12/02 Add.1	Detailed list of APFIC Inter-sessional activities
APFIC/12/03	Recommendations of the APFIC executive committee
APFIC/12/04	Regional overview of fisheries and aquaculture in Asia and the Pacific region 2012
APFIC/12/05	Summary overview report of the outcomes of the Fourth APFIC Regional Consultative Forum Meeting
APFIC/12/06	Country responses to previous APFIC recommendations
APFIC/12/07	Assessment of fisheries and aquaculture to improve management
APFIC/12/08	Report of the Bay of Bengal LME RFMAC to APFIC Session
APFIC/12/09	Regional opportunities and needs for adaptation to and mitigation of climate change in fisheries and aquaculture
APFIC/12/10	Responses to the APFIC pilot questionnaire on responsible fisheries and aquaculture
APFIC/12/11	Emerging issues in fisheries and aquaculture
APFIC/12/12	APFIC Strategic Plan 2012–2018
APFIC/12/13	APFIC’s work for biennium 2013-2014

### B. Information documents

APFIC/12/INF 01	Provisional list of documents
APFIC/12/INF 02*	Provisional list of participants
APFIC/12/INF 03	Report of the Seventy-third Session of the APFIC Executive Committee, Nha Trang, Viet Nam, 23–25 August 2011
APFIC/12/INF 04	Report on the regional overview of fisheries and aquaculture in Asia and the Pacific region 2012
APFIC/12/INF 05	Summary recommendations of the Fourth APFIC Regional Consultative Forum Meeting
APFIC/12/INF 06	Summary recommendations of the report of APFIC regional consultative workshop on <i>Strengthening assessments of fisheries and aquaculture in the Asia-Pacific region for policy development</i> , Yangon, Myanmar, 4–6 October 2011.
APFIC/12/INF 07	Summary report of FAO/APFIC/NACA regional study/workshop on adoption of aquaculture assessment tools (AATs) for sustainability in the Asia-Pacific region

APFIC/12/INF 08	BOBLME RFMAC advisory note
APFIC/12/INF 09	Summary recommendations of the APFIC regional consultative workshop on <i>Implications of climate change for fisheries and aquaculture: challenges for adaptation and mitigation in the Asia-Pacific region</i> , Kathmandu, Nepal, 24–26 May 2011
APFIC/12/INF 10	Template of the APFIC questionnaire
APFIC/12/INF 11	Report on the policy issues of relevance to fisheries and aquaculture in the Asia-Pacific region
APFIC/12/INF 12	APFIC strategic plan

\* To be distributed at the Session

# APPENDIX E – REGIONAL OVERVIEW OF FISHERIES AND AQUACULTURE

August 2012



منظمة الأغذية  
والزراعة  
للأمم المتحدة

联合国  
粮食及  
农业组织

Food  
and  
Agriculture  
Organization  
of  
the  
United  
Nations

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

Organización  
de las  
Naciones  
Unidas  
para la  
Agricultura  
y la  
Alimentación

## ASIA-PACIFIC FISHERY COMMISSION

### Thirty-second Session

Da Nang, Viet Nam, 20–22 September 2012

## REGIONAL OVERVIEW OF FISHERIES AND AQUACULTURE IN ASIA AND THE PACIFIC REGION

1. The APFIC biennial *Regional overview of fisheries and aquaculture in Asia and the Pacific region 2012* is intended to provide a resource book of summary regional information on fisheries and aquaculture. The capture fisheries review is divided into three subregions, the South China sea, the Bay of Bengal and the Sulu and Sulawesi/Timor and Arafura subregions. The aquaculture overview covers different commodity groupings across the region. The full draft report of the *Regional overview of fisheries and aquaculture in Asia and the Pacific region 2012* is numbered APFIC/12/INF/04.
2. The APFIC *Regional overview of fisheries and aquaculture in Asia and the Pacific region* is an ongoing biennial effort by the Commission to try to collate national sources of data that can go some way to explaining some of these background effects on the fisheries of the region. In doing so, the overview attempts to provide a subregional picture of three key subregions: the South China sea, the Bay of Bengal and the Sulu and Sulawesi Seas/Timor and Arafura Seas. The ultimate goal of this is to organize fisheries relevant information into meaningful geographical, biological and governance units so that the fisheries and their resources can be considered at a level of detail that is not possible using aggregated national catches or the FAO statistical areas.
3. This approach is in line with the recommendation of the Thirtieth APFIC Session to promote ecosystem approaches to management and the recommendation of the Thirty-first Session, which endorsed a review of trends in subregional fishing areas.
4. Presentation of information in this format enables policy issues to be viewed in a broader context and increase the understanding of how they relate to other aspects of fisheries and aquaculture management. It is expected that this review will also encourage APFIC member countries to look deeper into the information and statistics which they collect regularly or occasionally, and try to present them in a more integrated, holistic manner, thereby deepening the analysis and understanding of trends in the region's fisheries and aquaculture.

5. The principal fishery indicators that are covered in the overview are as follows:
- Resource related: catch composition by groupings of species; catch trends; fishing status of species groups; fishmeal production; surimi production.
  - Effort related: CPUE of gears and target species groups; vessel numbers and types.
  - Socio-economic related indicator: employment.
  - Management related: zoning measures; types of management measures; definitions/classifications of small-scale and commercial fisheries; existence of protected areas or fisheries closed seasons/areas.

## **General trends in marine capture fisheries and in the APFIC region**

6. The Asia-Pacific region continues to be the world's largest producer of fish. The capture production of the Asia-Pacific region has exceeded 50 percent of world production since 2006. The Asia-Pacific region's capture production declined slightly from 2004 to 2006, but then it started to increase, with a 3.5 percent rise between 2009 and 2010. Latest FAO figures (2010) for the Asia-Pacific region are 48.7 million tonnes. Global capture fishery production has followed a similar trend over the past decade.

7. Of the top ten producers of capture fish in the world, five states are in Asia and the Pacific region. China is still by far the largest producer in the region (15.7 million tonnes) representing 32 percent of total regional production (slight reduction over the previous biennium), followed by Indonesia (5.4 million tonnes, 11 percent) and India (4.7 million tonnes, 10 percent).

8. Excluding China, capture fishery production from marine waters in the APFIC region recorded its highest catch ever in 2010 with a catch of 32.0 million tonnes (it was 26.5 million tonnes in 2008). Southeast Asian capture production (17.3 million tonnes) has continued to increase and there has been a slower increase in South Asia (7.4 million tonnes). The subregion Other Asia used to be the top contributor to capture fishery production in the region, but capture production has declined there since 1988 and now shows signs of levelling off (6.1 million tonnes).

9. The general trend in global capture fisheries is one of stable capture fishery production with background fluctuations in different fisheries. Asian capture fisheries have generally been stable or increasing over the past decade.

- Capture fishery production in China has been very stable, rising and falling by only 1 or 2 percent over the past decade with a total decadal rise of 4 percent.
- In Southeast Asia, the trend is for consistent slight annual increases of 2 to 4 percent, with a decadal increase of 29 percent.
- In South Asia the changes are more dramatic – increasing and decreasing by 5 to 8 percent, but an overall decadal increase of 28 percent.
- Other Asia is relatively stable with an overall decline of 16 percent over the decade.
- Oceania has had rather large decreases in production over the past five years, but the decadal trend is an increase of 9 percent.

10. The consistent increases in capture fishery production that are being achieved in the South Asian and Southeast Asian subregions of APFIC member countries can be attributed to several

effects. These are the increase in fishing effort, expansion of the geographical range of fishing activities and increasing the overall biomass of the fishery by fishing down effects (i.e. removing larger longer lived species and allowing a higher biomass of shorter lived small fast recruiting species).

11. The expansion of new areas and transshipment of fish between fishing areas complicates trend reporting by area and the determination of the status of stocks in specific localities. This may also lead to the false assumption that there remains significant potential for further expansion of fishing.

### **Issue of reporting species not elsewhere included (nei)**

12. There remains a considerable proportion of the region's capture production that is not identified at the species level but instead is recorded as marine/freshwater fish nei, marine/freshwater molluscs nei and marine/freshwater crustaceans nei.

13. In 2010 the amount of capture production that was reported in Asia and the Pacific region and not identified at species, genus, or family level in these groups reached 15.8 million tonnes (32 percent of the regional total production). This is an increase over the 2008 figure of 30 percent (14.3 million tonnes).

14. The quantity reported in these categories has been consistently about 30 percent for the APFIC region over the past six years. Southeast Asia reports 41.7 percent, South Asia 35.7 and China 32.1 percent their total capture fishery productions as nei. It is notable that China has improved its reporting on individual species.

15. The consistently high reporting of nei marine fish (9.6 million tonnes, 19.7 percent of total regional fishery production) may also reflect a strong trend towards the capture of smaller lower-value species. The percentages of these are high in the assessed catch composition. These small, low-value or trash fish species may not be considered worth reporting in detail as part of catch landings. This hides the effects of overfishing on the capture of juveniles of higher value species.

## **Marine capture fisheries in the South China Sea and Gulf of Thailand subregions**

### *Changes in catch composition and status of species groupings*

16. The production trends of the past ten years do not reveal clear changes in the fishery, as the majority of the impact is presumed to have taken place during the massive expansion of fisheries effort between 1975 and 1985. There have been ecosystem level effects, and the recent data for the past ten years may indicate that the South China Sea area has reached a low level plateau and the large composition shifts of previous decades have now settled down to favour an ecosystem dominated by small species. These lower value species are being utilized variously (surimi, canned fish, fishmeal, aquaculture feeds), but the loss has been in the higher value larger species and thus fishers are increasingly having to work harder to catch a lower value product. In economic terms this is rather inefficient. However, it may also reflect the tendency towards maximizing employment in the fishery at the expense of economic efficiency and product quality in many of the developing countries that comprise this region.

17. In the northern part of the South China Sea there is a trend of decreasing catches of **large demersal species** (37 percent of catch in the 1950s down to 17 percent in the 1970s after which it has been stable). There is also a decline in relative catch of large demersals in Malaysia and the Gulf of Thailand, but it is stable in the Philippines and even increasing in Indonesia (FMA 711). The stocks of **large demersal** species are overfished in all areas and comprise only 2 to 5 percent of the relative catch. The exception is Indonesia FMA 711 where they are fully fished and comprise 14 percent of the relative catch.

18. In the northern part of the South China Sea, the numbers of **large pelagics** and **sharks and rays** have reduced greatly in the catch since the 1970s and have remained at a low level. Conversely, there has been an increased catch of larger pelagic species in the eastern parts of the South China Sea (the Philippines, including areas outside the South China Sea ) and in the Gulf of Thailand and in the southern part of the South China Sea (Indonesia) in the last ten years. **Large pelagic** species are fully fished in Viet Nam and overfished in the Gulf of Thailand. They are generally moderately or underfished on the eastern side of the South China Sea (Philippines, Eastern Malaysia (Sabah and Sarawak) and Indonesia FMA 711).

19. Catches of **shark and rays** have increased in Thailand and Malaysia, and declined in the Philippines and Indonesia (FMA 711). **Sharks and rays**, where reported, are overfished or even depleted (e.g. China).

20. Landings of **small demersal species** have increased in the Gulf of Thailand, Malaysia and in the southern part of the South China Sea (FMA 711, Natuna Sea, Indonesia), whereas catches have declined in the northern part of the South China Sea (China), the Philippines and Viet Nam. **Small demersal** species are also overfished in a majority of the areas, especially the nearshore areas. They are fully fished in the more central part of the South China Sea.

21. **Surimi species** are the **small demersal species** specifically utilized for surimi production. Relative catches of these in the southern part of the South China Sea and Gulf of Thailand, (Indonesia FMA 711, Thailand and Malaysia), where they are specifically targeted have increased. Using a conversion ratio of raw material to surimi of approximately 3.5:1, the total demand for raw material from the South China Sea area could be as high as 1 347 000 tonnes.

22. In the northern part of the South China Sea, **small pelagic species** have increased from 30 to 60 percent of the catch between the 1970s and 2000 onwards and are now mostly stable (Viet Nam, Philippines). In the other parts of the South China Sea, the relative catches of small pelagics have increased (China, Thailand, Indonesia), but have declined in Malaysia. Overall they form 13 to 32 percent of the catch in the subregion. **Small pelagic** species are overfished or fully fished in China, northern Viet Nam and the Gulf of Thailand. They are fully fished in southern Viet Nam and the northern part of the Philippines. In the southern and southeastern parts of the South China Sea they are underfished or moderately fished.

23. Relative catches of **anchovy and sardines** have declined throughout the South China Sea or remain stable (China only). This group comprises only 3 to 6 percent of the catch in China, Malaysia and Indonesia, but significantly more of the catch in Thailand (14 percent) and the Philippines (22 percent). The stocks of **anchovies and sardines** are overfished in the western side of the South China Sea and moderately or underfished in the northern and central Philippines.

24. The relative catch of **low value/trash fish** has declined in Thailand and Indonesia, and increased in China, Viet Nam and Malaysia. This group still makes a large contribution to the total catch in the region (10 to 40 percent). Decline in the relative catch, may be partly explained by greater classification of catch into that destined for human consumption, which has accompanied the massive rise in surimi production in the region. There may also be an effect of the rising costs of trawling reducing overall effort over the past decade. **Low value/trash fish** species are fully fished or overfished where assessed, but there is a lack of data for this component of the catch from several countries. This partly because of the inclusion of the species that comprise this group elsewhere in the small demersal, surimi and anchovy sardine groupings. All the assessed stocks of **surimi species** are overfished in all areas.

25. The relative catch of **squids and cuttlefish** is variable according to the fishery, with no clear trend and they comprise a relatively small percentage of the catch landings, despite reports that they are on the rise (2 to 9 percent). **Squids/cuttlefish** are overfished or fully fished in the northern part of the South China Sea and the Gulf of Thailand. In the southern and eastern parts they are generally moderately fished.

26. In a majority of the areas, the relative catch of **crustaceans** has declined, and they form relatively small part of the catch (3 to 9 percent).

#### *CPUE/catch rates*

27. For a majority of the assessed fisheries (by gear) in the region, the catch per unit effort (CPUE) and catch rates are declining. A majority of the assessed trawl fisheries show declining CPUE or catch trends. Also a majority of the assessed purse seine fisheries showed declining CPUE or catch rates. All net fisheries assessed show declining CPUE or catch rates. Other reported fisheries also show general decline in CPUE. A few fisheries have shown increasing CPUE (e.g. the west coast of Sabah).

#### *Low-value fish/trash fish production*

28. Total production of trash/low-value fish species in the South China Sea subregion is estimated at 1.7 million tonnes. This is significant reduction (nearly 65 percent) over previous estimates and certainly reflects improved reporting of small demersals, anchovies, sardines and small pelagic species. It also perhaps reflects their increased utilization for human food and the increased preservation of this catch. Overall, in the reported fisheries low value trash fish is consistently more than 20 percent of the overall catch and will be a considerably higher percentage for the trawl fisheries (more typically 40 to 60 percent of the catch).

29. The composition of this low value/trash fish catch and the fact that it is now typically used as aquaculture feed, has led to an increasing interest in determining what exactly the impacts of the fishing for this component of the catch are on the wider fishery and ecosystem as a whole. All trawl fisheries will generate a proportion of this sort of low value or trash fish, either because fish are damaged by the trawling action or the species are rather soft and easily damaged or bony and unusable as human food. The important issue to resolve is how to minimize the catch of species that have commercial value.

30. A **recommendation** is that the composition (species) and locations of capture of the low value and trash fish component need to be more clearly elaborated so that the real value and or impact of this catch can be properly assessed. This is important where it is being directed into fishmeal or feeds.

### *Fishmeal production*

31. The total fishmeal production for the South China Sea subregion is estimated to be approximately 576 000 tonnes (assuming IFFO estimate of only 5 000 tonnes for Chinese provinces adjoining the South China Sea area). This is derived largely from the low value/trash fish catch reported, although there are some targeted small pelagic catches that are directed into fishmeal production. This estimate uses a figure of 141 000 tonnes for the Southern Chinese provinces bordering the South China Sea.

32. Production of fishmeal from processing wastes from capture fisheries and aquaculture is considered to be very significant in the region. These are trimmings and processing waste from fish processing converted to fishmeal (from canning, filleting, heading and from shrimp heads/wastes, pangas catfish processing wastes). IFFO estimates that up to ~56 percent of the fishmeal produced in the East Asian region is derived from this source. Globally this figure is only 25 percent.

33. There is an increasing interest in finding small pelagic fisheries which can be certified for fishmeal production in order to enable the production of certified animal feeds (e.g. pet foods and aquaculture feeds). The data on fishmeal production are rather difficult to obtain and typically refer to production by industrial scale producers. A **recommendation** is that the fish species composition of fishmeal is identified according the fishery/area of production.

### *Capture production of surimi species*

34. The production of surimi in the region has increased dramatically over the past decade and has reached more than 321 250 tonnes in the South China Sea subregion. This figure has not been updated over the previous APFIC reported figure. This is a reflection of improved processing techniques and increasing use of species previously regarded as low-value trash fish.

35. The manufacture of surimi, which entails pulverizing fish into a puree, has implications for the identification of the species used and ultimately the source of those fish. Surimi is essentially untraceable, unless the fish used for the surimi have some form of catch documentation and the surimi is produced on a batch basis. This is unlikely in most cases, with multiple sources of fish being used for any batch of surimi. This challenges both food safety and traceability, as well as the potential for mixing IUU catches with legitimate catches.

36. A **recommendation** is that surimi production is reported both in terms of final product and the raw fish equivalent. Sources of fish for surimi should be clearly identified to assist with food safety, traceability and catch documentation.

### *Vessel numbers and employment*

37. Total vessel numbers are over 1.74 million in the South China Sea, with a predominance (86 percent) of small-scale vessels (approximately 1.5 million vessels). This suggests that fishing is largely confined to shallower nearshore coastal fishing. A **recommendation** is that the extent to which effort is confined to this area should be investigated further, as the proportion of catch between the nearshore coastal fleet and other vessels is not clearly reported.

38. The summary figures for employment are 3.73 million people in the South China Sea area. The breakdown of these figures into full- and part-time is variable between countries and figures

are rather inconsistently reported. A **recommendation** is that effort should be made to harmonize the recording of fishing vessel employment to reflect employment in large and small-scale fishing.

#### *Fishery zoning and management measures (including protected areas)*

39. All the countries have zoning of their EEZs, with some having up to four different zones. Closed areas and closed seasons are common in the nearshore zone (Zone 1) of many countries in the region. Gear restriction and licensing, when applied, are used in all different zones. Size limits (e.g. fish length) and quotas are not used by any of the countries the region as a management measure. Closed areas come in many forms of which marine protected areas (MPAs) are the most common. The inclusion of artificial reefs in this overview indicates that this is something that could be tracked further as there are considerable numbers of these being deployed throughout the region. The total area/numbers of these is uncertain and will be updated in later reports if the information becomes available.

### **Marine capture fisheries in the Bay of Bengal and Andaman Sea subregion**

40. The Bay of Bengal and Andaman Sea subregion has seen total catches steadily increasing and there are no signs of the catches levelling off and are they now reaching 6.86 million tonnes. The overall picture for the fisheries of the Bay of Bengal subregion is more diverse than that of the South China Sea. This subregion does not have the extensive area of productive shelf fisheries found in the South China Sea and is more dominated by pelagic resources. These resources are still subject to overfishing and depletion in some areas.

#### *Changes in catch composition and status of species groupings*

41. The trend in catch composition from the assessed fisheries in the Bay of Bengal subregion over the past ten years, differs depending on fishing area. From being composed of large and valuable catch, Bay of Bengal landings have over the last five to ten years increasingly been composed of lower value and smaller fish.

42. The trend for catches of **large demersal** species catches is increasing in the South Asian countries, but decreasing in the western side of the Bay of Bengal. Across the Bay of Bengal, large demersal species comprise 3 to 16 percent of the catch. The stocks of **large demersals** are overfished or fully fished in a majority of the areas. Only in Sri Lanka and northeast India are they moderately fished or underfished.

43. **Small demersal** species have an overall stable or increasing relative catch in the region. Surimi species in the Bay of Bengal area are not generally targeted for surimi production and are thus counted as small demersal species. **Small demersals** are overfished or fully fished on the western side of the Bay of Bengal and in southeast India and nearshore fisheries of Bangladesh. Elsewhere (Maldives, Sri Lanka, northeast India and offshore in Bangladesh) they are moderately or underfished.

44. According to the latest advisory by the **BOBLME Regional Fisheries Management Advisory Committee (BOBLME-RFMAC)**, the regional **hilsa stock is overfished**. Widespread use of small mesh gillnets is leading to a large number of juveniles being caught, especially in riverine areas and this is reducing the parent population for the next generation and contributing to the population decline.

45. The catch of **sharks and rays** is decreasing in most of the fishing areas reported here, however it is increasing in Malaysia. This group comprises between 1 and 4 percent of the catch.
46. The relative catch trends for **large pelagic** species are stable. This group form a relatively large proportion of the catch in Sri Lanka (53 percent) and Maldives (83 percent) as well as in the Indonesian FMA 572 waters (25 percent). Elsewhere in India, Myanmar, Thailand, Malaysia and Indonesia FMA 571 they comprise only 4 to 12 percent of the catch. **Large pelagic** species are fully fished in southeast India, Sri Lanka, Thailand and Malaysia, and they are moderately fished in the Maldives, northeast India and Indonesia.
47. The relative catch trends of **small pelagic** species (including sardines and anchovies) are increasing, comprising 10 to 45 percent of the catch in Sri Lanka, India, Thailand , Malaysia and in Indonesian waters. They are a small part of the catch in the Maldives (mainly baitfish), Bangladesh and Myanmar. **Small pelagic** species are moderately or fully fished in a majority of areas, moving to fully fished (Indonesia, Sri Lanka) or overfished (Thailand, Malaysia). Where reported, **anchovies and sardines** are overfished (Myanmar) or fully fished (Malaysia where catches are declining, Sri Lanka), except in Bangladesh (moderately fished or underfished).
48. The stock status of **Indian Mackerel** (BOBLME-RFMAC advisory) is unknown, but Indian mackerel is a highly productive species and this may protect it to some extent from heavy fishing pressure.
49. **Trash/low value fish** relative catches have declined in the subregion over the course of the assessments. Although the total production of trash/low value fish has risen slightly to about 941 000 tonnes, together with anchovies/sardines, it still makes up between 12 and 47 percent of the total catch in the subregion. The relative catches are stable in Malaysia over the assessment period. Where reported, **low value and trash fish** species are fully fished or overfished in Indonesia, Malaysia and Thailand as well as nearshore areas of Bangladesh. They are moderately fished in Sri Lanka.
50. The stocks of **surimi species** are overfished or fully fished in Indonesia, Malaysia and Thailand. They are moderately or fully fished in Bangladesh. The Maldives does not have a fishery for these species, which are predominantly derived from trawling.
51. **Crustaceans** are considered fully fished in a majority of the assessed fisheries.
52. Squids/cuttlefish form a relatively low proportion of the catch in the Bay of Bengal, ranging between 2 and 6 percent. Crustaceans comprise 6 to 15 percent of the catch and catch trends vary by country. **Squids/cuttlefish** are fully fished in southeast India, but elsewhere moderately fished to underfished. No assessments were made for **shellfish** in this region.
53. **Shellfish** are mostly unreported, but form artisanal fisheries in several countries.
54. **Recommendation:** Routine assessments are required to enable adequate tracking of resources for management decision-making. Such assessments are particularly important to assess ecosystem level changes in relative compositions, shifting trophic levels in response to fishing pressure and to determine appropriate fishing effort/capacity levels in both nearshore and offshore fisheries.

## *CPUE*

55. For a majority of the assessed fisheries (by gear) in the region the catch per unit effort (CPUE) and catch rates are declining. The most significant changes are in the assessed trawl fisheries and show declining CPUE or catch trends. The majority of the assessed purse seine fisheries show declining CPUE or catch rates, other seine-type fisheries are also declining. Maldives tuna fisheries have declined. A few areas have seen CPUE rising, notably for some gears in Indonesia (FMA 571 & 572).

## *Low-value fish/Trash fish production*

56. Total production of trash/low-value fish species in the Bay of Bengal subregion is less than 941 000 tonnes (this figure includes the whole of India, thus the actual Bay of Bengal figure will be less). Overall, in the reported fisheries low value trash fish ranges between 4 and 65 percent, with a more typical range of 14–64 percent. The principal source of this is reported from trawlers.

## *Fishmeal production*

57. The total fishmeal production for the Bay of Bengal subregion is estimated at 152 000 tonnes (production in Malaysia, Indonesia and Thailand is reported under the South China Sea region). This is presumed to be derived largely from the catch above. The subregion produces large quantities of dried fish, which are powdered/pounded to form basic animal feeds or fish feeds or directly as human food and that are not classified as fishmeal. There appears to be interest in some areas (e.g. India) in increasing the utilization of discards (75 000 tonnes) for fishmeal by establishing a collection system at sea. This could start to drive direct targeting and mesh size reductions if a significant onshore market was established. This has been the experience from the South China Sea subregion.

## *Capture production of surimi species*

58. The relative catch of surimi species has increased in all assessed areas and the total production for the subregion is roughly estimated as 75 000 tonnes, requiring approximately 262 500 tonnes of raw material. Many countries in the Bay of Bengal subregion do not produce surimi in significant quantities.

## *Vessel numbers and employment*

59. There are approximately 460 000 vessels operating in the Bay of Bengal, and these are principally (67 percent) small-scale vessels without engines or using outboard motors (approximately 308 000 vessels). These vessels usually operate in nearshore coastal waters, although in the case of Sri Lanka and the Maldives they may operate in deep waters some way from the shore. These figures are overestimated because of the inclusion of vessels from the west coast of India. A **recommendation** is to separate the east and west coast fleets of India and establish production figures for different segments of the fishery.

60. The summary figures for employment are 1.93 million fishers in the Bay of Bengal. The breakdown of these figures into full-time and part-time is variable between countries and is inconsistently reported. A **recommendation** is that an effort be made to harmonize the recording of fishing vessel employment to reflect employment in large- and small-scale fishing.

## Marine capture fisheries in the Sulu and Sulawesi Seas and the Timor and Arafura Seas

### *Changes in catch composition and status of species groupings*

61. The trends for catch composition of **large demersal** species are decreasing in the Sulu and Sulawesi Seas (Indonesia) and in the waters along the east coast of Sabah (Malaysia) but increasing in the Arafura and Timor Seas (Indonesia). There is a trend of decreasing relative catch of **small demersal** species in the waters along the east coast of Sabah and in the Timor and Arafura Seas but increasing in the Sulu and Sulawesi Seas. The stocks of **large and small demersal** species are moderately fished or fully fished in a majority of the areas. Only in FMA 713 and 718 are they overfished.
62. The catch of **sharks and rays** is increasing in the waters along the east coast of Sabah, but decreasing in Indonesia's Sulu and Sulawesi Seas and Timor and Arafura Seas. Shark and rays comprise 1 to 3 percent of the catch. There is no stock status information for sharks and rays.
63. **Large pelagic species** are declining in the catch forming between 6 and 15 percent of the catch. **Large pelagic** species are moderately fished throughout the subregion.
64. **Small pelagic species** are increasing in the catch, comprising 15 to 30 percent of it. Small pelagics form a disproportionate amount of the catch (up to 50 percent) in Timor-Leste where the fishery is targeted by small vessels. **Small pelagic** species are moderately fished in the Sulu and Sulawesi Seas (northern areas), but fully fished further south. They are overfished in the western side of the area (Indonesia FMA 712, 713).
65. **Anchovy/sardine relative** catches have increased in the waters around Eastern Malaysia and the Sulu and Sulawesi Seas (Indonesia) and decreased in the Timor and Arafura Seas. There is no reported stock status data for **anchovies and sardines**.
66. There is no significant catch of fish for **surimi** production from this region.
67. The relative catches of **trash/low value fish** are increasing in the region, except for the Timor and Arafura Seas. They comprise 1 to 9 percent of the total catch in some areas, whereas they comprise 26 to 35 percent of the catch in Indonesian FMAs 714, 573 and 718. Where reported, low value and trash fish species are moderately fished or fully fished. There is some overfishing in FMAs 718 and 713. The stocks of **surimi** species are similarly fully fished or moderately fished and overfished in FMA 713 (this is next to FMA 711 where there is a heavily targeted surimi fishery) and FMA 718 is overfished.
68. **Squid/cuttlefish** are increasing in catches, but form relatively little overall at 1 to 4 percent of the catch. Squids/cuttlefish are moderately fished in the southern part of the subregion and not reported elsewhere.
69. **Crustaceans** are considered overfished in a majority of the assessed fisheries and fully fished elsewhere. Only in the managed Australian northern prawn fishery are they fully or moderately fished. The trend of catches of **crustaceans** is decreasing except in the waters of the east coast of Sabah and overall they comprise 2 to 12 percent of the catch. In the Australian northern prawn fishery the three main species, namely *Penaeus monodon*, *P. merguensis* and endeavour prawns, are not overfished and not subject to overfishing. The *P. monodon* fishery is approaching the  $B_{msy}$  target. Banana prawns do not have a target set, but management

arrangements currently promote a profitable and sustainable harvest. Bycatch has been reduced through the mandatory use of turtle excluders, which are also particularly effective on sharks etc. Mandatory use of bycatch reduction devices (BRD) has reduced the bycatch ratio from 1:10 to 1:5.

#### *Trends in CPUE*

70. The trends in CPUE indicate increasing CPUE in a number of trawl fisheries. This is achieved in the Australian northern prawn fishery through management controls. Elsewhere the increase is less easily explained (Sabah east coast, FMA 573). Decreasing trawl CPUE is seen in FMA 712, probably as a result of overfishing.

71. Purse seine CPUE is generally stable in the region or increasing (FMAs 714, 716, 718, waters along the east coast of Sabah). It has strongly decreased in FMA 573 (down 80 percent). Net fisheries are stable or increasing except in FMA 573. There is strong increase in FMA 713 (up 150 percent). Pole and line CPUE is strongly down (95 percent) in FMA 716. Longline CPUE has increased in FMAs 714, 715, 716, but decreased in FMA 573.

### **Inland capture fishery production**

72. Inland capture fisheries production in the region continues to increase, with an increase of 13.7 percent over the 2008 figure, reaching 7.6 million tonnes in 2010. The top countries producing 97 percent of the region's capture of inland fish are China, India, Bangladesh, Myanmar, Cambodia, Indonesia, Thailand, Viet Nam, Philippines and Pakistan.

73. The APFIC region now contributes 68 percent of global inland fisheries production. In inland waters, excluding China, total production of the region reported in 2010 was 5.3 million tonnes, which was an increase of 19.7 percent over the 2008 level. South Asia contributes 37 percent of the region's production, Southeast Asia 30 percent. For the Chinese subregion, inland production in 2010 was 2.3 million tonnes (30.2 percent of the total regional catch).

74. This overall rapid increase in inland fisheries is unlikely to be a result of massive increases in productivity per fisher, although there is undoubtedly increasing interest in and effort being applied to inland waters in the region to increase productivity. The increasing populations in the developing countries of Southeast Asia and South Asia mean that there are increasing numbers of inland fishers and thus effort is also increasing. Part of the increase is also considered to be a result of a significant re-evaluation of the contribution of inland fisheries that has resulted in an upward revision of the previous estimates of inland production. This is a cause for concern since actual production in some countries' inland fisheries may be declining.

### **Aquaculture trends in the Asia-Pacific region**

75. This review is based on the new FAO FishstatJ online database from FAO, covering world fisheries and aquaculture up to 2010. The review describes the evolution of aquaculture in the Asia-Pacific region over the past decade from 2000 to 2010.

#### *General trends in aquaculture in the APFIC region*

76. The Asia-Pacific region continues to be the dominant aquaculture producing region of the world. In 2010, the region produced 53.1 million tonnes of aquaculture products (excluding aquatic plants), representing 89 percent of the global aquaculture production of 59.9 million tonnes. This production had a rate of growth of 6.5 percent per year between 2000 and 2010.

77. In terms of value, the region's share amounted to some US\$95.2 billion (growing at 10.5 percent per year between 2000 and 2010). This value equated to 80 percent of the total value of global aquaculture, which reached US\$119.6 billion in 2010.

78. When aquatic plants are included (the vast majority of which is cultivated in the Asia-Pacific region), the region becomes even more dominant, producing 71.9 million tonnes worth US\$100.8 billion (out of 78.9 million tonnes, worth US\$125.2 billion worldwide).

79. This represents 91 percent of global aquaculture production by quantity and 81 percent by value in 2010. Compared with 2000, the share of both production (90 percent) and value (80 percent) remain almost unchanged.

80. The growth rate of aquaculture production in the region has continued to be very strong, with yearly growth rate in terms of quantity of 6.7 percent between 2000 and 2010 (almost identical to the worldwide trend, as this region is the major driving force). The growth rate in aquaculture production in the APFIC region was a result primarily of the high growth rates in China, but growth in the APFIC region excluding China overtook that of China during 2000–2010 at 9.3 percent per year, compared to 5.5 percent per year for China alone.

81. Of the top ten aquaculture producing countries in the world, eight (including the top three) are from the Asia-Pacific region. The biggest producer by far is China (producing 37.1 million tonnes worth US\$60.3 billion), followed by India (4.6 million tonnes, worth US\$9.1 billion) and Viet Nam (2.7 million tonnes, worth US\$5.2 billion) excluding aquatic plants in 2010. Other major producers in the region are Indonesia, Bangladesh, Thailand, Myanmar, the Philippines and Japan.

82. The countries with the fastest growing aquaculture productions in the past decade (2000–2010) in the region are Myanmar (24 percent per year), Viet Nam (18 percent per year), Indonesia (12 percent per year) and India (9 percent per year). Bangladesh, the Philippines and Thailand recorded growth rates of 6 to 7 percent per year, excluding aquatic plants, between 2000 and 2010.

83. Within the Asia-Pacific region, both inland culture and marine/brackishwater culture (excluding aquatic plants) have shown steady growth, but inland aquaculture for the region excluding China grew especially rapidly at 11 percent per year (equating to a tripling of production from 3.8 to 11.0 million tonnes), compared to 6 percent per year for the marine sector (a doubling of production from 2.8 to 5.0 million tonnes) between 2000 and 2010. Over this same time period in China the inland sector grew at 6 percent per year, whereas the marine sector grew at 5 percent per year. In contrast, Japan has shown a contraction in aquaculture production of 0.6 percent per year over the same time period as a result of continuing economic problems and declining population and demand in the country.

84. China reported a total aquaculture production (including aquatic plants) of 48.1 million tonnes in 2010, worth US\$62.5 billion, representing 61 percent of world aquaculture production in terms of volume and 50 percent in terms of value. This continues China's consistent domination of global aquaculture production, although there is a slight decrease of 1.2 percent per year since 2000 in terms of quantity as the rest of the world (and particularly the APFIC region) is expanding aquaculture production more rapidly than China. However, China's contribution in terms of value has increased by 0.9 percent per year from 2000 to 2010 (from 46 to 50 percent) as China began to culture more valuable species and demand higher prices for them in its growing domestic market.

85. There has been considerable change in the top twenty cultured species (excluding aquatic plants and molluscs) in the region between 2000 and 2010. There are six new members (whiteleg shrimp, pangas catfish nei, red swamp crawfish, cyprinids nei, snakeheads nei and Amur catfish) in the top 20 species compared with 2000, although inland waters species (mainly Chinese and Indian carps) still hold the top seven positions. The biggest mover amongst these species is the catla, which has been increasing at 20 percent per year between 2000 and 2010. In addition, there have also been significant changes in the order of the top 20. Whiteleg shrimp (increasing at 99 percent per year) and pangas catfish nei (increasing at 29 percent per year) between 2000 and 2010 are among the top ten species now.

86. It is worth noting that the number and quantity of high-value species that are carnivorous or dependent on high (animal) protein feed have increased during the past ten years. Those freshwater species with current production exceeding 100 000 tonnes include Asian swamp eel, Japanese eel, largemouth black bass, mandarin fish and snakeheads (all increasing at 11 to 18 percent per year between 2000 and 2010), whereas those marine/brackishwater species with production exceeding 50 000 tonnes include whiteleg shrimp, giant tiger prawn, Chinese mitten crab, red swamp crawfish, oriental river prawn, giant river prawn, Indo-Pacific swamp crab, Japanese amberjack, Japanese seabass, large yellow croaker, red drum, silver seabream, barramundi, groupers nei and turbot.

87. In marine waters, the production is generally dominated by high-value carnivorous/high protein feed-dependent species such as penaeid shrimp, jacks, seabass, seabream, croakers, groupers, turbot, halibut and cobia. However, some of the top species cultured in marine and brackish environments are also herbivorous/omnivorous, including milkfish, with new entrants including sea cucumbers and jellyfish. Production of crabs (especially Indo-Pacific swamp crab and swimming crabs) as well as the whiteleg shrimp have made significant advances in recent years, with whiteleg shrimp now the most produced marine species in the region at 2.2 million tonnes, with 1.6 million tonnes coming from marine/brackish environments and 0.6 million tonnes from freshwaters.

#### *Freshwater carnivorous marine finfish species*

88. The culture of this group of high value freshwater finfish has been growing very rapidly over the past decade in the Asia-Pacific region, reaching a rate of growth of 14 percent per year between 2000 and 2010, compared to only 6 percent per year for omnivorous/herbivorous freshwater species. This is in response to the growing affluence of the population in the region and the demand for higher value species. It also reflects the higher profitability of farming these higher value species. However, the total production of these higher value species amounted to just 1.5 million tonnes in 2010, compared to 30 million tonnes for freshwater omnivorous and herbivorous species in the APFIC region. These higher trophic level species thus comprised just 5 percent of freshwater fish production in the region in 2010.

89. China dominated production of these higher value freshwater species, with a total production of 1.4 million tonnes or 92 percent of the total production of this group in 2010 from the APFIC region. Although China cultured 14 species of carnivorous freshwater fish in 2010, most of this production comprised snakeheads, Asian swamp eels, mandarin fish, Japanese eel and largemouth black bass. Other major producing states include Indonesia, Japan, the Republic of Korea, Thailand and Bangladesh.

90. In terms of overall value, these carnivorous/high production input species were valued at US\$5.7 billion in 2010 (with US\$4.8 billion or 85 percent produced by China), a 13 percent annual increase between 2000 and 2010.

#### *Marine and brackishwater finfish species*

91. Total production of cultured marine/brackishwater fish species in the APFIC region has increased considerably over the past ten years and reached some 2.5 million tonnes worth US\$7.9 billion at a unit value of US\$3.22/kg in 2010, an increase in production and value of 7 percent per year over that in 2000. In terms of the number and trophic level of species cultured, the vast majority of these species are carnivorous with high unit value. However, the species with the highest production of all is milkfish, which is herbivorous/omnivorous.

92. In terms of herbivorous and omnivorous marine/brackishwater fish species, total production in the APFIC region has increased significantly to 0.8 million tonnes worth US\$1.3 billion at a relatively low unit value of US\$1.53/kg in 2010, an increase in production and value of 6 percent per year between 2000 and 2010. Herbivorous/omnivorous fish species make up 34 percent of the volume and 16 percent of the value of marine finfish produced.

93. In terms of purely carnivorous marine/brackishwater fish species, the total production in the APFIC region has increased even more rapidly to 1.6 million tonnes worth US\$6.7 billion at a relatively high unit value of US\$4.09/kg in 2010, an increase in production and value of 8 percent per year between 2000 and 2010. Carnivorous fish species currently make up 66 percent of the volume and 84 percent of the value of marine fish produced, and the culture of this group of fish is growing rapidly.

94. The major producing countries of marine and brackishwater finfish are China, Indonesia, Philippines, Japan, Viet Nam, the Republic of Korea and Bangladesh. The major species produced are milkfish, Japanese seabass, barramundi, jacks (especially amberjack), large yellow croaker, red drum, seabreams and flatfish including turbot and bastard halibut.

#### *Freshwater finfish requiring lower quality feed inputs*

95. In general, the culture of this group of low value herbivorous and omnivorous freshwater fish in the Asia-Pacific region has been growing more slowly than carnivorous freshwater finfish over the past decade, reaching a rate of growth of 6 percent per year between 2000 and 2010. However, the production of these species is very high (30 million tonnes in 2010), accounting for 95 percent of the freshwater fish production in the region. Thus any increase represents a huge output of fish (nearly 14 million tonnes more of these fish produced in 2010 than 2000).

96. China dominated production of these **lower value herbivorous/omnivorous freshwater species**, with a total production of 19.4 million tonnes or 64 percent of the total production of this group in 2010 from the APFIC region. In second place was India, producing 4.5 million tonnes or 15 percent of the total production in 2010. Viet Nam is the third ranked country, producing 1.9 million tonnes or 6 percent of the total production in 2010. The production of this group of fish grew at just 4 percent in terms of volume and 9 percent in terms of value in China between 2000 and 2010, whereas in India, the production of these species grew at a rapid 10 percent in terms of volume and 18 percent in terms of value between 2000 and 2010. For Viet Nam, production of these species grew at an impressive 18 percent in terms of volume and 19 percent in terms of value between 2000 and 2010. Hence it has been in India and Viet Nam that the production of these types of finfish has been increasing most rapidly in recent years.

97. In terms of overall value, the **omnivorous and herbivorous freshwater fish** production was valued at US\$42.5 billion in 2010 (with US\$24.9 billion being produced by China, US\$8.2 billion by India and US\$2.8 billion by Viet Nam), an 11 percent annual increase between 2000 and 2010. This equates to a unit value of US\$1.41/kg, almost one third of the value of the carnivorous species. However, the unit value of this group increased by 4 percent per year between 2000 and 2010.

98. The species composition of finfish aquaculture production from the APFIC region has long been dominated by **carps and barbs**, a situation that is very unlikely to change in the foreseeable future. This is because of the massive volume of production, which is almost entirely consumed domestically. Total production of **carps and barbs** from APFIC countries in 2010 exceeded 23 million tonnes worth US\$32.4 billion at a unit value of US\$1.39/kg, which is a steady 44 percent of the total aquaculture production of the region (excluding aquatic plants). The top six cultured finfish species in the Asia-Pacific region are carps from freshwater production. These are, in descending order: grass carp, silver carp, catla, common carp, bighead carp, and crucian carp with a further five – rohu, wuchang bream, Cyprinids nei, black carp and mrigal – in the top 20. The other most important finfish groups cultured in freshwaters in the Asia-Pacific region include **catfish** and **tilapia**.

#### *Catfish species*

99. The **catfish group** includes the pangas catfish (*Pangasius spp.*), *Clarias spp.*, *Mystus spp.*, *Silurid spp.*, *Pelteobagrus spp.* and some introduced species such as channel catfish from the United States. The top six producing countries are Viet Nam (42 percent), China (29 percent), Indonesia (14 percent), Bangladesh (5 percent), Thailand (5 percent) and Malaysia (4 percent). Total production in the Asia-Pacific region in 2010 was 2.8 million tonnes, up from only 0.2 million tonnes in 2000, thus showing a rapid increase of 28 percent per year between 2000 and 2010. This production in 2010 was worth US\$3.9 billion at an average unit value of US\$1.42/kg. The biggest producer of catfish is in Viet Nam, which has seen a dramatic increase in the production of tra catfish (*Pangasianodon hypothalamus*) and basa catfish (*Pangasius bocourti*) over the past 14 years. The production has increased from 0.1 million tonnes in 2000 to 1.14 million tonnes in 2010, valued at US\$1.7 billion, at a unit value of US\$1.50/kg.

#### *Tilapia*

100. **Tilapia** production in the Asia-Pacific region has increased steadily over the past two decades. Freshwater tilapia production reached 2.4 million tonnes worth US\$3.7 billion at a unit value of US\$1.49/kg in 2010, with an increase of 11 percent per year in terms of volume and 14 percent per year in terms of value between 2000 and 2010. In terms of total production of tilapia (from all environments) in the Asia-Pacific region, there was a production of 2.5 million tonnes worth US\$3.7 billion at a unit value of US\$1.49/kg in 2010. Thus freshwater tilapia culture made up nearly 98 percent of total tilapia production in the region. Most production is of the Nile tilapia (*Oreochromis niloticus*). In terms of country of production, China dominated with 57 percent of the production, with Indonesia producing 17 percent, Philippines producing 10 percent and Thailand producing 7 percent.

#### *Crustaceans*

101. **Crustaceans** are the aquaculture species group of highest unit value in the region. Production of crustaceans has been increasing since the mid-1990s despite problems with

a number of diseases. Cultured crustacean production reached 5.1 million tonnes in 2010, worth US\$24.2 billion at a unit value of US\$4.71/kg, an increase of 13 percent per year by volume and 11 percent per year by value between 2000 and 2010. World crustacean culture produced 5.7 million tonnes worth US\$26.9 billion in 2010, thus production from the Asia-Pacific region accounted for 90 percent by both volume and value of total global crustacean production.

102. Of all aquaculture species produced in the region (excluding aquatic plants and molluscs), the whiteleg shrimp (*Penaeus vannamei*) was the species with the sixth highest production in terms of volume (2 221 818 tonnes), but was the most valuable single species cultured in the region, with a value of US\$9.2 billion at a unit value of US\$4.12/kg in 2010. Other crustacean species in the top 20 species by volume and value of culture were the giant tiger prawn (*Penaeus monodon*), the Chinese mitten crab (*Eriocheir sinensis*) and the red swamp crawfish (*Procambarus clarkii*).

103. In terms of country of production, China again dominated crustacean production, producing 3.2 million tonnes or 63 percent of the total production of crustaceans in the Asia-Pacific region. Next was Thailand producing 0.6 million tonnes (12 percent), Viet Nam with 0.5 million tonnes (10 percent) and Indonesia with 0.4 million tonnes (8 percent). Other important producing states included India, Bangladesh, Malaysia, Philippines and Myanmar.

#### *Molluscs*

104. Mollusc culture is split into low-value species produced in extensive cultured systems (e.g. seeded blood cockle mudflats, mussel and oyster stake culture) and high-value species produced in intensive systems (fed systems, and possibly recirculation). Total production of all molluscs in the Asia-Pacific region amounted to 13.1 million tonnes worth US\$11.7 billion at a unit value of US\$0.90/kg in 2010. This accounted for 92 percent of the total world mollusc production of 14.2 million tonnes worth US\$14.4 billion at a unit value of US\$ 1.01/kg in 2010.

105. There was a total production of 6.1 million tonnes of high value mollusc species production in the Asia-Pacific region worth US\$6.2 billion at a unit value of US\$1.01/kg in 2010. This production grew at a rate of just 3 percent per year in terms of volume and 2 percent per year in terms of value between 2000 and 2010. In 2010 the region also produced a total of 7.0 million tonnes of low value mollusc species worth US\$5.6 billion at a unit value of US\$0.80/kg. This production grew at a rate of 5 percent per year in terms of volume and 6 percent per year in terms of value between 2000 and 2010.

#### *Aquatic plants*

106. The total production of aquatic plants in the Asia-Pacific region reached 18.9 million tonnes worth US\$5.6 billion at a unit value of just US\$0.30/kg in 2010 (99 percent from marine waters). Production has been growing steadily by 7 percent per year between 2000 and 2010. This production from the region accounts for over 99 percent of the total world production of 19 million tonnes in 2010, indicating the importance of the region for the production of this group.

107. Aquatic plant production can be divided into two distinct groups. The first group consists of seaweeds of temperate waters that are traditionally used for food purposes and are mainly produced in East Asia. The second group consists of tropical species mainly processed as a source of commercially valuable biopolymers (carrageenan, agar) that are used for various food and non-food purposes and are produced in Southeast Asia.

### *Reptiles and amphibians*

108. Total production of freshwater frogs and turtles in the Asia-Pacific region was 0.4 million tonnes worth almost US\$2 billion at a high unit value of US\$5.22/kg in 2010, with the production growing at 9 percent per year between 2003 and 2010. Production from the region amounts to 99.8 percent of the world total, again indicating the importance of this region in the culture of these species.

### *Niche aquaculture species*

109. Total production of these reported niche species was 0.4 million tonnes worth US\$1.1 billion at a relatively high unit value of US\$ 2.46/kg in 2010. The growth rate of this group was a rapid 22 percent per year in terms of volume and 20 percent per year in terms of value between 2003 (when China first started recording many of them individually) and 2010. This comprised 99.9 percent of the total world production of these species.

### *South Asia*

110. South Asia's total aquaculture production amounted to 6.1 million tonnes worth US\$12.2 billion at a unit value of US\$1.99/kg in 2010. This amounted to just under 8 percent of the total world aquaculture production. Growth rate in production was at 9 percent per year in terms of volume and 13 percent per year in terms of value between 2000 and 2010. South Asia's production has been dominated by the production of freshwater and diadromous fish throughout the past decade, such that freshwater fish account for 94 percent of total aquaculture production in this subregion, and 16 percent of the total world production of freshwater fish. The South Asia subregion also produces small amounts of crustaceans, marine fish, molluscs and aquatic plants.

### *Southeast Asia*

111. Aquaculture production in Southeast Asia is highly diversified and in 2010 production of 101 different species (the majority of which were freshwater/diadromous finfish species) was reported, with the production of 17 species exceeding 100 000 tonnes each. The number of cultured species and the details of reporting have increased rapidly in the last years, increasing from 70 in 1996 and 80 in 2003. Total production from the Southeast Asia subregion was 14.4 million tonnes worth US\$18.1 billion at a unit value of US\$1.25/kg. This amounted to just over 18 percent of the total world aquaculture production in 2010. The overall growth rate was a rapid 15 percent per year in terms of volume and 9 percent per year in terms of value (because of a declining trend for the unit price at 5 percent per year ) between 2000 and 2010. Production from freshwaters (principally freshwater/diadromous finfish) has been a constant 35 percent (and growing at 14 percent per year) of total production from Southeast Asia since records began in 1950, whereas 65 percent (and growing at 15 percent per year) of production (mostly aquatic plants and crustaceans) has come from marine and brackish waters.

### *China*

112. China has dominated world aquaculture production since records began in 1950 and for many years before that, as China is considered as one of the originators of aquaculture. Production in China is not only higher than in any other country in the world, it is also more diverse, with China reporting the culture of 112 species in 2010. Species diversification has been oriented towards high-value species and both indigenous and exotic species newly developed for aquaculture.

113. Aquaculture production growth in China has been maintained at a steady 5 percent/year in terms of volume between 2000 and 2010. China's aquaculture in 2000 was 29 million tonnes worth US\$24 billion at a unit value of just US\$0.81/kg. However, by 2010 this had increased by nearly 20 million tonnes to 48 million tonnes worth US\$63 billion at a higher unit value of US\$1.30/kg in 2010. This production comprised 61 percent by volume and 50 percent by value of the total world aquaculture production of 79 million tonnes worth US\$125 billion in 2010 (including aquatic plants).

114. Production by volume in China was split almost evenly between marine and brackishwater (51 percent) and freshwater (49 percent) in 2010. However, largely because of the high production of low-value aquatic plants in the marine environment, the total value was higher for freshwater culture (US\$44 billion at a unit value of US\$1.84 in 2010), compared to marine and brackishwater culture (US\$19 billion at a unit value of US\$0.78/kg in 2010). Furthermore, the unit value of freshwater species produced in China increased by 6 percent per year, compared to an increase of just 2 percent per year for marine and brackishwater species between 2000 and 2010. This rapid growth in the value of inland culture has occurred mainly because of the increased production of high-value finfish and crustacean species. These increases are being achieved through the intensification of existing systems rather than any significant increase in production area.

#### *Other Asia*

115. Other Asia's total aquaculture production amounted to 3.0 million tonnes worth US\$6.6 billion at a unit value of US\$2.17/kg in 2010, or just under 4 percent of the total world aquaculture production. The aquaculture production in this region has been quite stable. Average growth has been only 2 percent per year in terms of volume and 1 percent per year in terms of value between 2000 and 2010.

116. The Republic of Korea had the biggest production (45 percent in 2010) in the Other Asia subregion of 1.4 million tonnes worth US\$1.8 billion at a unit value of US\$1.31/kg in 2010. Production grew at 7 percent per year between 2000 and 2010. Japan produced 1.2 million tonnes worth US\$4.7 billion at a high unit value of US\$4.06/kg in 2010. However, production in Japan contracted by 1 percent per year between 2000 and 2010. The third major player in the subregion is the Democratic People's Republic of Korea, which produced 0.5 million tonnes worth US\$116 million at a very low unit value of just US\$0.23/kg in 2010. This was because the majority of production (87 percent in 2010) comprised low value Japanese kelp. Production in the Democratic People's Republic of Korea showed a growth rate of just 1 percent per year between 2000 and 2010. These three countries made up 99.8 percent of the production in the Other Asia subregion in 2010.

#### *Oceania*

117. Aquaculture production in Oceania is relatively limited. Oceania's total aquaculture production amounted to 0.2 million tonnes worth US\$1.1 billion at an overall high unit value of US\$5.50/kg in 2010. This accounted for just 0.25 percent of the total world aquaculture production. Growth rate in production was slow at 4 percent per year in terms of volume and 9 percent per year in terms of value between 2000 and 2010.

118. Oceania's production is dominated by the production of high-value molluscs and freshwater and diadromous fish. The Oceania subregion also produces small amounts of aquatic

plants, marine fish, crustaceans and aquatic animals nei, with each accounting for just 1 to 7 percent of total production from the region. All of this production comes almost exclusively from New Zealand (110 592 tonnes or 56 percent in 2010) and Australia (69 581 tonnes or 35 percent in 2010), with relatively little (9 percent) from the Pacific Islands comprising the remaining countries in this subregion.

#### **SUGGESTED ACTIONS BY THE COMMISSION**

119. The Commission is invited to review APFIC/12/INFO 04 *Regional overview of fisheries and aquaculture in Asia and the Pacific region 2012*.

120. In particular, the Commission is requested to comment on how this review can be updated in the future with contributions from APFIC member countries.

121. The Commission is also invited to take note of the possible implications for the future supply and demand of fish, which may affect the conservation and rational utilization of fishery resources and aquaculture of the region in the future.

It may also wish to comment on other regional issues that need further attention and appropriate action.

## **APPENDIX F – SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS OF THE FOURTH APFIC REGIONAL CONSULTATIVE FORUM MEETING**

The report of the Fourth APFIC Regional Consultative Forum Meeting *Improving management and governance of fisheries and aquaculture in the Asia-Pacific region*, Da Nang, Viet Nam, 17–19 September 2012.

### **Background to the Fourth APFIC Regional Consultative Forum Meeting**

The Fourth APFIC Regional Consultative Forum Meeting (Fourth RCFM), *Improving management and governance of fisheries and aquaculture in the Asia-Pacific region* was convened at the Sandy Beach Hotel in Da Nang, Viet Nam, 17–19 September 2012. The Meeting was attended by 73 participants from 16 countries and representatives from 12 regional partner organizations and projects. The Meeting was hosted by the Ministry of Agriculture and Rural Development, Government of Viet Nam together with the Food and Agriculture Organization of the United Nations (FAO) and Asia-Pacific Fishery Commission (APFIC) and received additional support from the Bay of Bengal Large Marine Ecosystem Project (BOBLME) and the Spanish funded Regional Fisheries Livelihoods Programme (RFLP).

The Fourth APFIC RCFM was held to precede the Thirty-second Session of APFIC and acted as a regional briefing on the activities of the Commission and her member countries. It also provided an opportunity to get an update on the work of various regional partner organizations that are relevant to the programme of work of the Commission. The APFIC RCFM was requested to develop and agree on ways of implementing policies and action plans developed to address major issues of importance to the region. The Fourth RCFM was organized around six thematic sessions and a final session dedicated to developing RCFM summary recommendations for presentation to the APFIC Thirty-second Session. The thematic sessions were:

- Regional overview of fisheries and aquaculture.
- Regional initiatives promoting improved assessments for strengthening management.
- Country experiences improving fisheries management and the CCRF.
- Adaptation to and mitigation of climate change, livelihoods and support to small-scale fisheries.
- Country experiences improving aquaculture management and the CCRF.
- Priorities and capacity building for implementation of the CCRF.

Based on reviews of regional fisheries and aquaculture, presentations by member countries and regional organizations, reports of action plans of APFIC regional consultative workshops, the RCFM considered the major issues outlined in the agenda and developed a report and recommendations to inform the APFIC Session. The RCFM recognized the very valid and important work in sustainable fisheries and aquaculture development being undertaken by various APFIC members, regional institutions and processes, notably the ASEAN/SEAFDEC Resolution and Plan of Action Towards 2020, the BOBP-IGO, and the BOBLME. It was also recognized that the regional outcomes developed within this document would contribute to the ongoing activities of these regional organizations and initiatives.

## **Conclusions and recommendations of the Fourth APFIC RCFM**

The APFIC member countries, regional organizations and partners, emphasize that the APFIC RCFM is a unique mechanism in the Asian region that allows the sharing of understanding and awareness of fisheries and aquaculture issues in the region and contributes to greater efficiency and reduction of overlap. The Forum also allows greater opportunities for effective networking and coordination between members and regional organizations. The RCFM requested that these functions of APFIC be continued and strengthened.

Marine and inland capture fisheries are typified by small-scale operations and high levels of participation, although there are also large-scale commercial/industrial fishing vessels operating throughout the region. The complex combination of numbers of people and geographical range of activities necessarily means that fishery management is a challenge of managing human activity rather than managing fish.

Tools for management using ecosystem approaches exist, but there remains a capacity and awareness gap in practical fishery management at provincial and local levels.

Aquaculture now produces more fish for food than capture fisheries in the region. The region maintained strong growth trend in aquaculture production during the 2009/2010 biennium and is making significant progress in improving sectoral performance through increasing implementation of the CCRF. Production growth and performance improvements vary across countries and commodities.

A significant percentage of the region's capture fishery is directed to feed/fishmeal. Within the region, 50 percent or more of fishmeal comes from trimmings, but this often needs to be mixed with fresh fish to increase protein quality.

The region uses 68 percent of its fishmeal for aquaculture production. The majority of this fishmeal usage is directed to coastal aquaculture (freshwater species use relatively little). The successful growth of coastal aquaculture and mariculture utilizing marine fishery resources for feeds is largely underpinned by the products of marine trawl fisheries.

The RCFM was informed of the wide range of activities and initiatives that the APFIC member countries of the region are implementing in direct response to the articles of the FAO Code of Conduct. The range and variety of the actions reflect the huge variety of national contexts and the range of challenges facing member countries as they seek to develop and manage their fishery and aquaculture subsectors.

### ***Some of the key challenges facing fisheries and aquaculture in the region***

- Overfishing, especially in coastal areas, particularly trawling.
- The decline of nearshore resources and deteriorating habitats.
- Ecosystem effects of overfishing, non-selective gears – high proportion of trash/low-value fish.
- The need to sustain and improve the livelihoods of large numbers of small-scale fishers and their communities.
- Socio-economic issues, such as low economic return to fishers and aquaculture farmers; urbanization and other socio-cultural changes significantly changing the structure and performance of the subsectors.

- The migration of labour into fisheries from agriculture and increasing movement of fishing labour between countries.
- The inadequate recognition of the role and place of women in fisheries and aquaculture, and the harvesting, processing and marketing of aquatic products.
- The contribution and role of inland fisheries remains poorly acknowledged and there is a strong need for improved visibility of inland fisheries based on a better understanding of their status and trends.
- Lack of implementation of strategies in addressing fishery management particularly at provincial/local level.
- Lack of political will, collaboration and coordination between agencies to make fishery management more effective.
- Illegal fishing and transshipment, which is undermining management.
- High demand for low-value fish/trash fish for feeds in (marine/coastal) aquaculture in a context where certification of fishmeal and feeds from sustainable fisheries is becoming more important, especially for export markets.
- Aquaculture development remains constrained by some technological bottlenecks e.g. the limited availability of quality formulated feed at reasonable cost, as well as high quality, healthy seed.
- Aquaculture overcrowding leading to environmental impacts and health problems, including concerns regarding residues and contaminants.
- The increasing interest to boost aquaculture production in the region as a source of affordable fish as well as an economic export opportunity must be achieved sustainably and in a socially acceptable manner.
- Changing market demands resulting from economic downturn, changing global trends, and requirements for improved food safety will require new markets and trading measures with a greater focus within Asia.
- Adapting fisheries and aquaculture to and mitigating the impacts of climate change, climate variability and natural disasters.

The trawl fisheries of the region, particularly in coastal areas, provide an opportunity to explore these issues, even in countries that do not have this type of fishery. Effective zoning, combating transboundary IUU fishing and proposals for developing bycatch-based fishmeal production are clear examples where the management needs of trawling affect almost all APFIC member countries in some way.

***Challenge 1: Managing the trawl fisheries of the region more effectively***

Can we develop a vision for more effective management of the trawl sector in Asia? A regional vision would seek to balance the demand for fish for human consumption (e.g. fresh/frozen and surimi) and feeds for aquaculture, with the need to sustain ecosystem functions in the marine fishery and improve capture fishery quality. Addressing this challenge will require approaches relating to spatial management, better assessment of fisheries, innovative gear approaches and, importantly, how multigear multispecies fisheries can be managed in a way that yields catch from multiple trophic levels and segments of the fishery (“balanced harvest”).

### *Regional outcomes*

- Trawl fishery risk-based assessment method developed and available.
- Best practice advice for trawl management available.
- Reduction of trawl bycatch (REBYC II regional outcome).
- Reduction of juvenile catches prioritized over reduction of total effort.
- The composition (species) and locations of capture of the low-value and trash fish component needs to be more clearly elaborated.
- Ecosystem assessment methodology developed and used.
- Ecosystem indicators developed and used to monitor fisheries performance.
- Private sector engaged with management (capture and post-harvest) and driving responsible practice as a regular part of doing business.
- Co-management increasingly implemented as the principal management model for fisheries in the region, inclusive of large, medium and small-scale operators as well as women.

### ***Challenge 2: Providing a better understanding of the changes in fish catch and structure of the fishery sector to manage them more effectively***

It is particularly important to assess ecosystem level changes in relative compositions. Linked to vessel and gear numbers this will allow determinations of appropriate fishing effort/capacity levels in both coastal/shallow water and offshore/deepwater fisheries, and strategies relating to zoning and seasonal measures to limit effort.

### *Regional outcomes*

- Routine assessments of fisheries undertaken, particularly tracking the percentage catch and landings composition.
- Understanding the structure of the ownership patterns according to different fleet segments.
- Improved knowledge of economic and social structures of fishing (based on improved information about fishing communities).
- Fishing zones evaluated and fishing effort restructured, based on assessment information.
- Production of surimi and other processed products reported both in terms of final product and the raw fish equivalent.
- Sources of fish for surimi clearly identified to assist with food safety, traceability and catch documentation.
- Increased use of logbooks, vessel monitoring system (VMS) and tracking devices for improved monitoring, control and surveillance (MCS) and data collection.

### ***Challenge 3: Producing fishmeal more responsibly in the Asian region***

The composition (species) and locations of capture of the low-value and trash fish component needs to be more clearly elaborated. This is important where this is being directed into fishmeal or feeds so that the real value and or impact of this catch can be properly assessed. This would link to the International Fishmeal and Fish Oil Organisation (IFFO) Global Standard and Certification Program on Responsible Supply of Fishmeal and Fish Oil (IFFO RS).

### *Regional outcomes*

- The fish species composition of fishmeal is identified according the fishery/area of production. This would link to the IFFO RS.
- Regional source of responsible fishmeal available (IFFO RS).
- Certified aquaculture feeds based on responsible fishmeal or fishmeal alternatives available in the region.
- Stronger regulations regarding the production and composition of fishmeal.

### ***Challenge 4: Sustaining and improving small-scale fisheries livelihoods***

Small-scale fisheries represent 70 to 87 percent of the fisheries labour and fishing vessels across the region. This takes place in both inland and marine waters. Increasingly, migratory fishing labour is becoming a feature of some fisheries and places additional challenges on fishers' rights, decent work, labour conditions and safety according to national and international standards.

### *Regional outcomes*

- Countries elaborate a vision for their small-scale fishery sectors.
- Improved (statistical and structural) information on the small-scale fishing sector contributes to raised profile in the development agenda.
- Small-scale fisheries instrument developed and informed by APFIC members responses.
- Promotion of improved livelihoods approaches in small-scale fisheries, particularly through engagement with other development partners and institutions beyond fishery agencies.
- Fishery management zoning and planning that separates the scales of fishing and mitigates impacts/conflicts (see trawl strategy above).
- Allocation and/or safeguarding of rights to resources, fishing zones, and land tenure, to secure the livelihoods fishers and fish farmers.
- Recognition of the contribution of fisheries gleaning/collecting activities and how these relate to resource and habitat management.
- Improved labour and employment conditions for fishing and fish processing labour (including the concerns regarding migratory labour, child labour, and women).
- Improved safety at sea and reduced vulnerability of fishers and fishworkers.

### ***Challenge 5: Addressing fisheries overcapacity and IUU fishing in the region through more effective governance***

Greater effort is needed to harmonize the records of fishers and fishing vessel employment to reflect employment in large and small-scale sectors. A social profile of labour in the different segments is also needed to inform policies on labour, rights, gender, as well as broader issues relating to migration.

### *Regional outcomes*

- National vessel registration systems developed/strengthened in alignment with the requirements of the Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels.

- Preliminary measures to control the landing and movement of fishing vessels and products of IUU fishing are put in place.
- Mechanism to report or share IUU information in the region developed (linkage to RPOA work).
- Countries pilot Port State Measures in key ports.
- Traceability of catches strengthened.
- Limits are placed on fishing capacity, and stricter zoning of effort to protect nearshore zone (and reduce conflicts between small-scale and larger-scale fisheries).
- Basic MCS systems strengthened (wheelhouse markings, VMS in larger vessels).
- Fishing labour conditions and rights are in accordance with the International Labour Organization (ILO) Work in Fishing Convention.

***Challenge 6: Increasing the adoption of science-based approaches to marine protected areas, habitat enhancement and seasonal closures***

Spatial and seasonal measures applied in fisheries should be assessed in terms of their fishery effects. The use of science-based approaches to the establishment of marine protected areas (MPAs) and artificial reefs is strongly encouraged. Science and local knowledge should be used to determine key habitats or areas that should be protected/closed.

*Regional outcomes*

- Science-based management methods (that incorporate local knowledge) developed for MPA development, including evaluation of effectiveness for fisheries.
- Science-based identification of refugia/critical habitats (including artificial reefs) and other spatial measures for fisheries are established.
- Seasonal or periodic fishing closures and other temporal measures developed based on scientific information and local knowledge.
- Key habitats (based on depth, spawning or nursery areas or sensitive habitats) are identified and integrated into fishery management plans.
- Artificial reef construction follows science-based planning and supports the separation of large-scale and small-scale fishing operations.
- Fishery resources conservation areas are placed/aggregated so that they contribute to local stock recruitment and other fishery benefits.
- Inland fishery habitats and water connectivity in refugia are managed sustainably to provide fishery benefits.

***Challenge 7: Improving the planning and management of aquaculture for food security and social and economic benefit***

Asian aquaculture continues to be a major growth sector and contributes directly to rural/domestic food security as well as export income. Developing a regional vision of how to sustain the production and contribution of this subsector, that addresses challenges of resource use, unplanned development as well as its considerable potential for providing food for the future, requires the following outcomes.

### *Regional outcomes*

- Advice for sustainable intensification of aquaculture developed and communicated.
- Spatial management of aquaculture for key commodities (best practice advice, aquaculture zoning inland, marine and brackish water).
- Appropriate planning and assessment tools developed and shared within the region.
- Greater understanding of how to establish national certification schemes and existing certification schemes harmonized with FAO guidelines on aquaculture certification.
- Water allocation and management (including effluent discharges) mechanisms for aquaculture developed in coordination with the competent authorities.
- Access to high quality broodstock and aquaculture seed improved based on better management of health and genetics.
- Certified aquaculture feeds available (based on responsible fishmeal or fishmeal alternatives).
- Quality marine fish feeds available in the market (requires private sector interest/market demand) at competitive cost.
- Effective mechanisms for communicating and controlling aquatic animal health threats developed.

### ***Challenge 8: Improving the valuation of the contribution of inland fisheries in the region***

Inland fisheries are another major contributor to food security in the region, especially in rural areas. The effective valuation of their contributions is essential for informing policy regarding inland waters and the people who depend upon these resources.

### *Regional outcomes*

- Inland fishery valuations undertaken for the main river basins in Asia, and quantification of impacts of water development.
- Establishment of programmes that promote the use of inland fisheries resources for nutrition and food security and poverty reduction
- Development of standardized approaches for tools for effective assessment of inland fisheries production, value and contribution to nutrition and food security.
- Contribution of inland fisheries to food security and nutrition quantified, supported by inclusion into national censuses and surveys.
- Regional guidance on responsible enhancement of inland waters is developed.

### ***Challenge 9: Increasing capacity building to meet regional needs***

The region is home to millions of fishers and millions of fishing vessels. The region also has millions of aquaculture farmers and farms. Decentralized governance systems and the predominance of small-scale operators mean that the administration and management of fisheries and aquaculture is a huge challenge to the region. There is a strong need to build the capacity of fishers, farmers and government institutions to effectively co-manage fisheries and aquaculture in the region, using ecosystem approaches to management.

### *Regional outcomes*

- Regional training course for EAF management developed and rolled out in regional and national training institutions and universities.
- Development of fishery and aquaculture management courses that cover environment, production, planning, governance and policy for the region.
- Fishery managers and fishers organizations trained in practical application of the EAF.
- Capacity to undertake assessments to inform EAF/EAA management is strengthened.
- Better aquaculture management practices developed for key commodities/systems.
- Fishery and aquaculture producers are empowered through higher levels of organization, including legal formalization/institutionalization of these (and traditional) arrangements, to strengthen their capacity to engage in co-management.
- Fishers and farmers are empowered to enact change and improve their situation without over-reliance on the assistance of projects or programmes.
- Best practice advice developed for fish aggregating devices, conservation areas, co-management.
- Capacity building programmes are identified and resourced.
- Knowledge sharing in fisheries and aquaculture management is institutionalized in the region, using existing knowledge networks.

### ***Challenge 10: Responding appropriately to climate change and climate variability***

Climate change and climate variability already impact the fisheries sector and result in increased uncertainty in the supply of fish from capture fisheries and aquaculture. Much of the work and effort in better management of fisheries and aquaculture already directly contributes to resilience and mitigation of climate effects. As expected for a region as diverse as Asia and the Pacific, the focus and priorities of the countries vary according to the variety of issues that might affect them.

### *Regional outcomes*

- Vulnerability and risk assessments (including socio-economic valuation) of both fisheries and aquaculture resources as well as their stakeholders are prepared to inform national planning and prioritization.
- The fisheries and aquaculture subsectors are properly integrated into disaster reduction and mitigation plans, national climate change strategies and National Adaptation Programme(s) of Action (NAPA) and the United Nations Framework Convention on Climate Change (UNFCCC) national communications.
- Dedicated funding to conduct research on adaptation and mitigation identified and programmes developed (including a programme for marine fisheries to inform the UNFCCC process).
- Sectoral climate change and climate variability resilience through adaptation strategies for aquaculture and fisheries activities and household livelihood diversification.
- Fishery and aquaculture sector improves its contribution to mitigation of greenhouse gases (GHG) emissions, especially in areas of refrigerant and fuel use and through the greater application of green technology.

## **APPENDIX G – MEMBER COUNTRY REPORTS ON DEVELOPMENTS THAT HAVE RESPONDED TO APFIC RECOMMENDATIONS**

### **AUSTRALIA RESPONSE RELATED TO THE IMPLEMENTATION OF PREVIOUS APFIC RECOMMENDATIONS**

#### **Item 3 – Climate change – adaption and mitigation**

Summary of main findings of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Report: *Fisheries in a future ocean: impacts of climate change (2011)*. The modelling has highlighted changes in a range of variables that will influence Australian fisheries and aquaculture, including:

- temperature
- ocean currents
- winds
- nutrient supply
- rainfall
- ocean chemistry
- extreme weather conditions.

Changes over decades or more in ocean temperatures and nutrient availability will affect the range and productivity of fishing grounds and all tiers of marine biodiversity, with economic and social consequences for fishing industries.

For example, models predict a southward contraction in the range of southern bluefin tuna off Australia's east coast, and an expansion in the distribution and abundance of yellowfin tuna.

#### ***Impact on fisheries***

By 2030 we can expect to see a range of likely impacts of changing climate and ocean conditions, including:

- Climate change will affect the range and productivity of fishing grounds and all tiers of marine biodiversity:
- a regional shift in wild fish stocks
- changes in spawning times
- a contraction of suitable habitat for salmon farming reliant on cool water conditions
- habitat change because of species invasions
- higher intensity extreme weather events affecting onshore and coastal aquaculture.

#### **Item 4 – Strengthening implementation of ecosystem approach to fisheries**

Australia, working with Indonesia in 2007, led the establishment of the *Regional Plan of Action (RPOA) to Promote Responsible Fishing Practices Including Combating Illegal, Unreported and Unregulated (IUU) Fishing in the Southeast Asia Region*. Since then Australia has worked tirelessly in this key forum in further promoting regional and subregional cooperation for ecosystem and fisheries management.

## **Item 6 – Strengthening management of fisheries**

The Fisheries Legislation Amendment Bill (No. 1) 2012 will amend the *Fisheries Management Act 1991* and the *Fisheries Administration Act 1991* (FA Act) to facilitate the full implementation of electronic monitoring (e-monitoring) in Commonwealth fisheries. E-monitoring involves the electronic recording of fishing and related activities for data collection and compliance purposes, through the use of specialised equipment installed on boats. The Bill also includes an amendment to increase the effectiveness of provisions in the *Fisheries Management Act 1991* that make corporations and other persons responsible for unlawful conduct engaged in by their employees, agents or directors.

On 13 September 2012 Australia announced a review of its fisheries management system to recommend on possible changes to its fisheries legislation in order to reflect environmental, economic and social considerations as part of a modern fisheries management system. The review will also examine any required changes to fisheries management legislation to reflect the objective of the precautionary principle. The review will be completed around the end of 2012.

In July 2012 Australia released its ‘Shark Plan 2’ (National-Plan of Action – Sharks) following an extensive review of its 2004 shark plan. Shark-plan 2 provides an updated assessment of the conservation and management issues impacting on sharks in Australian waters and is a framework for the long-term conservation of Australia’s shark populations. Furthermore, it provides guidance for the industries and communities that impact upon sharks and also identifies the research and management actions required during the life of the four year plan,

## **Item 9 – Combating IUU fishing**

The lead agency coordinating regional action to combat IUU fishing in southeast Asia is the *Regional Plan of Action (RPOA) to Promote Responsible Fishing Practices Including Combating Illegal, Unreported and Unregulated (IUU) Fishing in the Southeast Asia Region*. Australia is an active partner in the work of the RPOA.

The RPOA Regional Monitoring, Control and Surveillance (MCS) Network continues to disrupt the activities of IUU industrial fishing vessels using regional ports to unload and/or tranship catch. Member countries are continuing progressive development and implementation of their capacity building priorities, port state measures and fisheries legislation in this regard. Adoption of measures and arrangements contained in the FAO Agreement on Port State Measures offers RPOA countries significant benefit in their actions to deter, prevent and eliminate IUU fishing.

Australia is working with the RPOA Secretariat to develop an RPOA IUU Vessel List to assist countries in identifying and inspecting suspected IUU vessels using their ports to unload and/or tranship. The RPOA is also examining the potential for a regional-wide public information campaign to educate fishers and fishing communities about the serious impact of illegal fishing, and to raise greater awareness about the need to employ only responsible fishing practices.

Australia continues to conduct capacity building workshops and on-the-job training for fisheries surveillance and enforcement officers from Indonesia, East Timor, Papua New Guinea and the Pacific island States. Australia recently conducted an intensive training program for staff of the RPOA Secretariat in Indonesia. Related to the Port State Measures Agreement, Australia provided financial assistance for, and training expertise at, the Inspector Training Workshop hosted by Malaysia in June 2011.

Australia has initiated and completed three major RPOA studies to assist countries in implementing improved fisheries conservation, management and governance objectives.

- a. *Framework for Model Fisheries Legislation in Southeast Asia (2010)* – a framework for legislation to foster regional harmonization of fisheries management arrangements including stronger legal action against IUU fishing.
- b. *Net Returns: A Human Capacity Development Framework for Marine Capture Fisheries Management in Southeast Asia (2011)* – a study to provide guidance to RPOA countries and donor agencies on capacity building priorities across eight major management themes.
- c. *Monitoring, Control and Surveillance (MCS) Curriculum and Training Programme (2009)* – to better develop and implement effective MCS measures to combat IUU fishing.

Australia works closely with the RPOA to actively promote collaboration and cooperation between all fisheries agencies and organisations, government and non-government, working to eliminate illegal fishing.

Cooperation and collaboration is essential to ensure that synergies are recognized and exploited, and that development and implementation of measures and plans to combat illegal fishing are coordinated and result in maximum benefit to the region. In this context, the RPOA and the Coral Triangle Initiative (CTI) have developed a close and active dialogue to ensure that development and implementation of fisheries management measures are consistent and complementary.

## **Item 12 – Capacity building**

See item 9 above regarding Australia’s regional capacity building/training activities. Regarding the Australia initiated study *Net Returns: A Human Capacity Development Framework for Marine Capture Fisheries Management in Southeast Asia (2011)*, the report provides guidance to RPOA countries’ fisheries management, donor and technical agencies on capacity building priorities across eight major management themes, namely:

- fisheries management planning
- fishing capacity management
- strengthening information systems
- strengthening the scientific and economic basis for fisheries management
- effective decentralisation
- strengthening monitoring, control and surveillance (MCS)
- strengthening regional and international cooperation, and
- strengthening legal, policy administrative support.

RPOA countries continue to review and promote the findings of the report and consult with their relevant national agencies, local authorities and donor agencies.

Regarding the study *Framework for Model Fisheries Legislation in Southeast Asia (2010)*, the reports contain a chapter dedicated to ‘building capacity to implement responsible fishing legislation’.

## **INDONESIA RESPONSE RELATED TO THE IMPLEMENTATION OF PREVIOUS APFIC RECOMMENDATIONS**

### **Capacity building for implementation of Port State Measures Agreement:**

Mr Chair, Being as a signatory country to PSM agreement, Indonesia has taken efforts to combat and deter IUU fishing both at national level or together with countries in the Southeast Asian region. These are to show our strong commitment in combating illegal, unreported and unregulated fishing in order to save our fish resources for optimal use to achieve sustainable development. At the national level, in order to combat IUU fishing practices, Indonesia has put many efforts in strengthening Monitoring, Control and Surveillance (MCS) System.

Mr Chair, Indonesia would like to reiterate our deep concern to combating IUU fishing. Indonesia has aligned its national legislations with other International instruments (including related transposition of RFMOs resolution) supporting the spirits of preventing, deterring and eliminating IUU fishing, such as:

- Port State Measures (Indonesia is signatory country to PSM Agreement and is proceeding to ratify it). Currently, Indonesia has designated 5 (five) fishing ports as pilot/initial implementation of those instruments, (Indonesia is one of FAO's member country which signed PSMA and will ratify it),
- Vessel Monitoring System (Ministerial Regulation No. PER. 5/MEN/2007) which is on process of final revision,
- National Vessel Registration and Records (Ministerial Regulation No. PER. 27/MEN/2009),
- Capture Fisheries Business in High Seas (Ministerial Regulation No. PER. 12/MEN/2012), (European Union generally moderate comments in regarding to issued Ministerial Regulation No. PER. 12/MEN/2012). Furthermore the EU would give note that the Regulation should become the provisions of the Ministerial Regulation *No. 31/2004 jo UU No. 45/2009*),
- Catch Certificate (Ministerial Regulation No. PER. 13/MEN/2012),
- Implementation of the Regional Plan of Action (RPOA) to Promote Responsible Fishing Practice Including Combating IUU Fishing in the Southeast Asia Region
- Ministerial Decree on National Plan of Action (NPOA) IUU Fishing.

Realizing its severe impacts, Indonesia supports strong effort to enforce “transparency, cooperation at all levels, exchange of information, sharing data in a harmonized manner, and enhanced capacity”, to continue to Combat IUU Fishing and take action against IUU fishing through FAO-APFIC capacity building or technical assistant for implementation of Port State Measures Agreement.

### **The recent approval of the FAO/GEF “Strategies for trawl fisheries bycatch management” (REBYC-II CTI)**

Mr Chair, In order to put the stock specific target reference point into implementation and reduce bycatches & discards, Indonesia has participated in FAO-GEF REBYC-I and continued to FAO REBYC-II CTI ‘strategies for trawl fisheries bycatch management’ project to contribute more sustainable use of fisheries resources and healthier marine ecosystems in the Coral Triangle and Southeast Asia waters.

Mr Chair, Indonesia would like to reiterate the Coral Triangle Initiatives (CTI) that Indonesia and other 5 countries in Asia-Pacific region formed a regional cooperation to manage coral reefs

within the region which so called as a Coral Triangle of the World. The Coral Triangle region is located along at the confluence of the Western Pacific and Indian Ocean. Using coral and reef fish diversity as the two major criteria, the boundaries of this region are defined by scientist as covering all or part of the Exclusive Economic Zones of Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands and Timor-Leste.

Through this regional initiative the CT6 Countries work together to ensure the world's center of marine biodiversity remains vibrant and healthy, providing food and livelihoods for generations to come. CTI-CFF has already set up a Regional Plan Of Action (RPOA) which elaborate 5 goals of CTI-CFF, and some targets, among others improve income, livelihoods and food security in an increasingly significant number of coastal communities across the region through a new sustainable coastal fisheries and poverty reduction initiative (COASTFISH).

In that connection, Mr Chair, Indonesia welcome APFIC Secretariat and other APFIC member countries through REBYC-II CTI Project to cooperate with us in implementation programs and activities through sharing experiences and supports capacity building in the fields of threaten species, climate change, biodiversity in MPA management, and etc. In addition the work on Climate Change under Agenda Item 9 is as follows:

### **Regional opportunities and needs for adaptation and mitigation of climate change in fisheries & aquaculture**

Mr Chair, Climate change is now already reality of our life. In the case of Indonesia, during 2010 and 2012 we experienced sea level rise, unpredictable fishing season, flood, bad weather. These severely affected fisheries production both from capture fisheries and aquaculture, which in turn negatively affected socio-economic condition of fishers and fish farmers, and coastal communities, lost of economic assets and income, increase unemployment. In general, these reduced benefit to fisheries-related activities.

Realizing the impacts of climate change occur in every part of the world fisheries, therefore, Indonesia supports APFIC to play significant role on climate change issues and its impact to marine fisheries and aquaculture.

In the case of Indonesia, we have developed a climate change sectoral roadmap, which has incorporated sectoral mitigation and adaptation programs and activities towards the impacts of climate change. For coastal communities, fisheries and aquaculture sectors there are a number of main activity have been recommended such as:

- a) Improvement of regulation, policy, and institutional capacity for coastal communities, fisheries and aquaculture;
- b) Initiation of integrated management activities for fisheries and aquaculture;
- c) Formulation and initiation of small islands strategic and activities.

To facilitate and accelerate the implementation on the climate change adaptation and mitigation programs and activities for fisheries and aquaculture, Indonesia would like to draw the attention of the APFIC Secretariat and APFIC Member Countries to:

- 1) Initiate research and capacity building to establish climate change adaptive management strategy for fisheries and aquaculture;
- 2) Collaborate with other relevant international organizations such as UNFCCC through *Session of Subsidiary Body for Scientific and Technological Advice (SBSTA)*, UNEP, IOC UNESCO, on find ways and means on how to best support developing countries in responding to climate change impact to marine and fisheries sector.

## **INDIA RESPONSE RELATED TO THE IMPLEMENTATION OF PREVIOUS APFIC RECOMMENDATIONS**

### **(i) Link fisheries and aquaculture policies (integrating fisheries and aquaculture more effectively into other sectoral planning processes – especially agriculture)**

Fisheries and Aquaculture development policies are largely designed and implemented by the Governments in the States & Union Territories within their jurisdictions. However, comprehensive policies for fisheries beyond the territorial waters is drawn up and implemented by the Central Government. In the case of Coastal Aquaculture, comprehensive guidelines have been drawn up and implemented by the Coastal Aquaculture Authority. Fisheries and Aquaculture are increasingly finding place in the planning process, especially agriculture. Administration of inland water bodies varies from state to state and the water bodies are under the control of different agencies (Departments of Forests, Revenue, PWD, irrigation, Fisheries and Panchayati Raj, etc.). Management of water resources is crucial to ensure sustainable fisheries and aquaculture.

### **(ii) Fisheries and aquaculture adaptation and mitigation related to climate change**

A number of R&D programmes with focus on impacts of climate change is implemented. Indian Network on Climate Change Assessment (INCCA); Himalayan Glaciers Monitoring Programme; Sea Level Rise Analysis Programme of National Institute of Oceanography. The Indian Council of Agricultural Research has initiated Network Projects on (i) “Impact, Adaptation and Vulnerability of Indian Agriculture to Climate Change”, (ii) National Initiative on Climate Resilient Agriculture, (iii) ICAR Platform on Climate Change with fisheries and aquaculture components. UNFCCC Communication III from Ministry of Environment and Forests also includes Fisheries under Agriculture. National Mission on Strategic Knowledge on Climate Change is chaired by the Prime Minister of India.

Incorporation of fisheries and aquaculture sectors in climate related planning has already been taken up by undertaking studies on impact of climate change on fish population, fish migration and habitats, etc. The impact of climate change in aquaculture, especially on the breeding pattern, spawning habits, etc. are also being studied under programmes sponsored by Ministry of Agriculture.

### **(iii) Strengthening the implementation of eco-system approaches to fisheries and aquaculture**

Closed season is being implemented in the inland capture fisheries sector in many states and ban on fishing for a period of 45 days in both east and west coasts is effectively implemented in the marine sector besides mesh-size regulation, which helps in the rejuvenation of stock. Marine protected areas and sanctuaries have also been declared. There is increasing awareness in the country for incorporating the ecosystem concept in the planning and development of aquaculture. Ecosystem based management training needs attention.

### **(iv) Strengthening the assessment of fisheries for management decision-making**

Assessment of marine fishery potential in India is carried out jointly by the Fishery Survey of India under the Department of Animal Husbandry, Dairying and Fisheries through survey of fishing grounds and by the Central Marine Fisheries Research Institute under ICAR which provides the basic guidance for taking management decisions for development and conservation of resources.

#### **(v) Strengthening management of fisheries**

Management of marine fishing activities are by and large governed by the Marine Fishing Regulation Act enacted by all the maritime state governments in India. The Bill provides for specific operational areas for different types of fishing vessels, catch regulations, mesh size regulations and conservation measures. With the increase in fish price and its shortage in certain seasons, the low value fish is used as food fish these days in the fish scarce urban and rural markets.

#### **(vi) Strengthening the governance of fisheries and aquaculture especially co-management**

The co-management system was in vogue in parts of India in estuaries and backwater fishing with a village council to decide on the fishing rights to each family. However, with demographic pressure and subsequent intrusion of outsiders into the traditional right system, this has changed to a virtually open access resource. The system is more relevant in mariculture activities especially for cage culture and seaweed farming by self-help groups in open water where the resource 'users' are the resource 'managers' where management responsibilities and authority are shared with the fisherfolk. Identifying suitable sites for such programmes, proper coordination with the various user groups, Government's policy for leasing specified areas for mariculture/sea farming, involvement of local fishermen, etc. are important requirements of such ventures. Formation of fishermen cooperative societies delegated with specific authority bestowed on them has helped in protecting the interests of the traditional fishermen community.

#### **(vii) Reduction of fishing over capacity**

Towards optimization of fishing fleet as a follow up to IPOA on reduction in fishing over capacity (for the management of fishing capacity), a national level review committee was constituted by the Government of India to assess the area-wise requirements of different categories of fishing vessels below 20 m OAL (traditional, motorised and mechanised) for sustainable exploitation of marine fishery resources in the territorial waters and its contiguous deeper zones.

There is an urgent need to reduce fishing effort and all the existing programmes are mostly aimed at sustainable production and conservation measures with integrated ecosystem based fisheries management.

#### **(viii) Increased contribution to combating IUU fishing**

Efforts have been taken to prevent poaching by foreign fishing vessels within our EEZ by strengthening the coast guard organisation and by enacting the legislation viz. "Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981 to regulate fishing by foreign vessels in the EEZ of India.

To combat IUU fishing in the high seas, necessary steps are being taken including legislative measures, FAO has been consulted and a two member Mission from FAO visited India to provide guidance on the measures to be taken. Documents relating to International Plan of Action on IUU fishing and State Port Measures are being examined in the Legal and Treaties Division of Ministry of External Affairs. Coast guard organisation is strengthened.

### **(ix) Certification of fisheries and aquaculture**

Various certification programmes are in vogue in different sections of aquaculture. Export Inspection Council of India through field agencies implements measures for quality control and pre-shipment inspection. There is provision for seed certification in state legislations. Awareness has not still reached the farmers.

### **(x) Improving livelihoods of fishing and aquaculture communities**

Through a Centrally Sponsored Scheme viz. “National Scheme for Welfare of Fishermen”, basic amenities like housing, drinking water, community hall for fishermen are provided to facilitate better living conditions. Besides, Group Accident Insurance for Active Fishermen (providing insurance cover to fishermen against accidental death or permanent disability or partial disability) is provided. Savings-cum-relief is in operation to provide financial support to fishers during lean fishing seasons i.e. off season/fishing ban period. Fisheries training and extension programmes are there to provide training to fishery personnel to enhance their skills using extension material, manuals, video films on technologies, etc.

State Governments also implement certain welfare measures for fishermen.

### **(xi) Capacity building of Government staff and fishery/aquaculture farms**

Capacity building is an on-going routine activity in the Government Departments as well as in the Institutions under the Ministry of Agriculture including ICAR, Agricultural Universities (College of Fisheries) and the Krishi Vigyan Kendras (KVKs). During the 12<sup>th</sup> Plan period, the training and capacity development programmes are to be re-oriented.

Training of fish farms in fresh water and brackishwater aquaculture are looked after by the Fish Farmers Development Agencies (FFDAs) (numbering 429) and the Brackishwater Fishery Development Agencies (BFDA) (numbering 39) respectively as well as under the component of Training and Extension under the National Scheme of Fishermen Welfare.

### **(xii) Improve the management of inland fisheries**

A model bill for regulation of inland fishing and aquaculture has been circulated by the Central Government to States for their consideration. Similarly, Guidelines for Fish Seed Certification have also been circulated to States.

FFDAs played a major role in propagating modern scientific methods of fish farming and are responsible for creating a cadre of fish farmers. Disease surveillance in the country is to be strengthened.

### **(xiii) Management of aquaculture (biosecurity concerns and biodiversity)**

Adequately taken care of under the CAA Act, 2005 and through Guidelines for farming of *L. vannamei* by introducing biosecurity measures. Similar guidelines are being formulated for SPF *P. monodon* for implementation.

### **(xiv) Improve feeds for aquaculture**

Production of formulated feed is in vogue mainly for shrimp and fish like seabass, pangas catfish. Development of cost-effective feed with efficient feed conversion ratio and development of fish

feed mills and scaling-up the production of existing feed mills; popularisation of extruded feed based aquaculture among farmers are receiving greater attention. Standards for formulated feeds have been established for selected species.

**(xv) Improve information and statistics**

Statistics on marine fish landings are collected by the Department of Fisheries of respective coastal State Governments as well as CMFRI and its centres located in different coastal states. The resources under inland fisheries and aquaculture are highly dispersed and mostly located in inaccessible and difficult terrains. Resource mapping through GIS (including coastal aquaculture and mariculture), regular building and updating the database; manual survey of water resources are proposed for the future.

A scheme for strengthening of database and GIS for fishing sector is being implemented at present which covers resource mapping, documentation of all water bodies through satellite imagery data (to be revalidated through manual survey), socio-economic status of fishers (literacy, income, health, etc.), quinquennial census of marine and inland fisheries sector, etc.

Two national information grids, one for marine fisheries and the other for inland fisheries and aquaculture are proposed which would be repository of all information on marine and inland fisheries sectors and will be a single-window source for all information.

## **REPUBLIC OF KOREA RESPONSE RELATED TO THE IMPLEMENTATION OF PREVIOUS APFIC RECOMMENDATIONS**

Republic of Korea has been putting its efforts to accomplish recommendations from APFIC.

The Korean government has been implementing various policies to rebuild fish stocks. The first effort of this kind started with the TAC, targeting the most vulnerable species. Along with TAC, marine ranch project, fry releasing, fishing ground environment management projects are the programmes that the Korean government has carried out for its sustainable fisheries. With this dedicated effort, the status of Korea's major commercial fish stocks, such as yellow croakers, blue crabs and sandfish, have been significantly enhanced, which can serve as an exemplary case in sustainable fisheries rebuilding.

The Korean government is also endeavoring to combat IUU fishing by rearrange its legal frameworks and cooperating with international organizations.

In 2011, 932 local communities and 64 000 fishermen, whose portion takes up 40 percent of the total fishing population, participated in the community-based fisheries management project, which commenced in 2001. This project contributes to enhancing the responsibility of local fishermen and to combating IUU fishing.

Recently, to regulate overcapacity effectively, the Korean government enacted the Fishery Resource Management Act that includes vessel quantity reduction plan with its government's own authority from 26 July. Compared with the previous Act, the amended Act allows the government to consider comprehensive factors such as the type of fishery, the using method of fishing gears, the scale of fishing, etc. when it enforce the Act. According to the Act, vessel reduction has been executed at the government's standard with broaden discretion and at the same time, the government can support the livelihood of fishers to prevent the conflicts between the stakeholders.

In addition, to regulate the recreational fisheries "the Management of Recreational Fishing Act" has been forced since September 2012. The Act regulates fishing gears, targeting fish, the amount of fish and size. Also, the Act prohibits from producing, importing, storing, transporting and displaying invasive fishing gears, and it reinforces the protection of marine resources and prevents marine ecosystem from being destroyed by setting up the criteria of proper baits.

Lastly, for sustainable and responsible aquaculture and ecological aquaculture farm management, the Korean government established the "strategy for cultivating eco-friendly and high value-added offshore aquaculture" in order to transform the inland-oriented aquaculture into offshore aquaculture. With our efforts, we succeeded in building five offshore aquaculture farms to cultivate tuna and even researching alternative feeds and managing marine resource diseases.

## **MALAYSIA RESPONSE RELATED TO THE IMPLEMENTATION OF PREVIOUS APFIC RECOMMENDATIONS**

### **Strengthening the implementation of ecosystem approaches to fisheries and aquaculture**

Malaysia has implemented and will continue implementing ecosystem approaches to fisheries and aquaculture. Malaysia proposes to expand its implementation.

Malaysia has developed NPOA for Managing Fishing Capacity, Aquatic Invasive Alien Species and Turtles in line with EAF. It is also reviewing NPOA on Sharks and in process of finalizing NPOA on IUU.

### **Integrating fisheries and aquaculture more effectively into other sectoral planning processes**

Malaysia has adopted a new approach of bringing investment into the industry through Public and Private Partnership Program (PPP) which is outlined in National Key Economic Areas (NKEA) under the Government Transformation Program (GTP). Through the initiative, private sector companies which have been successfully selected to participate in the above program must comply with Malaysia aquaculture standards (*GAQP* and SOP). This is to ensure competitiveness of the industry and sustainability of the resources.

### **Certification of fisheries and aquaculture**

Malaysia has also reviewed the Aquaculture Regulation to strengthen the aquaculture industry in line with current development. Malaysia practice certification of fisheries and aquaculture. The protocol will be further strengthened to ensure its effectiveness. Malaysia would like to propose to all APFIC member countries that all available certification protocol be harmonized.

### **Increased contribution to combating IUU fishing**

Malaysia supports the Regional Plan of Action to promote responsible fishing practices including combating IUU fishing in the region.

### **Fisheries and aquaculture adaptation and mitigation related to climate change**

Malaysia has outlined the National Plan of Action to mitigate climate change. Department of Fisheries Malaysia, Ministry of Agriculture and Agro-based Industry is a committee member of the National Steering Committee on Strategic Planning for Climate Change lead by Ministry of Natural Resources & Environment Malaysia.

### **Management of aquaculture**

Malaysia applies the Import Risk Analysis (IRA) on indigenous species introduced into the country for aquaculture.

## **THE REPUBLIC OF THE UNION OF MYANMAR RESPONSE RELATED TO THE IMPLEMENTATION OF PREVIOUS APFIC RECOMMENDATIONS**

### **Background**

The country is endowed with rich and varied marine, coastal and inland fishery resources. It has 2 832 kilometer of coastal line and total marine fishery areas of 486 000 square kilometer. Inshore fishing vessels and offshore fishing vessels are operating in Myanmar waters. Medium size trawlers, purse seines and long liners are important for marine fishing. Besides them a lot of traditional fishing gears and implements are also operating in the open fisheries of coastal and inland areas.

Myanmar inland water bodies such as natural lakes, reservoirs, rivers, ponds cover an area of about 8.2 million hectare. Inland fisheries support livelihoods of thousand of families, contributing fish supplies and national revenue. To increase fish production “Culture-based capture fisheries” is being practiced in some leasable waters. As a regulation, the lessee has to release fish fingerlings/juveniles into these fishery areas.

Aquaculture has a major role in terms of food security and one of the important industries in national economy of country. Myanmar has a fish pond area of 218 746 acres (88 525 hectare), shrimp ponds areas of 224 949 acres (91 036 hectare). Pond culture of freshwater fish Rohu (*Labeo rohita*) is well developed and significant production of cultured freshwater fish contributes domestic consumption and shares the surplus with other countries. Myanmar people prefer freshwater fish to marine fish. So the State has laid a policy to target marine fish for export market.

Eighteen kinds of freshwater fish are being successfully cultured and nearly (800) million of fish seeds are being produced by government and private fishery stations for aquaculture development and restocking program.

Total fish production in 2010-2011 was 4.14 million metric tonnes, out of which (2.16) million metric tonnes from marine fisheries, (1.98) million metric tonnes from freshwater fisheries. Fisheries sector in Myanmar is of a great importance for food security and major source of animal protein in the diet of the people. In 2010-2011 per capita consumption of fish was 48 kg in Myanmar.

The policies and objectives of the Ministry of Livestock and Fisheries are as follows:

- 1) To produce quality breeds of Livestock and fish
- 2) To promote all round development in the livestock and fishery sector
- 3) To increase meat and fish production for domestic consumption and share the surplus with neighbouring countries
- 4) To promote investment in livestock and fishery sector
- 5) To encourage the expansion of marine and freshwater aquaculture
- 6) To maintain and conserve freshwater and marine resources
- 7) To extend freshwater fisheries for local consumption and promote marine fisheries for export
- 8) To upgrade the socio-economic status of livestock and fisheries communities.

According to the Statistics of 2010-2011, Myanmar has a population of 60.85 million and 70 percent of the total population is living in the rural areas. Fisheries contribute rural people livelihoods, food security, nutritional needs and socio-economic development. The States has been conducting the food security program for livelihoods rural community such as rice-fish culture program, restocking fish and prawn seeds into natural waters, conducting training on fish seed production and grow-out culture techniques, distribution of fish seeds to farmers, providing loans to stakeholders, and establishing backyard hatcheries.

The Department of Fisheries is a sole responsible institution and competent authority for the management and sustainable fishery development of the country, the Profile of the Department of Fisheries are:

- 1) To distribute quality seeds of fish and shrimp,
- 2) To conserve fisheries resources, environment and biodiversity,
- 3) To conduct research and development on fisheries technology,
- 4) To enhance fish production for domestic consumption and export,
- 5) To replenish fisheries resources by restocking program,
- 6) To educate and create public awareness in fisheries resources conservation,
- 7) To disseminate fisheries technology in fishing, aquaculture and fish processing,
- 8) To improve capacity building of departmental personnel for human resources development.

In order to conduct proper fisheries management the State issues directives and regulations, in accordance with fisheries laws, on conservation of fishery resources and fisheries management for sustainable fishery development such as closed season, closed areas, prohibited sizes and species and restriction of mesh size.

For sustainable fishery development and fish food security of the country, illegal fishing method such as electric fishing, explosive, poison fishing are prohibited by law.

However, Myanmar has some constraints to a certain extent in fishery sector such as inadequate seeds supply in marine finfish aquaculture, it is due to inadequate hatchery technologies, inadequate information on actual marine resource situation, it stands as a constraint to conduct the effective fishery management and inadequate technology and capacity in value-added products processing for small and medium scaled fishery products.

### **Actions taken on the APFIC Recommendations**

For responding and implementing of previous APFIC recommendation Myanmar has six fishery developments:

- (1) Conservation and rehabilitation of fishery resources;
- (2) Promotion of fisheries researches and surveys;
- (3) Collection and compilation of fishery statistics and information;
- (4) Extension services;
- (5) Supervision of fishery sectors;
- (6) Sustainability of fishery resources.

*Also, planning for six National Fisheries Development Plans:*

- (1) Planning for supporting to expansion of costal aquaculture.
- (2) Expansion of rice-fish culture program for development of rural area.
- (3) Mud crab culture development plan.
- (4) Implementation of genetic improvement in Rohu (*Labeo rohita*)
- (5) Pilot Farming Projects of seaweed (*Eucheuma cottonii*) in coastal area.
- (6) Planning for public awareness for conservation of fishery resources.

For food sufficiency of Myanmar people including living people in rural area, the plan of implementation for food security were carried out by Department of Fisheries of Myanmar that not only releasing fish fingerlings into natural resources such as lakes, dams, reservoirs, and open waters but also genetic improvement in Rohu (*Labeo rohita*) with the purpose of getting more and more growth rate of fish and the increase of fish production of per acre yield as well as to get more income by the fishers and fish farmers. Moreover, Department of Fisheries has initiated and encouraged the paddy cum fish farming in Myanmar. Since 2009, the Department of Fisheries under the Ministry of Livestock and Fisheries has been carried out the implementation of genetic improvement in Rohu (*Labeo rohita*) with the short-term and long-term planning.

Conservation of fisheries resources has always been the primary concern of the Department of Fisheries, so Marine Park and Marine Reserves as well as fisheries protected area have been established under the Fisheries Law of Myanmar.

As we all know, mangrove are a source of shelters for fish. Many of coastal species spent the critical early stage of their lives in mangrove waters. So, the mangrove conservation is essential to save fisheries resources. Consequently, it ensures the sustainability of fisheries in the long term. Besides, the maintenance of ecological system is the conservation of reef and coral and declaration the marine protected areas (MPAs). It is the effective approach to improve the marine environment. The understanding of ecosystem function and its maintenance can help the development of fisheries in a sustainable manner.

The weather conditions depend on the environment. Deforestation is one of the factors for destroying the natural environment. So the forest conservation is needed by everybody. In the fishery sector, another important thing is the prevention of the fish disease which has been a difficult problem for fish-farmers. So, the sufficiency on the supply of good water quality is an essential matter.

Moreover, the public awareness for environment is very important for the sustainable fisheries and the people should be educated about the environment not to do overfishing and degrading the environment which are harming them-selves. It is, because we are being a part of the complex network of its environment.

Regarding these factors, Myanmar Department of Fisheries implementing development plans for improvement of fishery sector.

## **NEPAL RESPONSE RELATED TO THE IMPLEMENTATION OF PREVIOUS APFIC RECOMMENDATIONS**

Nepal is a land locked Trans Himalayan and Trans mountainous country. There are 6 000 small and larger river, clear water originating from glacial lakes, mountain Siwalik, which covers 2.2 percent global fresh water which goes to river Ganga and Kaberi Rivers. Out of 8 141 000 ha of inland freshwater in the country negligible water is being used (ground water without aeration) in Plain Tropical Area e.g. Terai.

In 1950's started aquaculture but within half decade we would not expand it even though our main resource is water & land, right now, DOFD providing technical advice and support to the field offices and direct controls over 10 public fisheries centre in the country, along with policy, doing planning, budgeting in aquaculture and fisheries even though Government has given high priority to promote aquaculture and fisheries in the country.

### ***Fish and Fishery Resources***

200 spp (Sharma) 2011 reported indigenous species inhabiting in different water bodies in the country. Annual production of 53 000 m tonnes, 44 percent shares of capture and 56 share of culture (DOFD 2011).

### ***Objectives***

Objective of DOFD is to provide aquaculture and fisheries for promotion of livelihoods and nutrition to rural people. Aquaculture in Nepal now carry cold water aquaculture where trout is culturing in race ways in 7-8 districts (one government farm and 73 private farms). Similarly in warm water in tropical areas (7 500 ha) carp polyculture is carried out using ground water.

### ***Health management***

Fish health management is carried out by Central Fish Laboratory and Regional Fisheries Centre and reported to OIE quarterly.

### ***Conservation***

Conservation of aquatic animal is guided by the Aquatic Animal Protection Act 2017 B.S.

### ***Legislation***

Fisheries legislation and quarantine rules are carried out from the Department of Livestock in consultation with DOFD.

### ***Genetic management***

- TCP/NEP/3303 launched for 2 years to develop pure line Brood Stock management & fish seed dissemination (March 2011 and will end in December 2013).
- National Park Conservation Act (1973) Himalayan, Mountain National Park 1979 Environmental Policy Action Plan (NEPAP)
- National Policy in Aquaculture and Fisheries: To utilize maximum available water resources for fish production.

### ***Stakeholder involved***

Major stake holders are DOFD, NARC, FDC, Breeder, Nurseryman, Seed Trader, Grower.

### ***Constraints***

Separate Aquatic and Fisheries Development Act is lacking. Nuclear Breeding Centre in mid hill and high hill is not yet established. All the farms Terai are going down their activities due to decrease in water supply & over use by the people for drinking & other activity by using electric motor & pumps. Artesian layer is going down in Southern Plain Areas.

### ***Socio-economics***

- Average farm size 0.1-0.7 ha
- Households involved Aquaculture and Fisheries is 197 000.
- Consumption/capita/year between 15–20 kg in fisher group and 4-5 kg in non-fisher communities.
- GDP contribution is 2.5 percent in agriculture.

### ***Import***

- Fishes status of import from neighbouring country is estimated around 60 000 m tonnes e.g. 30 million US\$/year.
- Productivity status:
  - River – 18 kg/ha
  - Lakes – 170 kg/ha
  - Reservoirs – 257 kg/ha
  - Pond culture – 3.6 m tonne/ha

### ***IUU fishing***

Awareness programme has launched in different districts, through media and hoarding board/penalties, by local Administrative Authority.

### ***EAF***

Pond culture and trout farming is organic without the use of chemicals and pesticide. To promote small-scale aquaculture, high priority has given through mission program, OV/OP.

### ***Aquaculture in future***

Expansion of area for aquaculture by using perennial river, rivulets water in river basin in 15 districts in mid hill is planning to stage in mid hill & high hill. In this regard, engineering/expert is needed to achieve the goal.

DOFD is going to change to Departmental Structure or separate Board link directly to Ministry of Agriculture Development.

### ***Expected Support***

FAO/APFIC should support to expand riverine fisheries in mid hill and high hill and try to link with SEAFDEC Project.

## **PAKISTAN RESPONSE RELATED TO THE IMPLEMENTATION OF PREVIOUS APFIC RECOMMENDATIONS**

In response, the Integrated Fish Culture i.e. rice fish culture was started in 5 districts of Sindh province. This gave good results viz decrease in use of pesticides and proper use of waste land also.

The climate change resulted in floods and rains in year 2010 and 2011. Fisheries Department stocked fish seed in the effected areas which remained growing for 3 to 4 months and people of effected area received fresh fish food and livelihood:

- (i) Government of Sindh province of Pakistan abolished lease (contract) system and introduced license system on very nominal fees of RS100 for registration purpose. By this middle man and commission agents are eliminated and fishermen's income is increased and livelihood is improved.
- (ii) Fishermen have been provided with improved boats, insulated plastic boxes, boat engines, nets of legal mesh (to eliminate illegal nets), plastic crates and plastic baskets, bicycles. By this facility fishermen are made free from taking loans from commission agents and use hygienic gears for fish transportation and preservation.

Capacity building of government officers has been made by (i) by sending 6 officers to Malaysia for Phd; (ii) conducting local training of 50 officers; (iii) conducting local training of 2 500 fishermen; (iv) conducting local training of 2 000 fishfarmers.

Statistics are collected from Taluka level of each district on monthly basis and compiled at province and national level.

## **REPUBLIC OF PHILIPPINES RESPONSE RELATED TO THE IMPLEMENTATION OF PREVIOUS APFIC RECOMMENDATIONS**

### **Integrating fisheries & aquaculture more effectively into other sectoral planning processes (APFIC 29<sup>th</sup> Session)**

- There is now a program of the fisheries sector that adapts organic aquaculture in line with the government policy on organic agriculture.

### **Fisheries and aquaculture adaptation and mitigation related to climate change (APFIC 31<sup>st</sup> Session)**

- The aquasilviculture projects make use the mangrove forests without cutting down the trees to raise finfish, crabs and other mollusks.
- The establishment and maintenance of hatcheries for fingerling production and distribution enable aquaculturist to avail of cultivable fish and other aquatic animals without the negative impact of natural and man-made calamities.
- The establishment and maintenance of mariculture parks provide venues/space for enterprising groups to engage in aquaculture.

### **Strengthening the implementation of ecosystem approaches to fisheries and aquaculture (APFIC 30<sup>th</sup> & 31<sup>st</sup> Sessions)**

- Ecosystem approach to fisheries management trainings being conducted to various stakeholders at the national, regional, local and community levels.
- A national Ecosystem Approach framework serves as the guide in implementing fisheries management activities/project.
- The Philippines, in partnership with Asian and Pacific countries promotes regional and subregional cooperation for ecosystem and fishery management.
- The Philippines is in the process of putting together the components of EAFM. The previous initiatives will be considered in ICM.
- There will be a forum in the where all concepts and principles of EAFM will be discussed.
- Request for the Secretariat to provide resource speaker on EAFM.

### **Strengthening the assessment of fisheries for management decision-making (APFIC 31<sup>st</sup> Session )**

- National Stock Assessment Program (NSAP) in place to gather necessary data for management
- Coordination with regional and subregional bodies on tuna and small pelagics in areas of policy development and management

### **Strengthening management of fisheries (APFIC 29<sup>th</sup> Session)**

- Development of national plan of action for tuna, sardines and sharks distribution of environment-friendly fishing gears and paraphernalia
- Licensing of municipal fishing boats to determine fishing effort
- Implementation of the 3-cm mesh size

- Establishment of marine protected areas
- Improve the utilization of low value/trash fish for human food
- Improve post-harvest fish handling for human consumption to enhance food safety measures

**Strengthen the governance of fisheries and aquaculture, especially co-management (APFIC 29<sup>th</sup> Session)**

- The government recognizes the roles of the national government and the local government in the implementation of fisheries management and aquaculture management
- Trainings/workshops/seminars are being conducted regularly to capacitate local governments in better implementation of laws, rules and regulations.
- The Bureau continues to provide information to the major stakeholders
- There is a regular interaction with the media to disseminate information
- The laws and fisheries administrative orders are regularly reviewed to determine relevance

**Reduction of fishing overcapacity (APFIC 31<sup>st</sup> Session)**

- There is a continuous effort to register and license municipal fishers
- The national government license commercial fishing vessels within the limits of the Philippine Fisheries Code.

**Increased contribution to combating IUU fishing (APFIC 30<sup>th</sup> Session)**

- Philippines is strongly committed to combat IUU fishing and take action against IUU fishing
- Support the “Regional Plan of Action (RPOA) to Promote Responsible Fishing Practices Including to Combating Illegal, Unreported and Unregulated (IUU) Fishing in the Region”
- National budget increased to IUU, quadrupled in 2013
- Process of adapting the Port of State Measure

**Certification of fisheries & aquaculture (APFIC 30<sup>th</sup> Session)**

- Promote farm registration, HACCP accreditation and traceability system

**Improving livelihoods of fishing and aquaculture communities (APFIC 31<sup>st</sup> Session)**

- Provide alternative income generating activities that are identified by the stakeholders, peoples organization and the coastal communities
- The government continues to provide training and capacity building to women who are engaged in fishery related activities.

**Capacity building of government staff and fishers/aquaculture farmers (APFIC 29<sup>th</sup> Session)**

- Continue human and institutional capacity building at all appropriate levels across communities on organic aquaculture
- Government staff at all levels are encouraged to take the opportunity of further improving their capacity in fisheries and aquaculture.

### **Improve the management of inland fisheries (*APFIC 29<sup>th</sup> & 31<sup>st</sup> Sessions*)**

- The major inland bodies of water are being assessed and evaluated for future projects and activities.
- Inland bodies of water are regularly monitored to avoid fish kills.
- Promote co-management in Inland fisheries areas by coordinating with other national and local government in addressing issues by strengthening inter-sectoral coordination.

### **Management of aquaculture (*APFIC 31<sup>st</sup> Session*)**

- Address biodiversity and biosecurity concerns of aquaculture (e.g. escapees from aquaculture, deliberate introductions and unregulated movement of stock)
- Determination and reduction of the carrying capacity of lakes and other inland bodies of water
- Limitation of aquaculture projects by determining the carrying capacity of inland waters

### **Improve feeds for aquaculture (*APFIC 29<sup>th</sup> & 31<sup>st</sup> Sessions*)**

- Reduce fishmeal utilization by regulating the culture of species that feed mostly on fishmeal

### **Improve information and statistics (*APFIC 30<sup>th</sup> Session*)**

- Continuous collection of statistics which also include catch effort and vessel numbers

## **SRI LANKA RESPONSE RELATED TO THE IMPLEMENTATION OF PREVIOUS APFIC RECOMMENDATIONS**

Sri Lanka has taken note of all the recommendations of the previous APFIC Sessions. However, I admit that we have not been able to implement all the recommendations adequately due to lack of technical capacity, human resources and finances. I report here on those recommendations that Sri Lanka has taken action for implementation.

### **Integrating fisheries and aquaculture more effectively into other sectoral planning processes**

The concept or policy embedded in this recommendation is being implemented by Sri Lanka since 1950s, when the National Planning Commission was in existence. Currently, all development decisions made by agencies representing different sectors at the district level are reviewed before implementation at the respective district planning and coordinating committee chaired by the district secretary. At the national level, all development proposals are appraised by the National Planning Department of the Ministry of Finance and Planning and the Committee of Secretaries before submission to approval by the Cabinet. This process has prevented conflicts in development activities of different sectors competing for scarce resources and resulted in optimization of allocating resources.

### **Fisheries and aquaculture adaptation and mitigation related to climate change**

Sri Lanka has set up a climate change secretariat (CCS) under the Ministry of Environment to lead the country to take comprehensive action to contribute towards local, regional and global efforts in combating climate change and to integrate unavoidable climate change scenarios in the National Sustainable Development Plan. The goal is to develop high resilience to global climatic changes. A national advisory committee representing relevant stakeholders has been established to ensure that climate change policies and programmes are consistent with national development priorities and objectives, and provide guidance to formulate required policies and strategies. The fisheries and aquaculture sectors are also covered by this programme.

### **Strengthening of the implementation of ecosystem approaches to fisheries and aquaculture**

Sri Lanka as a policy, applies the ecosystem approach to management of fisheries, particularly for small-scale fisheries and aquaculture, although in addition, conventional approaches are still being used for management of certain fisheries. The tools used in the ecosystem approach to fisheries management include establishment of marine protected areas under the Fauna and Flora Protection Ordinance, establishment of fishery management areas and fisheries reserves under the Fisheries and Aquatic Resources Act and establishment of special management areas in the coastal zone under the Coast Conservation Act. These are established after a wide consultation process. While no fishing is allowed in marine protected areas, fishers and other stakeholders are allowed to implement their own management plans for fishery management areas and special management areas. In fisheries reserves, although fishing is allowed subject to a permit procedure, certain activities are prohibited. At present there are 21 marine protected areas, 30 fishery management areas and 53 special management areas. In regard to aquaculture, the ecosystem approach is implemented through the preparation of zonal plans for establishment of aquaculture farms and subjecting proposed aquaculture projects to an EIA process under the National Environmental Act. We have also initiated capacity building programmes to train officials in the area of Ecosystem Approach.

## **Strengthening of the assessment of fisheries for management decision-making**

Sri Lanka's research organization in fisheries and aquatic resources generate information required for decision-making by various low-cost methods such as collection and analysis of catch data as well as high-cost resource-surveys. Three weeks back we had BOBP-IGO supported workshop to define the scope and attributes of small-scale fisheries, where we recognized that all fisheries conducted in Sri Lanka waters (that is the internal waters, territorial sea and EEZ) come under the category of small-scale. The indicators used for this categorization included, in addition to the vessel size and the gear used, ownership, market, level of capital investment, level of operational cost, etc.

## **Strengthening of management of fisheries**

We have adapted a number of measures to strengthen the management of fisheries. I have already mentioned about the ecosystem approach to fisheries that we have already adapted. We also use conventional approaches to manage certain fisheries such as lobster fishery, chank fishery, sea-cucumber fishery and marine ornamental fishery owing to their nature by prohibiting fishing of certain sizes, prescribing closed seasons, etc. Several destructive fishing gears such as monofilament net, trammel net, moxi net, push net and netting on corals have been banned. Use of explosives including dynamite and poisonous substance for killing fish has also been banned with deterrent punishment for offenders. Every vessel used for fishing is required to be registered, and an electronic vessel registry has been established. All commercial fishing operations including traditional fishing operations need to be undertaken on license. Trawl fishing operations are not allowed. Port-state measures such as requirement to declare fish catch and maintain logbooks for vessels over 32 ft, etc. have been made mandatory. Fisheries inspectors have been deployed in fishery harbours for enforcement of port-state measures.

## **Strengthening of the governance of fisheries and aquaculture, especially co-management**

As a policy Sri Lanka has accepted co-management in fisheries. The Fisheries and Aquatic Resources Act contains provisions for declaration of fisheries management areas, formation of fisheries committees, and designation of a fisheries committee of a declared fisheries management area as the fisheries management authority for such area. Under these provisions 30 fisheries management areas have been declared with the fisheries committees of such areas designated as fisheries management authorities for the respective areas. A fisheries committee can formulate a fisheries management plan for its area and implement it. A fisheries management authority can make recommendations to the Minister on the conduct of fishing operations, use of different types of fishing gear, establishment of closed seasons for fishing, and times during which fish may be harvested. Message for sustainable use of resources is being passed on to the fisheries community through the respective fisheries committees by awareness campaigns.

## **Reduction of fishing overcapacity**

We are very much concerned about the sustainability of the fishery resources. No vessel is allowed to fish in the territorial sea or EEZ without getting registered as a local fishing vessel. Expansion of the fleet that fish in the coastal waters, that is the territorial sea and waters over the continental shelf is not promoted. No investment incentives are given for coastal fishing as we have exhausted the coastal resources. Also no foreign vessels are allowed to fish in Sri Lankan waters, although there is large-scale poaching in the waters off the Northern Province by Indian trawlers. This issue cannot be addressed merely by arresting those fishers and their trawlers since it has become a political and a sensitive problem where a diplomatic consensus is warranted.

## **Increased contribution to combat IUU fishing**

Sri Lanka is committed to combating IUU fishing and has initiated a number of management measures in this regard. These include public education and awareness, enforcement of the existing legal provisions, and strengthening of monitoring and surveillance activities. Recently action was taken against 11 vessels, which were listed in the provisional IUU list at the 15<sup>th</sup> Session of the IOTC. All these vessels were deregistered with cancellation of their fishing operation licenses. Regulations have been made under the Fisheries and Aquatic Resources Act compelling marking of fishing vessels in accordance with the FAO specifications and requiring fishers to have a valid operation license and relevant documents onboard when they engage in fishing. Fishing vessels are also required to maintain log books onboard and submit a catch certificate on a given format upon each landing. Fisheries Inspectors have been trained and deployed in fishery harbours to enforce port-state measures. Vessels engaged in high-seas fishing are required to fix transponders onboard that are linked to the central monitoring system of the Department of Fisheries and Aquatic Resources throughout the fishing trip. We are in the process of acquiring a state of the art VMS system, and bringing in new legislation to have strict control of our fishing vessels fishing outside our EEZ with deterrent punishment for IUU fishing. We have already made amendments to the act No. 2 of 1996 to make VMS a mandatory requirement. Legislation has lo been drafted for fishing in the high seas and being presented to Parliament for approval.

## **Certification of fisheries and aquaculture**

We are exploring the possibility of introducing MSC or some other certification to selected fisheries and aquaculture particularly export oriented fisheries and aquaculture. We have had discussions with the respective industries in this regard and they have expressed their willingness for such certification. Since this involves in bringing in new legislation and establishing monitoring systems we need expert assistance.

## **Improving livelihoods of fishing and aquaculture communities**

Enhancing the socio-economic status of the fishing communities is one of the major objectives of the fisheries development programme of Sri Lanka. During the budgetary process, funds are allocated for this purpose. Diversification of livelihoods of fishing communities by providing meaningful alternative livelihoods is one activity under the programme of socio-economic uplifting of fishing communities. Fishers, particularly women are provided with soft bank loans to commence non-fishing economic activities such as small-scale livestock, home-gardening, dress-making, etc. Some INGOs like IUCN and also donor support is also coming forward to actively support this programme. This indicates that the role of women especially in fisheries has been recognized and gender perspective has been well integrated into the main stream.

## **Capacity building of government staff and fishers/aquaculture-farmers**

We implement different programmes such as training workshops, seminars to train officers at national level, district level and field level who are involved in fisheries management. These are mostly in-service training programmes covering aspects like ecosystem approach and co-management. We also avail of foreign training facilities funded by different funding agencies to train our fishery officers in management. There are training courses both in-house and field conducted by National Institute of Fisheries and Nautical Engineering targeting fishers and aquaculture-farmers in management aspects. Apart from that intensive awareness programmes are conducted for fishers and aquaculture-farmers to raise their awareness in relevant subjects.

## **Improving of the management of inland fisheries**

We implement programmes to enhance stocks in reservoirs for fishing by periodic stocking of hatchery-bred fingerlings of economic species like Indian major carps, Chinese carps and tilapia. However, we have not undertaken cost-benefit analysis of such stock enhancement. Generally the fisher organizations in reservoirs pay for the fingerlings supplied, which indicate that fishers get adequate return for the payments they make. These stock enhancement programmes have been conducted over several decades, and there have not been any complaints so far from the fishers, villagers living in reservoir areas, environmental authorities or environmental lobbies that such programmes have resulted in adverse impacts.

Inland fishers have been organized into cooperatives and they are actively involved in management of inland fisheries, by deciding mesh sizes, days and times of fishing, etc. In seasonal reservoirs, it is the farmers who cultivate with water from the particular reservoirs, who are involved in fishing. Therefore, there are no conflicts with fishers and farmers.

## **Management of aquaculture**

Establishment of aquaculture facilities requires prior clearance under an EIA process and their operation requires management license. Introduction of alien species also require EIA clearance apart from customary clearances such as quarantine. Biodiversity and bio-security concerns in aquaculture are addressed in this process. The following regulations made under the Fisheries and Aquatic Resources Act, apply in respect of management of aquaculture.

- Aquaculture Management Regulations – 1996
- Aquaculture Management (Disease Control) Regulations, 2000
- Aquaculture (Monitoring of Residues) Regulations, 2002

## **Improvement of feeds for aquaculture**

Currently freshwater aquaculture farmers, who undertake farming operations mostly on a small-scale, prepare their feeds required by them using local ingredients. However, shrimp farmers are totally dependent on imported pellet feeds. One major drawback in preparation of local feeds for shrimp aquaculture is the non-availability of fishmeal in adequate amounts. NARA is proposing to embark on a local aquaculture feed development programme.

## **Improvement of information and statistics**

There is a central fisheries statistics unit (CFU) established at the Ministry of Fisheries and Aquatic Resources Development. Field officers attached to district offices of the Department of Fisheries and Aquatic Resources visit identified vessels in accordance with an approved programme and provide monthly fish catch data to CFU based on species groups covering all marine fisheries. NARA also implements a statistical research programme in respect of large pelagic fisheries and provides the data on the catches of large pelagic fish to the CFU. CFU reconciles these data and prepares monthly catch statistics. CFU has identified the newly introduced log books required to be maintained by fishing vessels of over 32 ft also as a source of fish catch data. The Department of Fisheries also maintains an electronic vessel registry in place of the conventional vessel registry that has been maintained over decades.

As regards inland fisheries, it is NAQDA that provides monthly data to CFU based on different production areas such as large reservoirs, seasonal tanks, aquaculture farms, etc. However, CFU implements a random checking programme to verify inland fish catch data before preparation of the final estimates.

### **Agenda Item 11: Emerging issues in fisheries and aquaculture**

Steadily increasing demand for fish both in domestic and international markets together with increasing demand for employment in developing coastal countries have resulted in uncontrolled expansion of fishing fleets and thereby continuously increasing pressure on fish stocks. This is seriously affecting the sustainability of fish stocks.

We have also observed over the years that developed fish importing countries are continuously bringing in more and more stringent fish quality requirements. Moreover, they are also imposing different certification schemes. It is difficult and quite expensive for developing countries to meet such requirements. They can even lead to collapse of the fish export industries in developing countries with large-scale unemployment of fish workers.

As regards aquaculture, increased competition for land and water by agriculture, plantations, housing and industries has posed difficulties for aquaculture to obtain land with adequate water supplies for development. In brackish-water areas availability of land for establishment of brackish-water aquaculture is limited mainly due to environmental reasons and competition from housing, hotels and industries.

## **THAILAND RESPONSE RELATED TO THE IMPLEMENTATION OF PREVIOUS APFIC RECOMMENDATIONS**

In according to the previous APFIC recommendations, Thailand has implemented the following main actions:

### **Strengthening of the governance of fisheries and aquaculture, especially co-management**

- Thailand has finally ratified the 1982 United Nations Convention on the Law of the Sea (UNCLOS) and became a contracting party in 2011.
- The Fisheries Act of 1947 has now been revised in order to meet challenge and newly emerging issues at global, regional, and national levels. It is now in the process of the House of Parliament scrutiny. It is anticipated that the updated Fisheries Act will come into effect soon.
- A Master Plan for the management of marine fisheries of Thailand 2009–2018 was adopted and is being implemented. It consists of five strategies and highlights the concept of sustainable fisheries development based on the Sufficiency Economy philosophy, that places the people at the centre.
- Thailand has already developed an NPOA-Shark and is in a revision process for more effective implementation.

### **Management of aquaculture**

- Due to the importance of aquaculture to national economy and society, a strategy and plan of action for aquaculture (2012–2016) has been finally developed and is being implemented.

### **Improving the management of inland fisheries**

- Thailand is drafting a strategy and action plan for inland fisheries.

### **Fisheries and aquaculture adaptation and mitigation related to climate change**

- Thailand has experienced the impacts of climate variability, especially high and frequent occurrence of storms and rain. Last year, there was great flooding, which created large scale economic losses to the country. Having in mind the possible impact of climate change to present and future national food security, Thailand has developed a ministerial strategic plan for food security in relation to the impact of climate change.

### **Increased contribution to combat IUU fishing**

- Thailand also has a drafted NPOA-IUU fishing which will go through the process of evaluation and public hearing before it enters into effect.
- With the view to consistency with the EU Regulation on IUU Fishing, Thailand has designated the Department of Fisheries as its Competent Authority and developed its catch certification system for fishery products exported to the EU markets.
- As a participating country of the RPOA-IUU fishing, Thailand keeps close watch for the vessels committed IUU fishing in particular those stipulated in the RFMOs' IUU fishing vessel lists and has monitored the possibility to use its ports for unloading of their fishery products. In addition, Thai private traders have been approached and requested, on the voluntary basis, to refrain from buying IUU caught fish production or doing business transaction with those IUU fishing vessels.
- Thai fishing vessels operating overseas have been required to be equipped with VMS. In addition, VMS installation is also being piloted on some small-scale fishing vessels on an experimental basis.

## **TIMOR-LESTE RESPONSE RELATED TO THE IMPLEMENTATION OF PREVIOUS APFIC RECOMMENDATIONS**

It is for me a great pleasure to be here today representing the government of Timor-Leste, which is proudly participating for the first time as a member state of this commission.

As a new member we didn't participate in the last session of this commission, but we consider worth to do the exercise of revising our contributions to the implementation of the previous APFIC recommendations as the other member countries do.

In regards "Integrating fisheries & aquaculture more effectively into other sectoral planning processes", we are currently developing a 5 years strategy plan for the Ministry of Agriculture and Fisheries in which all sectors are represented. This strategy will be in line with the 2011 National Development Plan 2012–2030 where all national development goals are set up for the coming 20 years, including the fisheries and aquaculture sectors.

In regards the recommendation "Fisheries and aquaculture adaptation and mitigation related to climate change" a new project has recently started which objective is to develop community based adaptation plans.

In order to "Strengthen the implementation of ecosystem approaches to fisheries and aquaculture" our officials have received capacity building and Timor-Leste has become a member of the APFIC.

In "Strengthening the assessment of fisheries for management decision-making" "Strengthening management of fisheries", the development of the First National Census of Fishers and Boats, the newly developed Fish Price and Catch statistic series and the establishment of the Accident Reporting System has given the government of Timor-Leste the possibility to conduct some preliminary but accurate assessments for the first time.

In order to "Strengthen the governance of fisheries and aquaculture", we have been conducting several actions which final aim is to enhance linkages between the fishing communities and the state institutions and their inclusion in decision-making and involvement in the resource management. In this vein we have carried out a pilot by documenting, mapping and socializing a customary law by which fishing communities self regulated the resource use in an part of Timor-Leste and expect it will serve as an example for other fishing communities. In this line we have been working in several communities raising awareness of the importance of their effective involvement in resource management.

The government of Timor-Leste has worked with the aim of "combating IUU fishing" with the introduction of a feasible and inexpensive IUU reporting system that engages the communities in combating illegal fishing in their waters.

When it comes to "Capacity building of government staff and fishers/aquaculture farmers", the government of Timor-Leste has developed a Human Resources Development Plan for the National Directorate of Fisheries and Aquaculture which is aimed to serve as a guide for future interventions. A great effort is currently done together with our development partners in order to increase knowledge and improve performance of our staff.

In order to improve the “Management of aquaculture”, the government of Timor-Leste has carried out the first analysis for the Potential for Aquaculture Development in Timor-Leste, which results informed the National Aquaculture Strategy Plan, a document that we expect to see soon approved by the Council of Ministers.

In “Improving information and statistics” we have developed and launched in 2011 the National Fisheries Statistical System which for the first time allow us to have a comprehensive system of data gathering and data management that can be easily maintained and access by both, fisheries planners and stakeholders.

Despite the National Directorate of Fisheries and Aquaculture of Timor-Leste has very little resources and budget to accomplish all these objectives, together with our development partners we have achieved outstanding results in the years 2010 to 2011 which are our contribution to the objectives of this commission. It is the willingness of this government to continue with this positive path of development, contributing to regional goals and to a sustainable resource management. Again, let me express my most sincere appreciation for being here representing today the government of Timor-Leste as a full member state of this commission.

## **UNITED STATES OF AMERICA RESPONSE RELATED TO THE IMPLEMENTATION OF PREVIOUS APFIC RECOMMENDATIONS**

### **3. Fisheries and aquaculture adaptation and mitigation related to climate change.**

NOAA Fisheries now has a Climate Change Coordinator that sits within the Office of Science and Technology. The person will lead a variety of efforts to assess the impacts of climate change on the nation's ocean and coastal resources and NOAA's stewardship mission.

### **7. Strengthen Governance of Fisheries and Aquaculture, especially Co-Management.**

“Catch shares” is a general term used in several fisheries management strategies, which include Limited Access Privilege Programs (LAPP) and individual fishing quotas, that dedicate a secure share of fish to individual fishermen, cooperatives or fishing communities for their exclusive use.

The first Catch Share Program in the US was implemented in 1990 in the Mid-Atlantic Surf Clam and Ocean Quahog Fishery. Catch share programs are currently used in 15 fisheries managed by six regional fishery management councils, with additional programs in development.

In the case of New England, the new for 2010 ‘catch shares’ program is called ‘Sectors.’ There are 13 species represented by 20 stocks managed under one plan. That plan is called the Northeast Multispecies Management Plan.

Requirements of the reauthorized major fisheries management plan (Magnuson-Stevens Act of 2007) for rebuilding stocks present a challenge for multispecies fisheries, such as the Northeast groundfish fishery. For some stocks, the most recent scientific advice recommended mortality targets that are substantially reduced from recent levels, but for other stocks it was possible for mortality targets to remain the same or even increase. The problem with mixed catch composition in a days-at-sea system is when the vessel reaches the catch limit for the stock with the lowest limit, fishing for that day is finished. In an identical situation, a fisherman with quota in a sector has opportunity to continue fishing by trading or leasing additional allocation. The key is to balance catch with quota, which is the basis of the design for this catch shares system.

In the Northeast groundfish fishery, a sector is allocated ACE for each stock. Each ACE is allocated to the sector as a whole and not to individual vessels within the sector, allowing the sector to develop its own set of rules to distribute the sector's allocation among its membership. Sectors also provide a mechanism for pooling and managing risk, fishing capacity and developing new business/fishing strategies. Vessels within the sector are allowed to pool harvesting resources and consolidate operations in fewer vessels if they desire. One of the major benefits of self-selecting sectors is that they provide incentives to self-govern, therefore, reducing the need for council-mandated measures.

The key characteristics of the New England system are:

- First year (for expanded sector management program): 2010
- Type of Catch Share Program: Annual Catch Entitlement (ACE) to each sector
- Management units: Twenty stocks of groundfish; fourteen stocks are allocated to sectors with approved operations plans.
- Vessels/Gear types: Seventeen sectors have submitted operations plans for 2010, representing 762 of the 1477 eligible permit holders and >98 percent of the commercial

northeast multispecies annual catch limits (ACLs) for 2010. Non-sector vessels (referred to as common-pool vessels) will continue to fish under the days-at-sea effort control program. Sector vessels fish primarily with sink gillnets, bottom longline (tub trawls), otter trawls, jigs and handlines.

- Eligibility: A sector is a voluntarily-formed group of at least three distinct owners that submit an operations plan for authorization to fish and to receive an allocation of the ACL for each stock, called the ACE. To qualify for membership in the sector, each member must possess a limited access northeast multispecies permit. Members sign a legally binding contract that commits their vessels and permits to the Sector Agreement for the time specified in the contract (one or two years).
- Transferability: A sector can transfer ACE to or from another sector without restriction on an annual basis, but a permanent transfer between sectors may not occur while participating in a sector, given that permits could move from one sector to another during the fishing year.
- Accumulation: There is no cap on sector allocations under Amendment 16.
- Initial Allocation: Sector allocation set annually, based on members' Potential Sector Contribution (PSC), and available stock ACLs.

## **9. Increased Contribution to Combating IUU Fishing**

The major US fisheries management plan, officially called the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (MSRA) contains a number of new provisions that will significantly shape the focus of fisheries management in the coming years. Importantly, the MSRA pays an unprecedented level of attention to international fisheries. The overarching approach is a call for the Secretary of Commerce to work multilaterally through various fora, such as Regional Fishery Management Organizations (RFMOs), to address illegal, unreported and unregulated (IUU) fishing and bycatch of protected living marine resources (PLMRs).

This Act also requires the United States (NOAA) to produce a biennial report that lists nations that the United States has identified as having vessels engaged in IUU fishing, bycatch of PLMRs, and/or high seas fisheries targeting or incidentally catching sharks not subject to a regulatory program for the conservation of sharks comparable to that of the United States, taking into account different conditions.

Pursuant to this Act, final regulations have been promulgated that establish identification and certification procedures to address IUU fishing activities and bycatch of PLMRs. The regulations set forth the procedures that the United States will use to work with nations identified in the biennial report as having vessels engaged in IUU fishing and/or bycatch of PLMRs. Nations identified for having vessels engaged in IUU fishing activities are required to take appropriate corrective action to address the activities described in the biennial report.

The Act also calls on the United States to promote improved monitoring, control, and surveillance for high seas and RFMO fisheries; improve the effectiveness of RFMOs through adoption of IUU vessel lists, stronger port state controls, market-related measures, and the adoption of measures to prohibit the removal of any shark fins and discarding the carcass at sea; and build capacity in other countries to ensure sustainable fisheries and regulatory enforcement.

This year, for the 3<sup>rd</sup> report, NMFS is now including the nations identified for having vessels engaged in PLMR bycatch. These countries will be required to adopt regulatory programs for PLMRs that are comparable to US programs, taking into account different conditions, and establish management plans for PLMRs.

Negative certification of a country and the end of the consultation process, due to the absence of steps to address problems of IUU fishing or bycatch of PLMRs may lead to prohibitions on the importation of certain fisheries products into the United States and other measures. The National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration is the implementing agency within the Department of Commerce for the authorities and responsibilities under the MSRA.

## **16. Improve Information and Statistics.**

There has been progress on the International Trade Data System (ITDS) project during the past year. Significant steps toward building ITDS import functions have been taken. An aggressive program for building ITDS export functions has begun. It is for both imports and exports to the United States.

### *Overview*

ITDS is a project to build an electronic “single-window” for reporting imports and exports to the government. Currently, traders must make redundant reports to multiple agencies (often on paper). When completed, ITDS will allow traders to make a single electronic report, and the relevant data will be distributed to the appropriate agencies. Costs will be reduced for business and government. Agencies will obtain data more quickly, be able to process cargo more expeditiously, and be better able to identify unsafe, dangerous, or prohibited shipments.

ITDS is not a separate standalone system. ITDS is being built as part of the ACE (Automated Commercial Environment) trade processing project of US Customs and Border Protection (CBP). Currently, 48 agencies, including CBP, are working together to implement ITDS. The interagency ITDS Board of Directors, chaired by the Treasury Department, coordinates interagency participation in ITDS. CBP is responsible for building and operating ITDS.

The past year has seen significant progress toward implementation of basic ITDS single-window functions:

- Collect ITDS Data Electronically: CBP has built the capability to collect data elements required by other agencies by adding a “PGA (Participating Government Agency) Message Set” to the information that can be transmitted through the Automated Broker Interface (ABI). CBP expects to test this new capability in 2012.
- Accept “Images” of Documents: CBP has built the “Document Image System” to accept electronic transmission of “imaged” documents, documents that currently must be submitted on paper. CBP will invite importers and brokers to test this capability by electronically submitting APHIS, EPA, and NOAA forms that are required for importing certain products.
- Establish System-to-System Communication among ITDS Agencies: CBP has built the capability to transfer data it collects to other agencies’ electronic systems using “Interoperable Web Services” based on standard protocols. This capability was successfully tested when CBP transmitted entry and entry summary data to the Consumer Product Safety Commission.

The bulk of the work on these three steps has been completed. Once implemented, they will provide the basic electronic trade data interchange system for imports that is mandated by the SAFE Port Act. Testing and implementation are planned for 2012.

By implementing the basic electronic infrastructure for ITDS, these three initiatives will:

- Enable import safety agencies to be better able to interdict unsafe shipments,
- Discourage proliferation of parallel import reporting systems,
- Eliminate the need to collect some paper documents, allowing remote filing of supplemental forms, and
- Provide a foundation for electronic screening and admissibility processing to be implemented as part of the ACE “Cargo Release” Module.

## **VIET NAM RESPONSE RELATED TO THE IMPLEMENTATION OF PREVIOUS APFIC RECOMMENDATIONS**

In implementing the recommendations of the previous session, Viet Nam would like to respond as follows:

### **1. Policy and legal framework**

Fisheries Master Plan has just been completed and approved to develop fisheries sector in general and marine capture fisheries in particular. In addition there are several additional documents under preparation or innovation to develop such as Plan of Action for the Management of Fishing Capacity and the National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated fishing. The Fisheries Law of 2003 is in force.

The Fisheries Law is being updated with financial support from the Norwegian Government and awaiting parliamentary approval. The proposed amended law includes key references to compliance with International Conventions, most specifically port state measures, EC-IUU and traceability of fish to point of origin, Fisheries Regulations, incorporation of Western and Central Pacific Fisheries Commission (WCPFC)'s CMMs and UNFSA.

The proposed amended law also improves the management of fishing operations, the protection of fisheries resources and their habitat; harmonized the law and policies; identified the authorities and duties of organizations and individuals in the management, control and use of aquatic living resources. The law provides broad powers to implement a range of management measures including: fishing licenses, setting of species quotas, and spatial separation of fleets by size, protection of rare and endangered species, minimum legal sizes, gear restrictions, control of destructive fishing gears and methods, rehabilitation and protection of fishing areas, and penalties.

In addition, UNCLOS was ratified by Vietnamese Government in 1994. Provisions are being made to strengthen the vessel registration system and to make provision for management plans, rules governing the application of VMS, the use of logbooks for all boats higher than 90 HP, designated ports, and improved powers for fisheries inspectors when boarding boats at sea. Viet Nam also became a cooperating non-member (CNM) of WCPFC and thus its legal and policy frameworks for tuna fisheries management have also been reviewed for necessary reform in the future in the light of WCPFC's requirements.

### **2. Strengthening management of fisheries**

- Zoning fishing ground and route into three zoning areas which include coastal area, contiguous area and offshore area and regulate the operation of each type of fishing boat in specific areas.
- Viet Nam has continued to strengthen the logbook system by expanding the system to smaller fishing boats which is from 20–90 HP, integrating it with other MCS measures such as observer program, catch certification, and port state measures. The Vietnamese Fisheries Administration will also enhance its system of data collection and analysis by maintaining a repository of logbook data and analyzing it with fisheries information collected through other monitoring measures.
- Implementation of the vessel monitoring system (VMS) particularly for vessels conducting fishing activities on the offshore areas.

- Developing 10 year program on fisheries resources.
- Strengthening co-management, and applying trial demonstration of co-management in open water area based on the right-based approach.

### **3. Strengthening the assessment of fisheries for management decision-making**

There have been a lot of attentions of Vietnamese Government to enhance fisheries research to provide marine resource status for fisheries management purposes. A large scale fisheries research program called project No. 47 has been approved by the Government in order to evaluate and predict marine resources and marine ecosystem biodiversity since 2011 and continued until 2015. There is also intention to expend a new project with larger scope to investigate marine resources in Viet Nam's waters.

In addition. A Fisheries Master Plan was also been completed and approved two years ago on Decision No. 1690/QD-TTg by Prime Minister dated 16 September 2010. The Plan is set as a ten-year strategy document for entire development of the fisheries sector including fisheries research. These programs will be basic activities to provide scientific advice for sustainable fisheries management in Viet Nam.

### **4. Relating to practical approach in aquaculture**

Viet Nam has developed Viet GAP which includes 4 pillars of safety, animal welfare, environment integrity and social responsibilities specified in the FAO guidelines on certification of aquaculture product. In conjunction with it the national certification scheme has been developed.

## **APPENDIX H – STATEMENTS OF REGIONAL ORGANIZATIONS AND PARTNERS**

Information on behalf of the  
**ASEAN Sectoral Working Group on Fisheries (ASWGF)**

Elvi Wijayanti

*Deputy Director for Multilateral Cooperation, Center for International Marine and Fisheries Cooperation, Ministry of Marine Affairs and Fisheries, Indonesia*

Mr Chair, on behalf of ASEAN Sectoral Working Group on Fisheries (ASWGF) since Indonesia Chairman this year for ASWGF, Indonesia would like to give not a kind of statement but some very brief information on ASWGF.

ASWGF established about 20 years ago and right now we do have strategic Plan of Action on ASEAN cooperation in fisheries 2011–2015 adopted last June 2012 at the 20<sup>th</sup> ASWGF Meeting in Yogyakarta, Indonesia.

Through ASEAN mission to realize ASEAN Economic Community by 2015, it has over achieving goal to promote the sustainable of fisheries in the ASEAN region to improve food security, facilitate poverty alleviation, and improve livelihoods of ASEAN people depend on the harvesting, farming and marketing of fish and fishery products.

There are several topics within ASEAN Strategic Trusts among others: Governance of fisheries, certification, traceability, food safety, IUU fishing, best practice aquaculture, fisheries and aquaculture technology as well as Ecosystem Approach to Fisheries and Aquaculture.

Under these platform, some activities/projects were discussed and conducted such as arranging guideline on best practices of shrimp aquaculture, collaborative activities on IUU fishing and ASEAN network on Climate Change.

Three initiatives projects have just endorsed related to the climate change adaptation and mitigation towards food security, enhancing coastal community resilience and strategy for trawl fisheries by catch management.

Mr Chair, those are information we could share in this meeting since most of ASEAN Member Countries are also in APFIC, it might be use and incorporate in a broader context of APFIC if appropriate in line with and necessary.

Thank you Chair.

Statement on behalf of the  
**Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO)**

On behalf of the member-countries of the Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO), I would like to thank the Chairperson and the Secretariat of the Asia-Pacific Fishery Commission (APFIC) for giving the BOBP-IGO this opportunity to place on record its experiences on fisheries management in the region.

We would also like to apologize for not being able to attend this important meeting convened by the APFIC Secretariat.

At the outset we would like to compliment APFIC for the successful conduct of the Fourth Regional Consultative Forum Meeting (RCFM), held at the same venue from 17–19 September 2012. We have been informed by our representative to the RCFM about the important issues being discussed in the Forum on “Improving management and governance of fisheries and aquaculture in the Asia-Pacific” and the excellent arrangements made by the Government of Viet Nam for the meeting. We would also like to thank APFIC supporting the participation of our representative to the RCFM.

The BOBP-IGO is a regional fisheries advisory body working in Bangladesh, India, Maldives and Sri Lanka, to promote responsible fisheries in the region. This region, which accounts for about one-tenth of global fisheries population, is experiencing many changes in the recent years. There is an increasing concern about the sustainability of fishing resources as millions of livelihoods are dependent on it. The situation is becoming more and more complex on account of various anthropogenic impacts on the fisheries resources, which is further compounded by changes brought about by global warming.

As we are all aware, fisheries sector in the region is largely dominated by small-scale and artisanal fishers who have limited capacities and the countries themselves being developing nations also have their own limitations. To address these issues during the Sixth Meeting of the Governing Council, the BOBP-IGO had adopted a Strategic Plan of Action 2010–2014 comprising programmes on Improving Monitoring, Control and Surveillance of fishery resources in the member-countries; Safety at Sea for Artisanal and Small-Scale Fishers; Taking the Code of Conduct for Responsible Fisheries to the grassroots levels; Improving health and hygiene in fisheries; Adapting to climate change and livelihoods enhancement for small-scale and artisanal fishers.

On perusal of the activities conducted by the APFIC and the agenda for consideration of the 32<sup>nd</sup> Session of the APFIC, we find many synergies in the work programmes of both the Organizations. This is further also seen in the APFIC Strategic Plan 2012–2018, which the Commission would be taking up for discussion and adoption. We are also happy to note that the Bay of Bengal is identified as a priority area for the APFIC work programmes.

We are happy to record that the work carried out by the APFIC in the Bay of Bengal region has helped the countries in further strengthening their management regimes and contributed to the development of the fisheries sector in the region. We hope that the proposed work programmes will be carried out with same if not greater diligence and will further contribute to the promotion of responsible and precautionary fishing practices in the region.

We are very happy to note that the Government of Timor-Leste has accepted the APFIC Agreement and has become the latest member of the APFIC family. We also congratulate the Commission for promoting inter-country cooperation in the region.

Distinguished Commissioners, we would also like to share that in 2013, the BOBP-IGO will be completing its 10<sup>th</sup> year of institutionalization. We thank all our partners for their cooperation and support throughout this journey and hope the cooperative framework in the region will be further strengthened. In this regard, we would also like to bring to the attention of the Commission that in some other parts of the world, regional fisheries and environmental bodies are formalizing their relationships to make effective use of their synergies. It is time that in this region also a similar process be initiated. We are taking this opportunity to call upon our partners and fisheries and environmental bodies in the region, namely, APFIC, INFOFISH, NACA, SACEP, SEAFDEC and other concerned agencies to consider this issue with utmost importance. I will also request the Commission to take note of this issue.

We wish the 32<sup>nd</sup> Session all the success! Thank you!

Statement of the  
**International Collective in Support of Fishworkers (ICSF)**  
Nalini Nayak

Honourable Chair and Members of the Commission

On behalf of ICSF may I draw your attention and seek your support for the International Guidelines on small-scale fisheries being developed by the FAO. ICSF, as part of the civil society coordination committee comprising WFFP, WFF, ICSF and IPC, has been actively engaging with this process.

Small-scale fisheries, both inland and marine, are an important source of livelihood and food security for millions of people in Asia. The subsector however continues to be constrained by many factors, including insecure rights to land and fishery resources, lack of infrastructure, vulnerability to natural disasters and climate change, poor access to basic services and social security, as well as to markets and to decision-making processes.

The decision by the FAO's Committee on Fisheries (COFI) to develop Guidelines on small-scale fisheries provides an important opportunity to support the subsector, enabling it to fulfil its potential in contributing to food security, poverty alleviation, environmental sustainability, human development and to local and national economies.

The Guidelines have been widely welcomed by governments, including Asian governments. The Guidelines have also been welcomed by fishworker and support organizations. Civil society has actively engaged with the process of developing the Guidelines, and several national-level workshops have been organized in Asian countries to seek proposals from fishing communities on the content of the Guidelines.

During the last nine months we have organized 14 national workshops as well as a regional workshop in Africa which had representation from 16 countries. Over 1 600 representatives were part of these consultations. Six of these consultations have been in Asia and 5 more are to be organized in the coming period (Myanmar, Viet Nam, Malaysia, Bangladesh (with IFAD support) and a regional workshop in the Mekong region. The report of these workshops have been synthesized and a draft report has been made available to COFI. This process is continuing and proposals and perspectives from further consultations organized will be integrated into our report.

The need for a human rights-based approach to fisheries and fishing communities has been consistently emphasized.

The challenge is to ensure that the Guidelines adopted reflect the aspirations and perspectives of small-scale fishing communities, offer practical guidance on supporting gender just and sustainable small-scale fisheries, suggest implementing mechanisms and lead to their socio-economic and political empowerment. To achieve this it is important that States dialogue with organizations in the small-scale sector to arrive at a common understanding on what the Guidelines should contain. A specific focus on women fishworkers is critical. It is also important to agree on a common vision on what is sought for the small-scale sector in order to ensure the positive characteristics of the sector—social, environmental, economic and cultural—are not compromised.

It is therefore imperative that all State governments respond to the Zero Draft developed by the FAO by January 2013. States should continue to support a participatory process during the upcoming technical consultation in May 2013, drawing on best FAO practices for CSO participation in past processes, such as during the development of the 1995 Code of Conduct for Responsible Fisheries and the Voluntary Guidelines to support the Progressive Realization of the Right to Adequate Food in the Context of National Food Security.

It maybe important that as a commitment to see the SSF guidelines implemented, that one country offers to host a sub committee discussion on SSF and that all governments take all other steps seen as necessary to support small-scale fisheries.

Thank you

For information on this process kindly see <https://sites.google.com/site/smallscalefisheries/>

Statement of the  
**Intergovernmental Organization for Marketing Information and Technical Advisory  
Services for Fishery Products in Asia and the Pacific Region (INFOFISH)**

Sudari Pawiro  
*Trade Promotion Officer*

Mr Chairman, distinguished delegates from APFIC member countries, representatives from international and regional organizations, Ladies and Gentlemen.

On behalf of INFOFISH I would like to thank APFIC for inviting us to the Thirty-second Session of APFIC meeting.

I also thank the Ministry of Agriculture and Rural Development (MARD) and the Government of Viet Nam for the very warm hospitality extended to us. At the outset let me congratulate and record my appreciation for both APFIC and Government of Viet Nam for the excellent arrangements for the meeting. We apologize, however, for not being able to participate in the Fourth APFIC Regional Consultative Forum meeting held earlier.

As you may already know INFOFISH, formerly a regional project of the UN-FAO, is an Intergovernmental Organization providing marketing information and technical advisory services to the fishery industry in Asia-Pacific and beyond. Based in Kuala Lumpur and hosted by Malaysian Government since its inception in 1981, currently INFOFISH has a membership of fourteen countries in the region. It is worth to mention here that nine of member countries of APFIC are also members of the INFOFISH namely Bangladesh, Cambodia, India, Indonesia, Malaysia, Philippines, Pakistan, Sri Lanka and Thailand. Therefore, INFOFISH and APFIC have lot of common interests in developing the fisheries sector in the region and strengthening cooperation between both organizations will ultimately benefit our members.

From the APFIC Secretariat and member country's presentations for the past two days, I noted the growing cooperation and collaboration between countries in the region to seek sustainable development in the fisheries sector through various programmes and activities carried out by inter-governmental organizations. And I am proud to say that INFOFISH is part of it. INFOFISH is committed to the sustainable development and management of fisheries, aquaculture, processing and trade in the area of its coverage and beyond. It actively promotes sustainable fisheries, aquaculture and trade through its publications, such as *INFOFISH International* and *INFOFISH Trade News*, information dissemination activities, commodity and trade conferences, etc. It is prepared to cooperate with other organizations including with APFIC and various countries to further the cause of sustainable fisheries, aquaculture and trade, especially in the Asia-Pacific region.

INFOFISH has been participating in APFIC programmes and activities. In the past we participated in APFIC meetings in Jakarta, Kuala Lumpur and the last was in Menado, Indonesia in 2008. In addition, INFOFISH in 2011 was also involved in a project coordinated by APFIC namely Regional Fisheries Livelihoods Programme for South and Southeast Asia (RFLP) in Viet Nam.

As the fishery sector in the region has been facing tremendous challenges in recent years as a result of weakening seafood demand in major markets, strengthening regional collaboration is becoming more relevant and INFOFISH is willing to work closer with APFIC in the future.

Specific areas of mutual collaboration/cooperation that we can explore together are given below:

- Strengthening information network particularly on fishery trade and market related matters in order to improve market access particularly from small-scale operators in the domestic and international markets. As an example we successfully implemented a FAO funded project in Aceh, Indonesia from 2008–2010 to assist small-scale operators (fishermen, processors and fish traders) to have better market access in the regional markets. INFOFISH is ready to share its expertise particularly in areas of trade and marketing in the implementation of APFIC programme and projects in the region particularly in developing domestic and interregional trade.
- INFOFISH database, particularly on fishery trade and markets could be useful for provision of statistical analysis for planning, management and development in APFIC member countries.
- INFOFISH would like to collaborate in capacity building in APFIC member countries including tailor- made training studies and tours to markets and various producing countries. Lately INFOFISH, through the Tuna Long-Lining Project (TCP/RAS/3302), has been organizing some capacity building activities. The project which commenced in 2010, focuses on “Improving post-harvest practices and sustainable market development for long-lining fisheries for tuna and other large pelagic species in the India Ocean”. It is implemented in India, Iran, Maldives, Pakistan and Sri Lanka. A regional workshop to disseminate the results of the project is scheduled to be held in early December this year.
- In the area of utilization of freshwater fish, INFOFISH has been implementing a 3-year project under INFOFISH/CFC/FAO Freshwater Fishery project which commenced in 2011. Sustainable aquaculture development and trade promotion is the main focus of this project which also involves many small-scale fish farmers and processors. The project will contribute to food security and the development of the domestic market. Five beneficiary countries of the project are Indonesia, India, Bangladesh, Pakistan and Sri Lanka which are also APFIC member countries. The benefits of this project would be shared with the other countries in the region. Therefore we would welcome similar APFIC programmes and activities that can synergize project activities to effectively facilitate freshwater fisheries sustainable development in the region. An earlier CFC Organic Aquaculture Project was successfully implemented in Thailand, Myanmar and Malaysia during 2008–2010.
- In addition to the above, INFOFISH is very much interested to collaborate with APFIC on other areas of mutual interest that will benefit our member countries.

I would like to take this opportunity to highlight, at this meeting, the particular strengths of INFOFISH:

- We work closely with the member governments as well as with the private sector; we have good networking relationship with the fishery industry players worldwide.
- We specialize in arranging international conferences and other events. Last year, we successfully organized the TILAPIA 2011 in Kuala Lumpur and the Pacific Tuna Forum in Palau. This year the TUNA 2012 Conference and Exhibition in Bangkok was also successfully organized and attended by almost 600 major industry players, regional and international organizations from over 50 countries. And in 2013, the fourth Pacific Tuna Forum will also be organized.

- We offer an “one window facility” for participating in seafood shows all over the world to our member countries to promote their products in more a cost effective way.
- Using our in house expertise as well as our larger network of consultants and associates, we are able to carry out projects and consultancies in all areas of fisheries including aquaculture, fishing, fish handling and quality assurance, processing and value addition, as well as domestic and international marketing and trade.

Thank you Mr Chairman.

Statement of the  
**Mekong River Commission (MRC)**

So Nam

*Fisheries Programme Coordinator MRC Fisheries Programme*

MRC Fisheries Programme is working with and helping its four member countries of Cambodia, Lao PDR, Thailand and Viet Nam in implementing sustainable fisheries management and development at local, national and regional levels to improve food security and nutrition, and to reduce poverty in the Mekong region, especially in rural areas. Currently, Myanmar and China are MRC dialogue partners for information exchange. Myanmar is willing to join MRC, and Myanmar's accession to MRC is under discussions among the 12 programmes of MRC and between MRC and Myanmar.

To contribute to the above goal, FP has prepared its five year plan the so called Fisheries Programme Implementation Plan 2011–2015 (F-PIP 2011–2015), which has been endorsed by the Steering Committee members of the four riparian countries. The F-PIP 2011–2015 has four outcomes: (1) Riparian fisheries decision makers have a good science-based understanding of the situation of fisheries and aquaculture in the LMB; (2) Riparian fisheries agencies monitor the status and trends of fisheries and aquaculture; (3) Key stakeholders maintain a high level of regional and national dialogue on basin-wide IWRM for fisheries sustainability; and (4) National and local agencies and fishing communities have the capacity necessary for improving fisheries management and development.

These four outcomes are complementary to or align with regional outcomes of the 4<sup>th</sup> APFIC regional consultative forum meeting on 17–19 September 2012, which will address some of the key challenges facing fisheries and aquaculture in the region, and a summary of the report of these regional outcomes has been discussed and endorsed by this 32<sup>nd</sup> Session yesterday.

Moreover, the outcomes of the MRC F-PIP (2011–2015) are also in line with outcomes of the endorsed APFIC Strategic Plan (2012–2018), particularly outcomes in the section of Inland fisheries.

MRC Fisheries Programme has extensive experience in inland capture fisheries over nearly 20 years in the Mekong River basin. On behalf MRC Fisheries Programme, I am delighted that FAO/APFIC has acknowledged the contribution and important role of inland capture fisheries to food security and nutrition in the region, particularly in rural areas. Therefore, MRC Fisheries Programme continues to collaboratively work and exchange knowledge and information with FAO/APFIC to address a key challenging issue of improving the valuation of the contribution of inland capture fisheries in the main rivers in the region, and quantification of impacts of water development.

Furthermore, the Technical Advisory Body on Fisheries Management of the Fisheries Programme (TAB) will be networking with FAO Regional Fisheries Body Secretariats Network (RSN), ASEAN/SEAFDEC Fisheries Management Mechanism/ASEAN Fisheries Working Group and NACA to jointly implement some of the regional activities such as (1) Capacity building for promoting good fish stock enhancement practices in MRC members; (2) development of regional code of practice for trans-boundary movement of aquatic organisms in LMB; (3) exploration of trans-boundary fisheries management mechanisms; (4) Study of social implications from reduced capture fisheries in the LMB; and (5) improvement of broader understanding of regional fish

migration and infrastructure impact mitigation measures such as fish passage. The findings and lessons learnt from these regional activities will eventually contribute to the development of Mekong Basin-Wide Fisheries Management Framework.

I would like to inform the meeting that Fisheries Programme will be organizing seven meeting/workshops from October till December 2012 as follows:

1. Regional Workshop on Exchange the Lesson Learnt and Development of the Trans-boundary Fisheries Management Plan in the Bordering Provinces of Prey Veng Cambodia and Dong Thap, Viet Nam (Siem Reap, Cambodia, 10-11 October 2012).
2. FP technical meeting on monitoring of aquaculture trends on 24-25 October 2012 in Siem Reap, Cambodia.
3. The 6<sup>th</sup> Programme Coordination Meeting on 26 October 2012, back-to-back with the above meeting.
4. The Technical Advisory Body (TAB) meeting on Development of Strategy Framework for Sustainable Fisheries Management in the LMB in Ho Chi Minh City, Viet Nam on 14 November 2012
5. Regional consultation meeting on Stakeholder Participation and Communication Plan on 15 November 2012, back-to-back with the TAB meeting.
6. The regional technical meeting on the study of gender in fisheries and aquaculture development and management in Viet Nam (Ho Chi Minh City) on 20 November 2012.
7. A kick off/inception meeting on Trans-boundary fisheries management in the bordering provinces of Chiang Rai (Thailand) and Bokeo (Lao PDR) by mid of December 2012 in Bokeo, Lao PDR.

MRC FP wishes to collaboratively work with FAO-APFIC to address key challenging issues facing inland fisheries and aquaculture development and management in the region.

At last but not least MRC FP would like to thank APFIC to invite the Fisheries Programme to participate in 4<sup>th</sup> APFIC meeting and 32<sup>nd</sup> Session and also thanks the Fisheries Administration of Viet Nam for the excellent organization and hospitality.

Thank you!

Statement of the  
**Network of Aquaculture Centres in Asia-Pacific (NACA)**  
Dr Mohan Chadag  
*Research and Development Program Manager*

The Network of Aquaculture Centres in Asia Pacific (NACA), an inter-governmental organization of 18 member governments in the region, is very pleased and honoured to be participating in the 32<sup>nd</sup> session of the Asia-Pacific Fishery Commission. NACA recognizes the importance of APFIC sessions in identifying and prioritizing fisheries and aquaculture issues of relevance to member countries in the Asia-Pacific region. Most of the NACA member governments are represented in the APFIC and the outcomes of the APFIC sessions on aquaculture issues are therefore very relevant for NACA work programs and priority setting. NACA is dedicated to promotion of responsible and sustainable aquaculture.

Aquaculture has recorded the highest growth rate, averaging 7-8 percent per annum over the last two decades, the highest among all food production sectors, globally. It is also a fact that the aquaculture in the Asia-Pacific region contributes in excess of 90 percent to the current global production of over 62 million tonnes. Equally, it is predicted that the region will require 20–22 million tonnes of food fish by year 2050 to meet the increasing demand arising from increasing population as well as increased fish consumption. All these future food fish needs have to come from aquaculture and not capture fisheries. Added to this challenge is climate change impacts and aquaculture like all food production sectors are not immune from it.

To maintain the needed growth, whilst complying with increasing demands on food quality and safety and environmental integrity, all the while aiming at sustainability and safeguarding livelihoods of the small-scale producers is no mean task. In the modern world, indeed in a challenging world, if aquaculture were to fulfil its potential of meeting the food fish demands of the future a more concerted regional approach, is urgently needed.

NACA as an established regional institutional arrangement for technical and economic cooperation in the Asian region, is committed to support the recommendations arising out of the 32<sup>nd</sup> Session of APFIC. The key recommendations of the 32<sup>nd</sup> Session of APFIC on aquaculture are very much in line with the NACA mission and current work programs. NACA will endeavor to enhance cooperation and collaboration with national governments, regional and international organizations and develop and implement suitable regional projects and programs to address some of the key recommendations

### **NACA Work Programs**

The emerging issues facing aquaculture in the region are addressed through the R&D mandate of NACA implemented through five thematic and two cross-cutting programs: Sustainable Farming Systems (SFS), Aquatic Animal Health (AAH), Genetics and Biodiversity (GB), Food Safety, Quality and Certification (FSQC), Climate Change (CC), Information and Communication (IC) and Education and Training (ET).

***Sustainable Farming Systems:*** The focus will be on development of better management practices for key aquaculture species in the region to enhance efficiency in resource utilization; ecosystem approach to ensure environmental sustainability including the use of sustainable feeds and feeding practices; culture-based fisheries; co-management of resources; Sustainable Intensification; capacity building of small-scale farmers to access markets. The program in general will

endeavour to bring to public domain the positive aspects of aquaculture as a significant contributor to food security, farm incomes, and livelihoods of rural and peri-urban communities.

***Aquatic Animal Health:*** The emphasis is on improving regional cooperation to reduce the risks of aquatic animal diseases impacting on the livelihoods, incomes, trade, environment and human health through Surveillance, reporting and responsiveness to disease emergencies; harmonization of diagnostic procedures and risk assessment; trans-boundary issues and concerns; and up-scaling and promotion of better aquatic animal health management practices at all levels of value chain.

***Genetics and Biodiversity:*** The focus is on supporting member-countries in their efforts to conserve and manage aquatic genetic resources; promotion of regional and international cooperation to access and utilization of aquatic genetic resources; develop and disseminate tools and techniques for implement sound Broodstock management practices that assure healthy and viable seed while minimizing the deleterious effects of captive breeding and associated genetic effects.

***Food Safety, Quality and Certification:*** The focus is on assisting member-countries in ensuring safety and quality of aquaculture products through better management practices and in compliance with the emerging certification procedures/protocols. The emphasis will be on empowering small-scale farmers to adapt to the changing trade and safety and certification protocols. Key components of the program will include: evaluation of commodity-specific BMPs for meeting both domestic and international standards; facilitation of national testing and monitoring mechanisms for various disallowed substances/practices; addressing biosecurity and human health issues related to consumption of fish and processed products.

***Response to Climate Change Impacts:*** The focus will be on evaluating the vulnerabilities of small-scale aquaculture enterprises to climate change impacts; encourage and provide forums for developing adaptive measures, policy options, trade-off analysis of various adaptive measures; facilitate research and development linkage to share information exchange among members.

***Information and Communication (IC):*** The program extends the outputs of the NACA work programs to the aquaculture community at large and provides a platform for sharing information and experience. The major focus of the program is on electronic publishing and extension. All NACA news and publications are made available for free download via the NACA website. The program also assists partner organisations to build their own capacity in electronic publishing.

***Education and Training (ET):*** The Education and Training Program assists capacity building among NACA members through the exchange and sharing of knowledge and skills between members. Activities may take the form of training courses, study visits and personnel exchange. The program also supports the training components of the other thematic programs.

### **Regional Priorities/Issues:**

- I. Need for sustainability profiling for key commodities and key farming systems, identifying best practices and developing scaling up strategies.
- II. Understanding the status of chemical use in aquaculture and developing responsible practices to minimize food safety concerns.
- III. Need for developing a networking mechanism on genetics and biodiversity to facilitate collaboration, coordination of effort, sharing of improved stocks, curate gene banks and act as a “clearing house” for information and training.

- IV. Status of aquaculture certification in the region, need for benchmarking of various public/private certification programs against FAO Global guidelines on aquaculture certification. Developing small-scale farmer inclusive group certification programs.
- V. Assess the vulnerability of particular industries and sectors under different climate change scenarios, considering social and environmental factors in addition to productivity measures. Disseminate information on the impacts of climate change on major aquaculture commodities and systems in the Asian-Pacific region, to identify priority threats and impacts, building on the technical reports and case studies published by other regional and international agencies.
- VI. Establish an education consortium to share experience, improve and harmonise curricula and improve mobility of students and trainers.
- VII. Improve communication and information sharing to better utilize the regional resources and expertise for development of responsible and sustainable aquaculture in Asia-Pacific.

NACA wishes to express its most sincere thanks to the Government of Viet Nam for hosting this meeting, and we have been most impressed by the arrangements made to make this meeting a success. NACA also wishes to reiterate its commitment to work closely with FAO Headquarters, FAO RAP and APFIC to pursue our common mission of promoting responsible and sustainable aquaculture in Asia-Pacific.

Statement on behalf of the  
**Regional Plan of Action (RPOA) to Promote Responsible Fishing Practices including  
Combating Illegal, Unreported and Unregulated (IUU) Fishing in Southeast Asia**

Ramesh Perera

*Director, Aquatic Animal Section, Animal Biosecurity,  
Department of Agriculture, Fisheries and Forestry, Australia*

## **Background**

The *Regional Plan of Action (RPOA) to Promote Responsible Fishing Practices Including Combating Illegal, Unreported and Unregulated (IUU) Fishing in the Southeast Asia Region* was endorsed by Ministers responsible for fisheries in May 2007. Signatory countries are: Australia; Brunei Darussalam; Cambodia; Indonesia; Malaysia; Papua New Guinea; The Philippines; Singapore; Thailand; Timor-Leste and Viet Nam.

Four regional fisheries organizations provide technical advice and assistance: FAO/Asia-Pacific Fishery Commission (APFIC); Southeast Asian Fisheries Development Center (SEAFDEC); InfoFish and Worldfish Center.

The RPOA is a voluntary instrument and takes its core principles from international agreements and instruments for promoting responsible fishing practices. The objective of the RPOA is to enhance and strengthen the overall level of fisheries management in the region through the adoption of responsible fishing practices. A primary focus is the implementation of measures to combat illegal, unreported and unregulated (IUU) fishing.

The Coordination Committee, a high level decision-making body which meets annually, provides strategic advice and direction to participating countries on coordination and implementation. This covers matters such as marine environment conservation, sustainable management of fisheries resources, managing fishing capacity, building competency in fisheries management and combating IUU fishing. The Secretariat is based in Indonesia.

## **Issues and actions**

### ***Monitoring, control and surveillance (MCS) networks***

The RPOA has established four MCS networks, one regional and three subregional networks:

#### **Regional network**

*a. The RPOA Regional MCS Network*

Coordinated by the RPOA Secretariat, through this network RPOA countries continue to detain, inspect and generally frustrate the activities of listed IUU vessels arriving from the Southern Ocean to use their ports. RPOA signatory countries have agreed to deny port access, other than for emergency purposes, to any vessel on IUU vessel lists agreed by regional fisheries bodies. The network is assisting the Secretariat to develop vessel listing and delisting procedures to enable the establishment of an RPOA IUU vessel list.

#### **Subregional networks**

*a. Southern and Eastern Area of the South China Sea and Sulu and Suluwesi Seas (Indonesia, Brunei Darussalam, Malaysia, the Philippines and Viet Nam)*

The subgroup proposes an Ad Hoc Technical Working Group on fishery resource management to develop a program of activities addressing management issues as they affect MCS operations and effectiveness. The importance of establishing active networks with other countries is underlined.

b. *Arafura –Timor Seas* (Australia, Indonesia, Papua New Guinea and Timor-Leste)

The subgroup assists in coordinating the capacity building and training of MCS officers from Indonesia, Papua New Guinea and Timor-Leste in Australia. Coordinated sea patrols are conducted by Australia and Indonesia. Regional surveillance officers have received training on Australian surveillance vessels whilst on active patrol. Aerial surveillance data continues to be shared between Australia and Indonesia.

c. *Gulf of Thailand* (Thailand, Viet Nam, Cambodia and Malaysia)

The subgroup identified that good management of the fishery and habitat (an ecosystem approach to fisheries management) is necessary to underpin effective MCS operations. In this context managing for climate change is not considered to be a separate matter but rather a cross-cutting issue that requires an integrated approach.

All networks are cognizant of the role to be played in MCS by acknowledging relevant international fisheries instruments, such as the FAO Port State Measures Agreement, and responding to other regulations such as EC Regulation 1005/2008.

### ***Strengthening regional/international cooperation***

RPOA countries recognize the importance and role of arrangements contained in the *FAO Port State Measures Agreement* when implementing MCS measures. Measures considered by RPOA countries include the need to designate specific fish receiving ports, inclusion of port authorities and other relevant institutions when inspecting vessels, inspector training and standardization of inspector language and technical terms, stronger legislative backing and enforcement regimes, the control of ‘leakage’ through transshipments at sea, and that both the legislative ability to deny a ship port entry, and the political will to do so, are essential.

Related to the Port State Measures Agreement, in June 2011 an Inspector Training Workshop was hosted by Malaysia and jointly coordinated by the governments of Malaysia and Australia, and the RPOA Secretariat. The workshop was attended by 31 officers from 10 of the 11 RPOA member countries, as well as the Solomon Islands which attended by invitation.

### ***Major RPOA studies***

The RPOA has completed three major studies to assist countries in implementing improved fisheries conservation, management and governance in meeting RPOA objectives.

a. *Framework for Model Fisheries Legislation in Southeast Asia (2010)* – a study providing in-depth analysis of the gaps, strengths and weaknesses in each RPOA country’s fisheries legislation, and a detailed framework for legislation to foster regional harmonization of fisheries management arrangements including stronger legal action against IUU fishing.

b. *Net Returns: A Human Capacity Development Framework for Marine Capture Fisheries Management in Southeast Asia (2011)* – a study to provide guidance to RPOA countries’ fisheries management, donor and technical agencies on capacity building priorities across eight major management themes including: fisheries management planning; fishing capacity management; strengthening MCS and information systems, and strengthening regional and international cooperation.

c. *Monitoring, Control and Surveillance (MCS) Curriculum and Training Programme (2009)* – to build capacity of RPOA countries to develop and implement effective MCS measures

to combat IUU fishing through an informed understanding of: the concept of MCS in fisheries management; MCS procedures in fisheries management and fisheries law; MCS systems; and practical implications of MCS in at-sea and in-port inspections, reporting and prosecutions.

### ***FAO Asia-Pacific Fishery Commission***

At the Coordination Committee meeting in Cambodia in November 2011, FAO-APFIC updated RPOA countries on its *Regional Fisheries Livelihood Programme (RFLP)*. Target countries include five RPOA member countries. The RFLP aims to strengthen capacity among small-scale fishing communities and their supporting institutions to improve livelihoods and sustainable fisheries management. Output areas include: co-management mechanisms; safety at sea; improved product quality and market mechanisms; diversified livelihoods; access to micro-finance, and regional sharing of knowledge. The program is being implemented in collaboration with the national fisheries agency in each country.

APFIC reaffirmed its support for the RPOA's initiatives and programs, such as the RPOA Regional MCS Network, and strengthening linkages through the RPOA website.

### ***RPOA Work program 2012***

The 4<sup>th</sup> meeting of the RPOA Coordination Committee was held in Siem Reap, Cambodia, 2–4 November 2011. The meeting reviewed progress on RPOA implementation during 2010-2011, identified emerging priorities and agreed a forward work program for 2012. Work during 2012 has focused on the following.

#### ***Strengthening legal, administrative and policy frameworks***

- Countries continued to review their specific *Model Fisheries Legislation* report and identify action to strengthen fisheries legislation.
- Countries are to report to the annual RPOA Coordination Committee their progress in implementing improved fisheries management legislation.
- Countries have continued to review and promote the findings of the report *Net Returns: A Human Capacity Development Framework for Marine Capture Fisheries Management in Southeast Asia* and consult internally with their relevant national agencies, local authorities and donor agencies.
- Countries report annually to the Coordination Committee on improvements with respect to fisheries management capacity building.

#### ***Strengthening regional/international cooperation***

- Countries have continued to consult internally on implementation of the FAO Port State Measures Agreement.
- Countries are further considering the RPOA MCS Curriculum adopted at the 2<sup>nd</sup> Coordination Committee meeting in November 2009 for possible application in implementing the FAO Port State Measures Agreement.
- Countries are following up to the Inspector Training Workshop (June 2011) to identify and facilitate internal training for broader and wider effects, including translating the workshop materials for each country's purposes.
- Countries are examining appropriate action, at both national and regional levels, with regard to illegal transshipments at-sea and in-port.

- Countries are providing relevant data and information on IUU fishing vessels to the Secretariat for use in updating the RPOA website, and to complement information included in RFMO IUU Vessel Lists on the RPOA website.
- Through the Secretariat, countries are developing procedures to list and delist IUU vessels on (i) a Provisional IUU Vessel List and, subsequently, on (ii) an Active IUU Vessel List. RPOA countries are to advise the Secretariat on the status of any provisionally listed IUU vessel that carries its flag.
- Through the RPOA Monitoring, Control and Surveillance (MCS) Network, countries are either refusing entry to their ports of RFMO IUU Listed vessels or, if vessels are allowed to enter, checking their papers and credentials and conducting inspections. This information is shared with other RPOA countries.
- Viet Nam, with technical assistance from SEAFDEC and financial support from Singapore, will coordinate and host a workshop titled *Assessment of the Impacts of IUU Fishing and EC Regulation 1005/2008 on Small Scale Fisheries in the Southeast Asia Region*. The workshop will take place in Nha Trang, Khánh Hòa, Viet Nam, 16–18 October 2012.
- The next (5<sup>th</sup>) meeting of the RPOA Coordination Committee will be held in Singapore, 20-21 November 2012, and Malaysia has offered to host the 6<sup>th</sup> Coordination Meeting in 2013.

Statement of the  
**Southeast Asian Fisheries Development Center**  
Chumnarn Pongsri, Ph.D.  
*Secretary-General*

The Chairperson, Distinguished members of the Asia-Pacific Fishery Commission, Secretary of APFIC, Dr Simon Funge-Smith, Representatives from international/regional organizations, Ladies and Gentlemen,  
Good afternoon,

First of all, I wish to express my gratitude to APFIC for extending an invitation to SEAFDEC to attend at this Thirty-second Session of the APFIC. I wish to also congratulate APFIC members for the progress in the implementation of wide ranges of activities, which have substantially contributed to the sustainable development of fisheries and aquaculture in the Asia-Pacific region.

Southeast Asia is considered a sub-set of the Asia-Pacific; and from what I have heard yesterday and today, the activities under the APFIC framework have significantly and directly contributed to the sustainable development of fisheries of the Southeast Asian region, and have well complemented with the activities supported by SEAFDEC, which have been guided by the Code of Conduct for Responsible Fisheries over the past decade.

I wish to reiterate that while SEAFDEC in the early establishment has focused its roles mainly in providing technical supports for the Member Countries in development for sustainable and responsible fisheries; the activities of SEAFDEC during the past decade have been expanded to enhancing regional collaboration, provision of policy and management advice, as well as addressing emerging issues and challenges that may impede fishery activities of the region. I wish to take this opportunity to highlight some of the priority issues of the region, particularly those that have close linkages with APFIC.

During the past decade, countries in the region have exerted lots of their efforts in ***improving governance*** for sustainable fisheries. One of the very important challenges is the combating IUU fishing. While countries in the region has strengthened their respective MCS, vessel registration and licensing; the regional initiatives undertaken by SEAFDEC have been focusing on subregional cooperation in combating IUU fishing, such as the establishment of the MCS network and harmonization of vessel registration, including possible sharing of data among concerned countries, in order to supplement the national initiatives. Decentralization and co-management of fisheries have also been promoted to enhance the roles and functions of local institutions as well as stakeholders and resource users in conservation and management of fishery resources. The necessity for availability of data and information has been raised, in order to obtain better understanding on the status of fishery resources, as well as to serve as a basis for sustainable management of fisheries. In this regard, SEAFDEC has started publishing the publication entitled “The State of Southeast Asian Fisheries and Aquaculture” in 2012. At this stage we aim to produce the publication every 5 years, and we do hope that the information could be useful for APFIC as well.

SEAFDEC during the recent years has also embarked a number of activities to enhance the understanding and the application of the ***Ecosystem Approach to Fisheries*** by countries in the region, such as through the conduct of training courses, as well as by taking into consideration the elements of the EAF in the formulation and implementation of our activities. We are very happy

to learn that BOBLME is developing training modules and tool kits on EAF, and we look forward to collaborate and making use of these, which is envisaged to enhance the coordinated efforts among fisheries-related organizations in this region and maximize the benefit to our Member Countries.

For *aquaculture*, SEAFDEC through the Aquaculture Department has been putting continual efforts in undertaking R&D to develop and promote aquaculture technologies for commercially-important species of the region. In addition, priority has recently also been placed on enhancing the contribution from aquaculture for rural development, experiment on fishmeal substitutions in aquaculture feed, and aquaculture of threatened or endangered aquatic species under international concerns.

We also undertook number of R&D on *post-harvest processing* of fish, in order to enhance the utilization of fish for human consumption. Activities in this area would be continued, and enhanced particularly in improving on-board fish handling technologies, with special emphasis on small fishing vessels, in order to improve the quality and maximize the utilization of the catch.

And early this month, SEAFDEC as the Regional Facilitating Unit has started the implementation the FAO/GEF project on Strategies for Trawl Fisheries Bycatch Management or REBYC-II, with APFIC as one of the partners. It is anticipated that the collaboration between SEAFDEC and APFIC as well as other partner organizations would also be enhanced under this REBYC-II project.

For *climate change* issue, we do believe that climate change would pose certain impacts to fisheries and aquaculture in years to come, it is therefore necessary for countries in the region to continue to promote responsible and good practices for capture fisheries and aquaculture, as well as habitat and resources enhancement in order to mitigate the possible impacts from climate change, enhance the resilience of small-scale fishers and farmers, as well as minimize the contribution from fishery-relate activities to the global warming and climate change.

At this juncture, please allow me to also reiterate that the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2020, which was endorsed by the ASEAN-SEAFDEC Ministers and Senior Officials during the ASEAN-SEAFDEC Conference in June 2011, had now been adopted by SEAFDEC and the Member Countries as regional policy framework in development and planning of programs and activities. Meanwhile, SEAFDEC has since then been making attempts to accommodate the issues and priorities stipulated in the Resolution and Plan of Action under our existing programs and projects. We would also wish to request APFIC as well as other organizations to look into the Resolution and Plan of Action, as explore how best supports could be extended to the ASEAN Member Countries, within the mandate of your respective organizations, in order to put this policy framework documents into actions.

Before closing, I wish to once again express our appreciation for the continued cooperation extended by the APFIC to SEAFDEC during the past years. I also wish that such cooperation would be strengthened for the benefit of the countries that involved in fisheries in the Southeast Asia as well as the Asia-Pacific region as a whole.

Thank you very much.

Statement of the  
**WorldFish Center**

Len Garces

*Research Fellow, Philippine Country Office*

## **Background**

The adoption of the CGIAR Strategy and Results Framework in 2009 heralded a more explicit commitment to achieving development impact thru large programmatic investments (CGIAR Research Programs or CRPs) that frame the joint efforts of CGIAR centers. The WorldFish Center takes the lead for **CRP1.3 – Harnessing the Development Potential of Aquatic-Agriculture Systems**. CRP 1.3 activities will cover Bangladesh, Cambodia, and the Philippines in Asia; the Solomon Islands in the Pacific and in Zambia in Africa.

Moreover, from our strategic analysis we identified the “**Research in Development**” approach as a new game changing action that WorldFish will adopt to meet this challenge. With this approach we link three strands of thinking in agricultural development: (i) Farmer first/farmer participatory research, (ii) Rural livelihoods approaches (and related concepts such as farming systems research, agro-ecosystem analysis, institutional analysis and development), and (iii) Resilience-based management. *We believe such an integrated approach that brings together the full range of development partners is essential to close the gap between research and development action.*

## **Potential Areas of Engagement and Collaborations with FAO-APFIC:**

The WorldFish Center has collaborated with FAO in the past to raise the awareness on the importance of small-scale fisheries via the Big Numbers project. Hence, central to the fisheries management activities of the Center is a focus on sustainability and resilience of SSF. *Center activities on SSF aligns with the FAO/APFIC priority on sustaining and improving small-scale fisheries livelihoods as well as science-based approaches to protected areas, habitat enhancement and seasonal closures.*

As presented during the 4<sup>th</sup> APFIC RCFM on 17–19 September 2012, WorldFish Center has been implementing the European Commission-funded project titled, “**Implementing an Ecosystem Approach to Fisheries (EAF) in Small-scale Tropical Marine Fisheries**”. The project covers four developing countries namely: the *Philippines*, Indonesia, Tanzania, and the Solomon Islands, and aims to use an EAF framework to improve small-scale fisheries (SSF) management and enhance their contribution to poverty reduction.

Also, the Center is currently engaged in the Coral Triangle Initiative particularly the “**Coastal and Marine Resource Management in Coral Triangle: Southeast Asia**” (TA 7813-REG). The ADB Regional Technical Assistance (RETA) project aims to assist Indonesia, Malaysia, and the Philippines (CT3) in implementing actions under their respective Coral Triangle Initiative (CTI) national plans of action (NPOAs). The anticipated outcome of the RETA will result in the increased resilience of coastal and marine ecosystems and human communities in the CT3 through improved management of coastal and marine resources established in the Sulu-Sulawesi Marine Ecoregion (SSME) Priority Seascape within the Coral Triangle. Therefore, the *Center also supports the FAO/APFIC activity towards the development of EAFM training modules* which could be rolled out in the above activities in the Philippines and Malaysia.

WorldFish is also continuing its engagement and participation to the **RPOA IUU Fishing Coordination Committee**, as a member of the advisory committee.

Finally, we have noted the FAO/GEF project “Strategies for trawl fisheries bycatch management” (REBYC CTI) being executed by SEAFDEC. Building on the TrawlBase project of WorldFish we would also be interested to share our experience especially on data analysis of trash fish and low value fish as well as in the design of interventions to pursue the sustainable use of fisheries resources and healthier marine ecosystems.

**Closing Statement:**

On behalf of the WorldFish Center, we would like to thank FAO/APFIC Secretariat for the continued engagement and collaboration. Also, we would like to thank FAO/APFIC member countries in hosting our program country offices in Bangladesh, Cambodia and the Philippines, as well as our headquarters Malaysia.

**ASIA-PACIFIC FISHERY COMMISSION**  
FAO Regional Office for Asia and the Pacific  
39 Phra Athit Road, Bangkok, Thailand  
[www.apfic.org](http://www.apfic.org)

