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para la
Agricultura
y la
Alimentación

ASIA-PACIFIC FISHERY COMMISSION

Executive Committee

Seventy-fifth Session

Colombo, Sri Lanka, 11-13 November 2014

REPORT OF THE 33RD SESSION OF APFIC
HYDERABAD, INDIA, 23-25 JUNE 2014



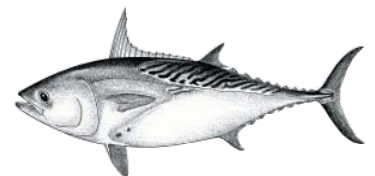
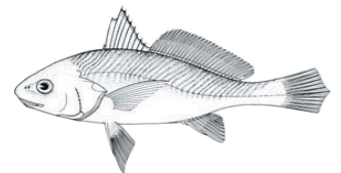
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Report of the Thirty-third Session of the

ASIA-PACIFIC FISHERY COMMISSION (APFIC)

Hyderabad, India, 23–25 June 2014



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ABSTRACT

This is the final report of the Thirty-third Session of the Asia-Pacific Fishery Commission (APFIC) hosted by the Ministry of Agriculture, India and convened in Hyderabad, India, 23–25 June 2014.

The principal actions of the Thirty-third 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; consider the status of fisheries and aquaculture in the Asia-Pacific region and the recommendations of the Fifth APFIC Regional Consultative Forum Meeting; inform member countries and others of the work undertaken by APFIC regarding sustainable intensification of aquaculture and the promotion of aquaculture planning and management tools for sustainable development; review the inter-sessional work of the Commission over the biennium and the Report of the Seventy-fourth Executive Committee Meeting; endorse the work plan and activities of APFIC in the forthcoming biennium of work (2014–2016) including the Sixth RCFM and the Thirty-fourth Session; inform member countries and others of the work programmes of other regional organizations competent in fisheries and aquaculture and how they relate to the work of APFIC.

The Commission also reviewed and endorsed the following: "APFIC Regional guidelines for responsible tropical trawl management"; "Essential EAFM" – a regional training course on the ecosystem approach to fishery management for the APFIC region; and the FAO/APFIC "Regional training course for port inspections of fishing vessels".

The Commission made a number of recommendations related to the work plan of APFIC and the need for action on areas related to: improved aquatic biosecurity; development of better methods to estimate the types and scale of IUU fishing in the region; the status of FADs and artificial reefs programmes in member countries; development of low-cost, efficient fish feeds and the use of renewable energy or energy efficient systems that would contribute to climate change mitigation or increased resource-use efficiency; development of a strategic action plan for supporting sustainable intensification of aquaculture in the region; initiation of pilot level application of selected tools in member countries with a strong interest in being involved in this. The Commission endorsed the APFIC work plan 2014–2016.

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-third Session from 23 to 25 June 2014, in Hyderabad, India.
2. Twenty-eight representatives from 17 of the APFIC member countries attended the Session. Also attending were one observer country (Lao PDR) and the representatives of three partner regional organizations, namely the Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO), the Mekong River Commission Fisheries Programme (MRC-FP), Network of Aquaculture Centres in Asia-Pacific (NACA) and the APFIC Secretariat. A list of the delegates and observers is appended to this report (Appendix A).
3. The opening of the Thirty-third Session commenced with the tradition of lighting of the lamp.
4. At the official opening of the Session, Mr Peter Kenmore, FAO Representative to India welcomed the delegates on behalf of Mr Hiroyuki Konuma, Assistant Director-General and Regional Representative of the FAO Regional Office for Asia and the Pacific and Mr Arni Mathiesen, Assistant Director-General of the Fisheries and Aquaculture Department, FAO, Rome. Mr Kenmore expressed his pleasure at the excellent attendance at the Session, noting that this serves to highlight the relevance of APFIC, and the importance that member countries attach to its work. He emphasized that APFIC is unique in the region and that its membership spans the Asia-Pacific region and offers an opportunity for member countries to share and cooperate on policy matters and relevant issues of importance to the marine, inland capture fisheries and aquaculture sub-sectors.
5. He noted the wide range of agenda items to be covered by the Thirty-third Session, and expressed confidence in the able chairmanship of India to ensure that the Session would complete its work on time. He reaffirmed that the outcomes of the Session would guide the work of FAO member countries in the region, and contribute to collective efforts to promote responsible fisheries and aquaculture in the region. Mr Kenmore thanked the Government of India for its generous support and the excellent arrangements for both the Fifth Regional Consultative Forum Meeting (Fifth RCFM) and the Thirty-third Session of APFIC, in the historic city of Hyderabad. He congratulated India on its chairmanship of the Commission during the current biennium and reiterated FAO's appreciation to His Excellency, the Minister for Agriculture for opening the Session, and said that the Asia-Pacific Fishery Commission was honoured that the Thirty-third Session was his first official function as the Minister for Agriculture.
6. In his welcome and introductory remarks, the APFIC Chairman, Mr Raja Sekhar Vundru, Joint Secretary (Fisheries), Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, India, commended APFIC on its effective functioning as a Regional Consultative Forum. He stated that APFIC was raising awareness amongst member countries, fisheries organizations and fisheries professionals in the Asia-Pacific region, noting the wide coverage of a range of important issues to the APFIC region over the past decade. Observing that the sustainable development of global aquatic resources is now an increasing focus of the development agenda, he affirmed that "Blue Growth" approaches were needed to restore the health of the world's oceans and secure the long-term well-being and food security of a growing global population. He further pointed out the important role of the APFIC members in providing fish from capture and culture fisheries in ensuring global food security.
7. Mr Vundru expressed his satisfaction that the Fifth RCFM had developed and endorsed a comprehensive range of recommendations for the responsible management of marine and inland fisheries and the sustainable intensification of aquaculture in the Asian region. He added that the Fifth RCFM was not only very successful at bringing together a wide range of member countries and regional

and civil society organizations, but it was also the first time that the private sector was actively participating. The active involvement of the private sector greatly enhanced the discussions of the RCFM. He concluded that this type of regional consultation was an excellent way to strengthen networks and share results, best practices and ideas on future directions.

8. His Excellency, Mr Radha Mohan Singh, Minister for Agriculture of India, delivered the inaugural speech and welcomed the APFIC member country delegates and observers. His Excellency noted that the work of APFIC and its sessions assume great importance because the Asia-Pacific region is home to more than 87 percent of the world's fishers and fish farmers. The region is not only the largest producer of fish in the world, but also accounts for 90 percent of global aquaculture production. He drew attention to the important role of small-scale fisheries and aquaculture in the region and expressed India's pleasure that the "International Guidelines on Securing Sustainable Small-Scale Fisheries" (SSF Guidelines) had been adopted at the Thirty-first Session of the Committee on Fisheries (COFI). He added that the SSF Guidelines are of immense importance for the Asia-Pacific region. Regarding strategies for increasing fish production to meet the ever-increasing global demand, he emphasized that approaches should be ecosystem-based and environmentally friendly to ensure sustainability. He concluded that challenges such as climate change, overfishing, loss of marine diversity, and other impacts must be addressed through international and regional cooperation and improved fisheries and aquaculture management.

9. The statements are appended to this report (Appendix G).

ADOPTION OF THE AGENDA

10. The Commission adopted the agenda presented in Appendix B and agreed on the arrangements for the Thirty-third Session. The documents considered and reviewed by APFIC are listed in Appendix C.

INTER-SESSIONAL ACTIVITIES OF APFIC SINCE THE THIRTY-SECOND SESSION

11. The APFIC Secretary introduced document APFIC/14/02 summarizing the main events and activities undertaken by APFIC and the Secretariat since the Thirty-second Session of APFIC, which was held in Da Nang, Viet Nam, from 20 to 22 September 2012. The Report of the Thirty-second Session was provided as APFIC/14/INF 03.

12. The Commission commended the work of the Secretariat and the support provided by FAO to APFIC member countries throughout the biennium.

13. The Commission thanked FAO for technical support in addressing emerging aquatic health threats and biosecurity. However, it noted that more support is needed in relation to aquatic health and biosecurity controls in the region. The Commission recommended the development of guidelines for improved aquatic biosecurity which could be based on FAO technical cooperation projects in member countries. The Secretariat responded that this was in line with the recommendation of the Seventy-fourth Executive Committee Meeting, to strengthen the existing aquatic animal health network in the region.

14. The Commission noted with concern, that fisheries and aquaculture have not yet been substantively covered in the work of the FAO Asia-Pacific Regional Conference (APRC). The Commission reiterated the importance of the contribution of fisheries and aquaculture for food and nutrition security in the APFIC region and urged FAO to ensure adequate visibility of the subsectors in regional and global dialogues on food security and nutrition. The Secretariat suggested that members could take up this

issue with their permanent representatives in FAO, to request more substantive inclusion of fisheries and aquaculture in the agenda of the APRC.

15. The Commission endorsed the report of the inter-sessional activities.

REPORT OF THE SEVENTY-FOURTH SESSION OF THE APFIC EXECUTIVE COMMITTEE

16. The Secretary reported on the activities of the Seventy-fourth Session of the APFIC Executive Committee (APFIC/14/03), which was convened in New Delhi, India, from 22 to 24 May 2013. The report of the meeting was made available as information document APFIC/12/INF 04.

Responses by the Commission

17. The Commission noted the recommendation of the Executive Committee to convene a regional senior policy-makers briefing to improve regional understanding of issues facing the region and requested clarification on how this could be convened under existing resources.

18. The Secretariat responded that the briefing would require additional financing and that it may be possible if members were willing to cover their travel costs. As an alternative, the Secretariat suggested that APFIC members could agree to meet prior to the Committee on Fisheries (COFI) and that the Secretariat could provide technical support should this take place.

19. Several members inquired about the process for prioritizing the work of the Commission. It was explained by the Secretariat, that this is primarily the function of the Executive Committee, but that ad hoc responses were also developed if the opportunity of funding or project actions relevant to APFIC recommendations presented themselves.

20. Indonesia thanked FAO for its cooperation in the establishment of a regional fisheries centre in Palembang and informed the Commission that the Government of Indonesia will host an "International Conference on Inland Capture Fisheries" in Palembang, Indonesia, 2–4 September 2014 and welcomed the participation of APFIC members.

21. The Commission endorsed the report of the Seventy-fourth APFIC Executive Committee Meeting and the priorities recommended by the APFIC Executive Committee.

REGIONAL OVERVIEW OF FISHERIES AND AQUACULTURE IN ASIA AND THE PACIFIC

22. The Secretariat presented the working paper "Regional overview of fisheries and aquaculture in Asia" (APFIC/14/INF 04). The working paper presented is appended to this report (Appendix D).

23. The regional overview covered both capture fisheries and aquaculture trends, focusing particularly on changes and trends over the past decade. Other issues of regional importance included the threat of illegal, unreported and unregulated (IUU) fishing; improving monitoring control and surveillance (MCS); labour and migration trends and their relation to safety at sea. Working conditions and inland fisheries were also included in the analyses and trends based on available data and information.

24. The regional overview also contained a summary of an APFIC analysis on fish consumption based on national household consumption surveys. This summary was requested by the Seventy-fourth Executive Committee and was provided as APFIC/14/INF 05.

Responses by the Commission

25. The Commission thanked the Secretariat for the regional overview of fisheries and aquaculture in Asia and the Pacific and recognized its excellent work in producing document APFIC/14/INF 05 on fish consumption.

26. The Commission noted the importance of information on fish consumption and its contribution to nutrition. It recommended that future analyses should, if possible, include a breakdown of the contribution of aquaculture, and inland and marine fisheries in the fish consumption information paper. The updating of the information in the document was noted as being important and necessary, however, this would be dependent on future national consumption surveys. The Secretariat commented that more detailed analysis would be possible if there were greater detail on sources of fish in the national consumption surveys. It also noted that there is a need for better coverage of fisheries and aquaculture in national agriculture and other relevant censuses.

27. The Commission recommended the development of better methods to estimate the types and scale of IUU fishing in the region. The Secretariat explained that the methodology for estimating IUU fishing was going to be tested in the Bay of Bengal in cooperation with the BOBLME project. The Secretariat encouraged member countries to take stock of their national IUU issues and requested them to participate in regional work in developing a unified strategy and cooperating in combating IUU.

28. The Commission noted that there is a need to take stock of the prevalence and contribution of exotic and indigenous species to fish production from aquaculture and inland fisheries. The Secretariat commented that this was rather specific to the national context, and that it was expected that guidelines on inland fishery enhancements would go some way to addressing this need.

SUMMARY OVERVIEW REPORT OF THE OUTCOMES OF THE FIFTH APFIC REGIONAL CONSULTATIVE FORUM MEETING

29. The Secretary presented an overview of the summary conclusions and recommendations of the Fifth RCFM which was convened from 19 to 21 June 2014 in Hyderabad, India, and hosted by the Government of India. The Fifth RCFM was attended by a total of 85 participants: 26 participants from 15 APFIC member and non-member countries, 34 representatives from NGOs, civil society and regional organizations and 10 private sector participants. The working paper APFIC/14/05 was presented and was supported by the summary recommendations contained in APFIC/14/INF 06.

30. The Secretary thanked the Ministry of Agriculture, Government of India, for hosting this successful event and the FAO regional projects and partners for their generous support to the convening of the Fifth RCFM that enabled such broad participation.

Responses by the Commission

31. The Chairman congratulated the Secretariat for preparing the comprehensive recommendations of the Fifth RCFM, noting that Asia was a major global player in fisheries and aquaculture and that increased regional cooperation as demonstrated by the Fifth RCFM, served to increase the visibility of the region and advocate for its priorities.

32. Some members suggested encouraging the reform of subsidies in fisheries. The Secretariat pointed out that the reform of fisheries subsidies should be for the purpose of encouraging improved management, in particular those actions that would reduce fishing effort, and that reward compliance with conservation and management measures.

33. Noting the comprehensive range of recommendations, some members reiterated the need for monitoring and reporting from APFIC members on their implementation efforts. The Secretary informed the Commission that the APFIC questionnaire was the principal method for monitoring member country achievements. He also pointed out that the recommendations are regional in scope and cover a time span of five to ten years, therefore, members countries would implement according to their specific context and needs.

34. The Commission endorsed the recommendations of the Fifth RCFM in full and recommended that these should inform the future biennial work plan of APFIC. The Commission requested that these should be included in an appendix to the session report (see Appendix E).

COUNTRY FEEDBACK AND PROGRESS ON PREVIOUS APFIC RECOMMENDATIONS AND ACTION PLANS

35. The Secretary introduced the working document APFIC/14/06 and information document APFIC/14/INF 07, that comprised a summary of member countries' responses to the APFIC questionnaire and covered the principal recommendations of the previous Sessions of the Commission (2008–2012).

Responses by the member countries

36. Member countries appreciated the APFIC questionnaire that the majority of the members had completed and submitted to the secretariat prior to the Thirty-third Session. In plenary, members provided feedback on actions undertaken which responded to the recommendations of the previous Sessions of APFIC and which contributed to responsible fisheries and aquaculture. The Commission members provided short highlights to complement their responses in their questionnaire. The Commission requested that the secretariat's summary of the members' responses to the APFIC questionnaire be appended to the report of the session (Appendix F).

37. In general, all member countries reported updating policies and reforms and it was noted that these are being developed in an accelerated manner compared to previous years. These policies and reforms included *inter alia* co-management, declaration of management and protected areas and combating IUU fishing. These policies and reforms also recognized the need to organize inland and marine fishers and aquaculture farmers to better manage their production and marketing activities in a sustainable manner.

38. It was noted that in order to address IUU fishing, countries were implementing a variety of measures including the use of log books, vessel monitoring systems (VMS) and MCS and were working towards ratifying the 2009 FAO Port State Measures Agreement and some had formulated National Plans of Action to combat IUU fishing (NPOA-IUU).

39. The Ecosystem Approach to Fisheries Management (EAFM) is now increasingly being used as a tool for fisheries management. The Commission reiterated the need for efforts in applying and adapting the EAFM for improved management of inland fisheries.

40. APFIC member countries demonstrated through national level activities and pilots, the importance and continued efforts in enhancement of fisheries through stocking programmes, fish refugia, marine anchored fish aggregating devices (FADs) and marine artificial reefs for artisanal fisheries for food security.

41. All countries considered aquaculture to be highly important and highlighted the actions they undertook in relation to better management practices, including research into different and alternative raw materials for feeds, feed management, research into quality seed, and the

implementation of certification schemes. Many countries expressed the value of implementing the Ecosystem Approach to Aquaculture (EAA) and specifically noted the need for more work to better understand the carrying capacity of cage culture.

42. The Commission underlined the importance of understanding and analyzing value chains, to capitalize on improving market access for marine and inland fisheries and for aquaculture farmers with a view to improving income especially for small-scale producers.

43. All countries recognized the importance of the need to address the impacts of climate change and were taking steps through different government agencies to prepare strategies and plans and implement projects to adapt to and/or mitigate climate change and climate variability.

44. Regional cooperation and bilateral and multilateral exchange of knowledge, methods and systems were also seen as important for the countries and were to be realized through capacity building in all areas of work in both fisheries and aquaculture.

SUMMARY OF MEMBER COUNTRY INTERVENTIONS

Australia

45. Australia reported that it released its National Climate Change Action Plan for fisheries and aquaculture in March 2011, which includes adaptation and mitigation strategies. Management plans have been reviewed to ensure long-term ecological and economic sustainability, through continuous monitoring and updating of harvest rules. Australia supports the elimination of IUU fishing both regionally and internationally and expects to ratify the 2009 FAO Port State Measure Agreement in 2014. It is currently reviewing the 2005 NPOA-IUU. As part of its aquaculture development plans, Australia is looking at the use of plant meals and development of aqua-feeds from sustainable sources.

Bangladesh

46. The National Adaptation Programme of Action (NAPA) has incorporated climate change adaptation of fisheries and climate change risk management activities. Bangladesh has made efforts to address climate change and is implementing projects on mangrove protection. Other projects on environment protection and conservation for combating climate change are also in progress in the country. An NPOA-IUU has been drafted and is awaiting approval by the government. The government is strengthening measures on trawl management and capacity reduction, although it was noted that gear modifications such as high opening nets and increased engine power were working against this and individual vessel capacity is not reducing as a result. The country has issued a new aquaculture fish feed and fish seed act. The country is making good progress in managing inland fisheries through freshwater fishery enhancements and nursing systems that release to open waters.

Cambodia

47. Cambodia has been implementing freshwater fisheries reforms over the last ten years, with a particular focus on the small-scale fishery. During this period about one million hectares of private concession fishery have been transferred to small-scale fishers and their communities. Cambodia is currently consolidating the gains made over the last ten years, including the organization of fishers through co-management and strengthening fishers' rights. A new development is a modification to the fishery decree to enable communities to pursue more commercial forms of fishing within their areas. A ten-year Strategic Framework aligned with the National Development Strategy for Fisheries, as well as a Strategic Action Plan for Aquaculture 2014 –2030 are currently in development.

India

48. India informed the Commission of its comprehensive, Web-based registration system for all marine fishing vessels and issuance of fishing licenses, which covers nearly 100 percent of the marine fishery. The country has developed a Biometric Identification Card system for active fishermen for the purpose of both security and fisheries management. Coastal fisheries zoning is implemented to reserve nearshore areas for traditional small-scale fishers. State governments manage marine fisheries up to 12 nm offshore; beyond this is the federal government's jurisdiction. The national marine fishing policy is under comprehensive review by an expert team. The Federal Marine Fisheries Regulation and Management Bill is currently under consideration of the Union Government. The country is implementing a national broodstock bank programme for freshwater culture species to improve the supply of quality fish seed. The country has also been implementing a comprehensive national disease surveillance programme, which is enabling effective reporting to relevant international organizations. The country also implements a national aquatic quarantine system, which has effectively kept shrimp aquaculture free from EMS/AHPNS disease. Guidelines for cage culture in open water bodies have been developed and have demonstrated its potential. Fisheries co-management is traditionally practiced in India and will be strengthened in future fisheries policies. A culture-based capture fishery enhancement programme is in place for reservoirs and is accompanied with strengthening the co-management of water bodies. The National Sustainable Agriculture Management (NASM) plan also includes protection of vulnerable fisheries groups.

Indonesia

49. Indonesia noted that it has accomplished or is in the process of implementing actions relating to all of the issues covered by the APFIC questionnaire and in particular the management and governance of fisheries. Indonesia is addressing climate change, combating IUU fishing and promoting aquaculture zoning and managing carrying capacity through an ecosystem approach to fisheries and aquaculture. The delegate noted that there was a need to assess the costs and benefits of FADs and artificial reefs.

Japan

50. The Commission was informed that co-management of coastal fisheries has a long history in Japan and is managed through fishing cooperatives. An ecosystem-based management system of resources is applied for fisheries within natural heritage areas. Large-scale fisheries are managed by the national fisheries ministry using the Total Allowable Catch (TAC) system for important species. Fishing vessels are managed at national and prefecture levels. Japan emphasized the value of co-management and the importance of capacity building with fisheries and communication with consumers to improve value chain benefits.

Malaysia

51. Climate change in Malaysia is monitored and coordinated by a national council that includes the Department of Fisheries. A strategic plan of action on climate change impacts on fisheries has been prepared that covers both capture fisheries and aquaculture and includes the promotion of green technologies and seaweed culture for carbon sequestration. Port State Measures are being implemented in the country and the NPOA-IUU has been adopted. The measures include a vessel tracing system and the compulsory use of a vessel tracking unit (VTU) for all vessels operating more than 12 nm from shore, beginning June 2014. To improve aquaculture, three national certification schemes are in place, including Good Aquaculture Practices for small and medium scale farmers, Malaysia GAP and Fish Quality Certification. A cluster approach has been introduced for aquaculture management, to enable small-scale aquaculture farmers to improve the marketing of their products and their livelihoods more generally.

Myanmar

52. Myanmar has recently concluded a joint survey in collaboration with the BOBLME project and the Norwegian Fisheries Research Institute using the RV Fridjof Nansen. The results show that many of the marine resources under Myanmar's jurisdiction have been substantially reduced compared to levels of 30 years ago. The results have highlighted three emerging issues, namely: the need for the establishment of official MCS in controlling fishing capacity and IUU fishing; the need to assess the potential of marine and coastal underutilized and non-utilized stocks; the need for greater collaboration and cooperation with FAO, other fisheries organizations and with other neighbouring member states in combating IUU fishing.

Nepal

53. Nepal informed the Commission the country's first national fisheries and aquaculture policy is being finalized and soon will go through the approval process. This will enable Nepal to carry out various international obligations. Despite weak institutional capacity in riverine fisheries management, good examples of co-management of lake and reservoir fisheries exist in the country. Nepal informed the Commission of the recent development of live fish marketing in the country. This has become very popular largely because of the poor preservation of imported fish products. Live fish marketing has enabled the farmers to get better prices and the consumers to get better quality fish. Significant increases in the demand for compound aquaculture feed have attracted five commercial feed companies to start production in the country. The country is also preparing an umbrella biosecurity policy and is in the process of formulating Good Aquaculture Practices (GAP).

Pakistan

54. Pakistan explained that over one million of its nationals make their livelihoods from fisheries and reiterated the sector's importance to food and nutrition security. The delegate informed the session that the Government of Pakistan is concerned about the impacts of climate change and climate variability, noting that these are global issues and that regional cooperation was necessary to address these impacts if progress was to be made.

Philippines

55. The Philippines have formulated relevant plans responding to the recommendations of the last session. An Executive Order for a national plan of action for the control of IUU fishing and a fishery monitoring scheme has been formulated and signed by the President of the Republic of the Philippines in December 2013. An Administrative Order was issued that require all Philippine flagged vessels to operate VMS. The government has significantly increased the budget for catch sampling and monitoring this year to improve the effectiveness of fish catch monitoring. The fisher folk registration system was standardized by the national authority for local government implementation. The government has developed a mobile registration system to accelerate the implementation of the registration of industrial fishing vessels. The protective effect of mangroves in the typhoon Yolanda affected areas has further encouraged the local authority and fisher folk to plant mangroves. A programme has been implemented by the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR), called the National Aqua-silviculture Program where mangrove planting is a component. EAFM has been promoted in the area with official development assistance. The government is also implementing GAP and promoting organic aquaculture production.

Republic of Korea

56. The delegate thanked the Secretariat and the Government of India for hosting the APFIC Session and for the preparatory and other work performed during the inter-sessional period. The delegate explained that the Republic of Korea was dedicated to combating and eliminating IUU and that a fishery monitoring centre had been established to provide real-time monitoring of all Republic of Korea flagged distant water fishing vessels. The Republic of Korea also intends to accede to the FAO Port State Measures Agreement in 2015. In addition, the Republic of Korea reiterated the importance of systematic capacity strengthening amongst FAO and APFIC members. The delegate informed the Commission that under an MOU between the Republic of Korea and FAO, an initiative to establish a World Fisheries University had been formally announced at the Thirty-first Session of COFI.

57. Several members requested the Republic of Korea for more information on this initiative. The delegation of the Republic of Korea explained that the curriculum was under development and that there was consideration of arrangements to support students under a scholarship programme.

Sri Lanka

58. Some key actions by Sri Lanka include the requirement of a license for fishing operations, the prohibition of trawling light fishing and the use of explosives and small mesh size nets. Management measures have been introduced for certain high value fisheries. In addition, the Fisheries Act has been revised to better incorporate controls over IUU fishing and improve fishery management, including heavier penalties, the use of logbooks, catch certification and bycatch control measures. An NPOA on sharks is being developed. Bycatch reduction measures for endangered and threatened species are in place. Related to inland fisheries, strict licensing and co-management in water bodies with stocking, linked to compulsory savings schemes, are now common practice.

Thailand

59. Thailand informed the Commission that the country has developed a National Plan for Aquaculture Development, covering shrimp, tilapia and ornamental fish. The Thai GAP certification scheme has been accredited under ISO/IEC Guide 65. Thai aquaculture products residue testing laboratories have been accredited under ISO 17025. A Master Plan for Marine Fisheries Management has been developed, including enlarging the net mesh size and expansion of areas for small fishermen. An action plan for combating IUU is being developed. The National Fisheries Act is currently under review in Parliament. If this is passed, the revised Fisheries Act will provide the Department of Fisheries with the power to address IUU fishing issues and more effective control of fishing vessels. A pilot project on port inspections of fishing vessels has been implemented in Phuket fishing port with FAO support. Training manuals from the pilot project have been developed in English and Thai languages.

Timor-Leste

60. Timor-Leste is developing a draft Strategic Action Plan for fisheries and has requested assistance to finalize it. IUU fishing is a significant problem and the delegate described how small-scale fishers used the SPOT GPS system which is integrated into a reporting system for combating IUU fishing. The implementation of a strategic aquaculture development plan (2014–2030) will start during the second half of 2014. Pilot projects related to adaptation to climate change have started and are geared to sustainability of marine resources. There are also plans to enhance the country's fisheries through stock release programmes. Timor-Leste reiterated the need for significant technical capacity building of the National Fishery Development Authority.

United States of America

61. The United States of America informed the Commission about its recently declared commitments to protect marine landscapes in the continental United States and in its territories in the Pacific. These commitments will see the expansion of the Pacific Remote Islands Marine National Monument from 87 000 square miles to 782 000 square miles. In addition, the Government of the United States of America will develop a comprehensive government-wide programme aimed at deterring illegal fishing, seafood fraud and preventing illegally caught fish from entering the United States markets through the use of improved traceability and catch documentation systems. The delegate noted that this may have implications for exporting countries in the Asia-Pacific region. A presidential task force has been formed to coordinate this initiative between the Department of Commerce, the National Oceanic and Atmospheric Administration (NOAA) and the Department of State. NOAA has also been authorized to consider new applications for the creation or expansion of existing aquatic sanctuaries. The United States of America is setting up a framework to promote both inland and marine aquaculture for improved collaboration and coordination of mariculture research, commencing with a focus on marine shellfish. The United States of America recently released a white paper on the impacts of ocean acidification.

Viet Nam

62. The delegate from Viet Nam informed that the country was in the process of restructuring fisheries and aquaculture. He explained that Viet Nam had received support from FAO and SEAFDEC in developing an NPOA-IUU fishing and an NPOA to reduce fishing capacity. With respect to aquaculture, Viet Nam prioritizes sustainable aquaculture development, and the VietGAP certification scheme is under development. The government has organized different workshops with small-scale aquaculture farmers in relation to microcredit for aquaculture development in Viet Nam.

APFIC REGIONAL GUIDELINES FOR RESPONSIBLE TROPICAL TRAWL MANAGEMENT

63. The Secretary introduced document APFIC/14/07 presenting the “APFIC regional guidelines for the management of tropical trawl fisheries in Asia” (“the APFIC Regional Trawl Guidelines”).

64. The Thirty-second Session of the Asia-Pacific Fishery Commission strongly highlighted the issues associated with trawl fisheries in the region and agreed to take trawl fisheries as a model through which to directly address the management of trawling and indirectly to build capacity in Ecosystem Approach to Fisheries Management (EAFM). The Thirty-second Session of APFIC recommended the convening of an APFIC Expert Workshop on Trawl Fishery Management.

65. The APFIC Regional Trawl Guidelines were developed through an APFIC expert workshop process that placed FAO global best practice in the Asian regional context. The expert workshop was convened in Phuket, Thailand, from 30 September to 4 October 2013, hosted by the Department of Fisheries Thailand, to modify, fill in any gaps, streamline and validate and finalize the draft guidelines. The APFIC Trawl Guidelines were presented as APFIC/14/INF 08.

66. The Secretary emphasized that the APFIC Regional Trawl Guidelines are a practical and usable product that can support the development of management plans for tropical trawl fisheries in Asia. They will also be of value when using the EAFM for the development of fishery management plans.

67. A further purpose of APFIC Trawl Guidelines is to increase the understanding of the issues of tropical trawl fisheries and the ways that they can be managed. They will provide an effective basis for the greater engagement of relevant stakeholders in strengthening and improving the management of

the tropical trawl sector in the APFIC region. This improved understanding will enable stakeholders to engage more effectively with fishers and fishery managers in addressing their particular concerns about fishery management, resource use and sustainability.

Responses by the Commission

68. The Commission welcomed the APFIC Regional Trawl Guidelines and recognized that these would provide a useful basis for developing practical management plans for their trawl fisheries at national and subnational levels. The Commission recommended capacity building and awareness raising on the use of the guidelines.

69. The Commission noted that trawl fisheries were an economically important fishing method for some countries and requires that they need to be sustained, but in an economically and ecologically sound manner.

70. The Commission endorsed the APFIC Regional Trawl Guidelines noting that they are voluntary and their adoption at national level would require further consultation with the stakeholders.

71. The Commission recommended that the APFIC Regional Trawl Guidelines be communicated to the member countries following the Thirty-third Session.

POTENTIAL OPPORTUNITIES AND RISKS OF DEVELOPMENT OF ANCHORED ARTISANAL FISH AGGREGATING DEVICES (FADs) AND THE PLACEMENT OF ARTIFICIAL REEFS

72. The Secretariat presented working document APFIC/14/08 to the Commission. The document summarizes the work undertaken by the Secretariat in relation to Fish Aggregating Devices (FADs) and a synthesis of the scientific knowledge about artificial reefs in the region.

73. A number of member states have previously requested FAO to provide guidance to fisheries managers and fishers on the importance of proper planning and implementation of artisanal FAD programmes using anchored FADs for livelihoods and food security. The FAD guidance document "Anchored fish aggregating devices for artisanal fisheries in South and Southeast Asia: benefits and risks"¹ along with an accompanying Advisory Note responds to this request.

74. The guidance document, presented as APFIC/14/INF 09 details the benefits and risks associated with FAD programmes as well as technical guidance on the construction, positioning, ownership, resource management, fishing methods and post-harvest management.

75. Artificial reef systems are used by member countries with wide-ranging social, economical and ecological objectives and with different degrees of investment. There are very few scientific studies in the region regarding: costs and benefits; optimum levels of investment; effectiveness as a deterrent to trawling; the ecological, social and economical outcomes of artificial reef deployment; as well as the associated risks of artificial reef systems.

76. Both FADs and artificial reefs can play a role in improving livelihoods of artisanal fishers and can have important social, economic and environmental benefits. However, it is important that they are effectively managed and monitored. The lack of studies and information from the past experiences in the region remains an impediment to the effective use of FADs and artificial reefs in fishery management.

¹ APFIC. 2012. *Anchored fish aggregating devices for artisanal fisheries in South and Southeast Asia: benefits and risks* (available at www.apfic.org/downloads/viewcategory/24-fishing-gears.html).

Responses by the Commission

77. The Commission complimented the Secretariat on the work undertaken on FADs and requested that a similar exercise be undertaken for artificial reefs.

78. The Commission agreed that FADs and artificial reefs have the potential for scaling up, but concurred with the working paper that there has been limited evaluation of their impacts and management. The Commission requested the Secretariat to review success stories from different regions and scientific assessments of their impacts within the Asia-Pacific region. The Commission agreed this would be addressed at the Seventy-fifth Executive Committee Meeting.

79. The Commission was informed that the FAD guidelines had already been used in the preparation of a ministerial decree in one member country.

80. Several members noted that the use of FADs in freshwaters (sometimes called “brush parks”) is often contentious and this fishing method is banned in some countries. The Secretariat noted that the FAD guidelines were specific to marine waters, but that broader guidelines on the use of FADs could include both marine and freshwaters.

81. The Commission agreed to provide a uniform harmonized framework for reporting back so that there would be consistency in the information which can guide member states in the deployment and management of artificial reefs.

82. The Commission recommended that all member states should report back on the status of FADs and artificial reefs programmes in their countries.

THE DEVELOPMENT OF A REGIONAL TRAINING COURSE FOR THE ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT FOR THE APFIC REGION

83. The Secretariat presented working document APFIC/14/09 to the Commission summarizing the development of a regional “Essential Ecosystem Approach to Fisheries Management” (EEAFM) training course for the APFIC region.

84. The Commission was informed that support for an ecosystem approach to fisheries management has long been in place, but implementation at national and regional levels has been relatively slow. This is partly because fisheries managers lack the relevant skills and experience to apply such an integrated and holistic approach. The need for capacity development and implementation of the ecosystem approach to fisheries management has been requested in previous APFIC sessions and reiterated by fisheries agencies and institutions throughout the wider Asia-Pacific region and through a number of regional fisheries processes.

85. In recognition of the need for capacity development to promote its application, the EEAFM training course has been developed by: the US National Oceanic and Atmospheric Administration (NOAA) and the Coral Triangle Support Partnership (CTSP), the Bay of Bengal Large Marine Ecosystem (BOBLME) Project, the Food and Agriculture Organization of the United Nations (FAO), the Asia-Pacific Fishery Commission (APFIC), Southeast Asian Fisheries Development Center (SEAFDEC) and the FAO/SEAFDEC/GEF “Strategies for Management of Trawl Bycatch Project” (REBYC II).

86. The course is implemented over five days and there is a comprehensive set of training course materials, which may be downloaded for free from the APFIC Web site.² A major objective of the EEAFM course is that it leads to the development of fishery management plans.

² Available at <http://www.apfic.org/eeafm-materials.html>

87. The EEAFM course has already been carried out in several APFIC member countries (Thailand, Malaysia, Philippines, Indonesia, Viet Nam), including the training of trainers from several countries in the region.

Responses by the Commission

88. The Commission appreciated and welcomed the development of the EEAFM training course by the consortium of partners.

89. The Commission noted that the EEAFM training course is a harmonized approach, being used by a range of partners working to the same approach (SEAFDEC/NOAA/REBYC/USAID/BOBLME/APFIC/FAO), using a consistent set of materials.

90. The Commission appreciated that the EEAFM was targeted at fishery managers who are responsible for fishery management planning at subnational levels, and further noted that the EEAFM is strongly linked to practical implementation of the CCRF.

91. The Commission noted the need to increase the number of competent regional trainers. In this regard the SEAFDEC regional training courses are welcomed and further training at country level would be extremely helpful.

92. A major benefit of the course is that it encourages participation by NGOs and fishery and environment stakeholders. The course helps them to gain an understanding of how a management plan can be developed reflecting wide stakeholders' opinions and expectations.

93. The Commission emphasized the need for broader scale institutionalization to get broader take up and suggested the following actions:

- capacity building in countries not yet covered, especially in South Asia;
- incorporation of the EEAFM course into relevant university course syllabi;
- establishment of dedicated training/extension units to further extend the training at national level;
- specific training for women in fisheries management;
- translation into local languages;
- development of fisher level stakeholder training materials, which are simplified with more graphics/less text, but still coherent with the content EEAFM course; and
- development of a shorter awareness-raising course for senior policy-makers.

94. To assist in this, an EEAFM network coordinator position is being established in SEAFDEC and supported by BOBLME.

95. The Commission requested that the EEAFM training course be adapted to cover inland fisheries. The Secretariat informed the Commission that this was foreseen as an outcome of a GEF project on inland aquatic biodiversity and fisheries that will involve collaboration between FAO and the Inland Fisheries Research Development Centre in Palembang, Indonesia.

THE DEVELOPMENT OF A REGIONAL TRAINING COURSE FOR PORT INSPECTIONS OF FISHING VESSELS

96. At its Thirty-second Session, APFIC emphasized the need for capacity building for combating IUU fishing, which is affecting all the member countries. Member countries' reports to the Thirty-second Session also referred to actions taken to combat IUU fishing and the need for technical support. In response to this identified need and following a specific request from Thailand, APFIC/FAO and the Thai Department of Fisheries initiated the development of a "Training course for port inspection of fishing vessels". The Secretariat presented the working document APFIC/14/10 to the Commission summarizing these developments.

97. The training course manuals and materials were presented to the Commission as APFIC/14/INF 11 and can be downloaded for free from the APFIC Web site.³

Responses by the Commission

98. The Commission welcomed the regional "Training course for port inspection of fishing vessels", noting that it would contribute to improve port controls and contribute to combating IUU. The Commission agreed that there is an increasing need for port inspections of fishing vessels in the region and this requires considerable capacity building.

99. Several members described the institutional and legislative measures being undertaken to strengthen their ability to combat IUU, noting that the training course would complement their national capacity building and awareness raising activities.

100. Five members reported that they were in the process of ratifying or acceding to the 2009 Port State Measures Agreement (PSMA).

101. Thailand noted that the pilot port process was a good way to learn about necessary legislative and procedural reforms and institutional coordination that are required to implement effective port controls.

102. The Commission endorsed the regional training course and recommended the development of a broader group and network of trained regional professionals capable of undertaking port inspections. In this regard, the need for further exchange of experience between members and the training of regional trainers was highlighted.

SUSTAINABLE INTENSIFICATION OF AQUACULTURE

103. The Secretariat introduced document APFIC/14/11 presenting the results of FAO/APFIC Regional Consultation on "Sustainable Intensification of Aquaculture in Asia and the Pacific" held from 9 to 11 October 2012 in Bangkok, Thailand, in collaboration with the Network of Aquaculture Centres in Asia-Pacific (NACA).

104. The Secretariat briefed the Commission on the background and deliberations of the Regional Consultation, introducing the major issues and recommended strategies and actions to promote the sustainable intensification of aquaculture in the region.

Responses by the Commission

105. The Commission appreciated FAO's initiatives in promoting the sustainable intensification of aquaculture to contribute to food and nutrition security and livelihoods in the region.

³ <http://www.apfic.org/port-inspection-training-course.html>

106. The Commission agreed that aquaculture is already a major producer of fish for food and that sustainable increases in production were possible. Such increases do not always require increased inputs, but also relate to increased efficiency that can be gained from improved biosecurity and health management, feeding practices and genetically improved seed.

107. Noting that significant productivity gains can be made by intensifying many aquaculture systems, the Commission warned that this required effective management and capacity building for farmers and related stakeholders, to prevent losses from mismanagement and resultant environmental impacts.

108. The Commission also noted that rapid development of aquaculture required an effective management framework, to ensure that such developments are sustainable, recalling that there have been problems with poorly managed aquaculture development in the region. This is a particular need when dealing with aquaculture systems in open waters and the Commission recommended the development of indicators to monitor sustainability.

109. The Commission recommended actions related to the development of low-cost, efficient fish feeds and the use of renewable energy or energy efficient systems, which would contribute to climate change mitigation or increased resource-use efficiency.

110. The Commission noted that aquaculture in upland areas offered promise for both nutrition and income support to livelihoods, but this had not enjoyed the same attention as in lowland areas.

111. Several members thanked FAO for its technical cooperation support to aquaculture development and technical improvement.

112. FAO, NACA and SEAFDEC were urged to coordinate closely on finding ways to promote strengthened regional cooperation on broodstock genetics, quality of seed and feed, multitrophic aquaculture systems and aquatic health management. The opportunities for value-adding of aquaculture products were also emphasized.

113. Viet Nam offered its cooperation with APFIC members on the aquaculture of *Pangasius*.

114. The Commission recommended further regional consultation to prioritize necessary actions at regional and national levels and to develop strategic action plans for supporting sustainable intensification of aquaculture in the region.

PROMOTING THE APPLICATION OF AQUACULTURE PLANNING AND MANAGEMENT TOOLS FOR SUSTAINABLE DEVELOPMENT

115. The Secretariat introduced document APFIC/14/12 presenting FAO's work on promoting the application of aquaculture planning and management tools for sustainable development. This FAO initiative is a follow-up to the recommendation of the Thirty-second APFIC Session.

116. The Secretariat briefed the Commission on the major activities of the initiative and the progress so far. The Secretariat introduced the Commission to the overall structure and components of the "Aquaculture planning and management toolkit" developed by the FAO expert team and key recommendations arising from the regional technical consultation.

Responses by the Commission

117. The Commission appreciated the regional toolkit and agreed that it will be useful in promoting the improved planning and management of the aquaculture sector in the region.

118. The Commission noted that the toolkit is relevant to both freshwater aquaculture and mariculture, but pointed out that some applications may need to be tailored further for specific environments and systems.

119. The Commission agreed that the toolkit would assist in improving regulation and management, if used to meet the national licensing and regulatory requirements, as well as minimum criteria of certification schemes.

120. The Commission recommended to move forward in developing related training materials and an application manual of the tools.

121. The Commission further recommended starting pilot level application of selected tools in member countries with a strong interest in these. Several members expressed an interest in taking part in the piloting of these tools.

APFIC'S PROGRAMME OF WORK FOR THE COMING BIENNIUM (2014–2015)

122. The Secretary introduced the detailed framework for the biennial work plan 2014–2015 as document APFIC/14/13.

123. The timeline of activities was presented which covered the planned regional workshops and regular meetings of the Commission as endorsed by the Seventy-fourth Executive Committee Meeting.

<i>August 2014</i>	<p>The report and recommendations of the Thirty-third Session of APFIC will be communicated to member countries and FAO.</p> <p>The APFIC <i>“Regional overview of fisheries and aquaculture in Asia and the Pacific 2014”</i> will be finalized and published.</p>
<i>October 2014</i>	<p>A regional review on IUU fishing in the APFIC region in collaboration with the BOBLME will be finalized.</p>
<i>November 2014</i>	<p>The Seventy-fifth Session of the Executive Committee of APFIC will meet in November 2014 to:</p> <ol style="list-style-type: none">review outcomes and recommendations of the APFIC Regional Consultative Workshops;review APFIC publications including the <i>“Regional overview of fisheries and aquaculture in Asia and the Pacific”</i>;develop recommendations for the programme of the Sixth RCFM;identify emerging issues policy and recommendations for future focus of APFIC’s programme of work; anddevelop the agenda for the Thirty-fourth Session of the Commission to be held in March 2016.
<i>January 2015</i>	<p>APFIC Secretary will take part in the <i>“Freshwater, Fish, and the Future”</i>, an international conference to be held FAO, Rome, 26–30 January 2015 (see http://inlandfisheries.org).</p>
<i>March 2015</i>	<p>FAO/APFIC will convene a regional consultative workshop on the identified Commission priority theme covering:</p> <ul style="list-style-type: none">– management of culture-based inland fisheries;– the responsible enhancement of inland waters and development of regional guidance for this;

	<ul style="list-style-type: none"> – the use of the ecosystem approach to support management of inland fisheries; and – the potential for development of a regional EAFM training course for inland fisheries in the region.
<i>May 2015</i>	<p>FAO/APFIC will convene a second regional consultative workshop on the identified Commission priority theme covering:</p> <ul style="list-style-type: none"> – improved feeds for aquaculture, including low cost feeds; – improved responsibility and traceability of fish meal (in partnership with IFFO improvers programme/REBYC II/Thai Fishmeal Dialogue); – reduction of fish meal use in aquaculture feeds; – the economic and technical case for use of formulated feed replacing fresh/trash fish; and – feed alternatives supporting emerging aquaculture. <p>Relevant member countries, regional organization partners and private sector representatives will be invited to participate.</p>
<i>July-November 2015</i>	<p>APFIC Secretariat will commence liaison and background information collection from APFIC members and key national and regional correspondents for the preparation of the APFIC regional overview of fisheries and aquaculture 2016.</p>
<i>December 2015</i>	<p>APFIC Secretariat will send invitations for the Thirty-fourth APFIC Session to all members, regional and subregional organizations and arrangements, with relevance to fisheries/aquaculture in the APFIC region.</p>
<i>March 2016</i>	<p>The tentative date for the convening of the Thirty-fourth Session of APFIC will be March 2016.</p> <p>The Sixth APFIC RCFM will be organized immediately preceding the Thirty-fourth Session of APFIC, invitations to members, regional observer countries, regional and subregional organizations and arrangements, CSO/NGO and private sector, relevant to fisheries/aquaculture in the APFIC region.</p> <p>The intention is that the recommendations of the Thirty-fourth Session will be communicated to FAO prior to the Thirty-second Session of the Committee on Fisheries (COFI) to be convened in June 2016.</p>
<i>June 2016</i>	<p>APFIC Secretary will participate in the Thirty-second Session of COFI and the Sixth Meeting of the Network of Secretariats of Regional Fisheries Bodies (RSN) at FAO headquarters in Rome.</p>

FINANCIAL MATTERS RELATING TO THE OPERATION OF THE COMMISSION

124. The Secretariat drew attention to key dates in the work programme and the dates of the Thirty-fourth Session of APFIC, requesting member countries to include the APFIC work plan in their financial planning for the coming biennium.

Responses by the Commission

125. The Commission took note that there is ongoing cooperation with Mekong River Commission and that there would be substantive collaboration with APFIC on inland fisheries and the planned workshops related to culture-based fishery enhancements.

126. The Commission recommended that the work plan dates are incorporated into national budget and work planning, to ensure that member country delegations are able to participate in the session and meet their obligations under the APFIC Agreement.

127. The Commission endorsed the work plan as outlined in the working paper (APFIC/14/13).

STATEMENTS OF REGIONAL ORGANIZATIONS AND PARTNERS

128. The chairman invited regional organization observers to take the floor to make short statements on the regional priorities identified by their governing bodies and any specific linkages to the work of APFIC.

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

129. Mr Yugraj Yadava, Director of the BOBP-IGO, thanked the Commission for the opportunity to participate in the Thirty-third Session. He described the function and scope of the work of the BOBP-IGO, noting that it has an additional role in maintaining a knowledge base for the region. The Governing Council has recently endorsed the strategic programme for the next five years, which has a six-theme work programme covering: safety at sea; MCS; implementation of the CCRF; improving livelihoods and hygiene of fishery products; and adaptation to climate change. The Governing Council emphasized close cooperation with APFIC on areas of mutual interest in the region.

130. Other ongoing programmes include cooperative ecosystem management in the Gulf of Mannar between India and Sri Lanka (supported by BOBLME); a dedicated training programme on the CCRF for regional participants – both BOBP-IGO members as well as other APFIC members; development of a regional management plan for shark and Hilsa; post-harvest management of fish; and policy support to member countries.

Mekong River Commission Fisheries Programme (MRC-FP)

131. Mr So Nam, Coordinator of the MRC-FP, thanked the Commission for the opportunity to participate in the Thirty-third Session. He informed the Commission of MRC-FP's work in the Mekong Basin region, noting that the fishery programme was one of 12 MRC programmes. The work of MRC adds value to, and complements the work of APFIC. MRC-FP has taken up several of the recommendations of the Fifth RCFM and there is ongoing cooperation on regional management of inland fisheries enhancements. MRC-FP cooperates with NACA on culture-based fisheries; consumption and importance of fish in diet studies; transboundary water threats to fisheries and aquaculture; and fisheries management and governance. MRC-FP also maintains a communications programme including magazines and Web based information. MRC-FP welcomed the adoption of the guidelines for small-scale fisheries and noted their importance for the Mekong region.

132. In conclusion, Mr So Nam informed the Commission that MRC looks forward to cooperating further with FAO and APFIC on improved assessments of inland fisheries, fishery valuations, household consumption and as well contributing to the Global Conference in Rome in January 2015.

Network of Aquaculture Centres in Asia-Pacific (NACA)

133. Mr Cherdsak Virapat, Director General of NACA, thanked the Commission for the opportunity to participate as an observer in the Thirty-third Session. Mr Virapat described the function and programme of NACA and noted that the development objective of NACA was the "sustainable increase in fish production from aquaculture through national and regional cooperation and networking". This would also be achieved by empowerment of small-scale producers and improving access to value chains and strengthened governance of aquaculture in the region.

134. Mr Virapat noted the long running and extensive cooperation with APFIC in areas of mutual interest. He observed that a number of recommendations arising from the Fifth RCFM are directly relevant to NACA either as a partner or a lead organization. Mr Virapat looked forward to further fruitful cooperation between members and regional organizations including APFIC. In particular, forthcoming regional workshops on aquatic animal health and culture-based fisheries.

135. The Chairman congratulated NACA on its forthcoming 25th Anniversary.

Southeast Asian Fisheries Development Center (SEAFDEC)

136. The Secretary-General of SEAFDEC, Mr Chumnarn Pongsri was unable to participate in the Thirty-third Session, but submitted a written statement which was read to the Commission and which is appended to this report (Appendix H).

Lao PDR

137. Lao PDR attended the Thirty-third APFIC Session as an observer and thanked the Commission for the opportunity to participate. The delegate also appreciated the opportunity to share experiences and learn from participation in the Fifth RCFM. He noted that there are several areas which would benefit the work of Lao PDR on fisheries and aquaculture development.

OTHER MATTERS

138. The Commission requested the secretariat to report back on the adoption of the *Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication* (SSF Guidelines) and the next steps to be taken to ensure their effective implementation, with respect to the work of APFIC.

139. The Secretary noted that implementation was a strong national responsibility and noted the Fifth RCFM recommendation that national plans to develop specific policy on SSF should be initiated. He noted that APFIC could assist members in providing advice to members as well as coordinating regional efforts to support small-scale fisheries.

140. The Commission requested that ways to monitor the implementation of the SSF guidelines should be developed, and that the APFIC questionnaire could also include this. The Commission agreed that this should be considered under the agenda of the Seventy-fifth Session of the Executive Committee.

141. Considering the success of the BOBLME Project, India expressed support for a similar initiative in the Arabian Sea LME.

ELECTION OF OFFICERS

142. The Chairman expressed gratitude for the Commission's confidence in electing India as Chair for the current biennium. He further thanked the Secretariat for its technical support to India for the Fifth RCFM and Thirty-third Session.

143. The Commission thanked the Chairman and India for their hard work during the biennium.

144. Sri Lanka was elected as Chair country of the Commission for the coming biennium 2015-2016. Sri Lanka thanked the Commission for entrusting the responsibility for the Chairmanship of APFIC and commented that India had set a strong example that Sri Lanka will strive to meet. He looked forward to meeting the member countries in Sri Lanka.

145. Philippines was elected as Vice-chair of the Commission and thanked the Commission for the members' confidence.

146. Indonesia and Myanmar were elected to serve as members of the Executive Committee.

DATE AND PLACE OF THE THIRTY-FOURTH SESSION OF APFIC

147. Sri Lanka agreed to host the Seventy-fifth Executive Committee Meeting and the Thirty-fourth Session of APFIC, and informed the Commission that the dates would be set and communicated to the APFIC Secretariat following ministerial consultation.

148. The Commission agreed that the APFIC Sixth RCFM will be held in conjunction with the Thirty-fourth Session at the same venue.

149. 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 the dates are finalized.

ADOPTION OF THE REPORT

150. In adopting the Session report, the Commission unanimously agreed to record its deep appreciation to the Government of India, especially the Ministry of Agriculture for the generous hospitality accorded to the Commission and the excellent organization and arrangements that had made the Thirty-third Session such a success. The Commission also appreciated the work of the APFIC Secretariat.

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

152. The report of the Session was adopted on 25 June 2014.

APPENDIX A – LIST OF PARTICIPANTS AND OBSERVERS

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APPENDIX B – AGENDA



ASIA-PACIFIC FISHERY COMMISSION

Thirty-third Session

Hyderabad, India, 23–25 June 2014

AGENDA

MONDAY, 23 JUNE 2014
MORNING, 09.00

Opening Ceremony (09.00-10.15)

- Welcome remarks by FAO Representative to India
 - Welcome and introductory remarks by the APFIC Chairman, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, India
 - Introductory remarks by the Secretary, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, India
 - Inaugural speech by H.E. Agriculture Minister, Ministry of Agriculture, India
- Traditional lighting of the lamp
Group photo

Adoption of the agenda and arrangements for the Session

APFIC/14/01
APFIC/14/INF 01
APFIC/14/INF 02

Agenda item 1: Inter-sessional activities of APFIC

APFIC/14/02
APFIC/14/INF 03

Agenda item 2: Report of the Seventy-fourth Executive Committee Meeting

APFIC/14/03
APFIC/14/INF 04

Agenda item 3: Regional overview of fisheries and aquaculture in Asia and the Pacific

APFIC/14/04
APFIC/14/INF 05

Agenda item 4: Summary overview report of the outcomes of the Fifth APFIC Regional Consultative Forum Meeting

APFIC/14/05
APFIC/14/INF 06

MONDAY, 23 JUNE 2014 AFTERNOON, 13.30	
Agenda item 5: Country feedback and progress on previous APFIC recommendations and action plans	APFIC/14/06 APFIC/14/INF 07
Agenda item 6: APFIC Regional guidelines for responsible tropical trawl management	APFIC/14/07 APFIC/14/INF 08
Agenda item 7: Potential opportunities and risks of development of anchored Artisanal Fish Aggregating Devices (FADs) and the placement of artificial reefs	APFIC/14/08 APFIC/14/INF 09
TUESDAY, 24 JUNE 2014 MORNING, 09.00	
Agenda item 8: The development of a regional training course for ecosystem approach to fisheries management for the APFIC region	APFIC/14/09 APFIC/14/INF 10
Agenda item 9: The development of a regional training course for port inspections of fishing vessels	APFIC/14/10 APFIC/14/INF 11
Agenda item 10: Sustainable intensification of aquaculture	APFIC/14/11
Agenda item 11: Promoting the application of aquaculture planning and management tools for sustainable development	APFIC/14/12
TUESDAY, 24 JUNE 2014 AFTERNOON, 13.30	
Agenda item 12: APFIC's programme of work in the coming biennium	APFIC/14/13
Agenda item 13: Reports on achievements of regional organizations and partners	
Agenda item 14: Other matters	
Agenda item 15: Election of Officers	
Agenda item 16: Date and place of the Thirty-fourth Session of APFIC	
WEDNESDAY, 25 JUNE 2014 MORNING, 09.00	
Report available to delegates	
WEDNESDAY, 25 JUNE 2014 AFTERNOON, 14.00	
Adoption of report	
Closing of the session	

APPENDIX C – LIST OF DOCUMENTS

A. Working documents:

APFIC/14/01	Provisional Agenda and Timetable
APFIC/14/02	Inter-sessional Activities of APFIC
APFIC/14/03	Report of the Seventy-fourth Session of the Executive Committee
APFIC/14/04	Regional overview of fisheries and aquaculture in Asia and the Pacific
APFIC/14/05	Summary overview report of the outcomes of the Fifth APFIC Regional Consultative Forum Meeting
APFIC/14/06	Country feedback and progress on previous APFIC recommendations and action plans
APFIC/14/07	APFIC Regional guidelines for responsible tropical trawl management
APFIC/14/08	Potential opportunities and risks of development of anchored Artisanal Fish Aggregating Devices (FADs) and the placement of artificial reefs
APFIC/14/09	The development of a regional training course for ecosystem approach to fishery management for the APFIC region
APFIC/14/10	The development of a regional training course for Port Inspections of fishing vessels
APFIC/14/11	Sustainable intensification of aquaculture
APFIC/14/12	Promoting the application of aquaculture planning and management tools for sustainable development
APFIC/14/13	APFIC's programme of work in the coming biennium

B. Information documents:

APFIC/14/INF 01	Provisional list of documents
APFIC/14/INF 02*	Provisional list of participants
APFIC/14/INF 03	Report of the Thirty Second Session of the Asia-Pacific Fishery Commission, Da Nang, Viet Nam, 20–22 September 2012
APFIC/14/INF 04	Report of the Seventy-fourth Session of the APFIC Executive Committee, New Delhi, India, 22–24 May 2013
APFIC/14/INF 05	The consumption of fish and fish products in the Asia-Pacific region based on household surveys
APFIC/14/INF 06*	Summary recommendations of the Fifth APFIC Regional Consultative Forum Meeting
APFIC/14/INF 07	2014 Asia-Pacific Fishery Commission (APFIC), Member Country questionnaire on responsible fisheries and aquaculture in the Asia-Pacific region
APFIC/14/INF 08	APFIC Regional guidelines for responsible tropical trawl management
APFIC/14/INF 09	Anchored fish aggregating devices for artisanal fisheries in South and Southeast Asia: benefits and risks

* To be distributed at the Session

- APFIC/14/INF 10 Essential EAFM. Ecosystem Approach to Fisheries Management Training Course. Volumes 1, 2 and 3
- APFIC/14/INF 11 Implementation of port state measures: Technical guide to port inspection of fishing vessels (Volume 1); Workbook for trainers (Volume 2); Port inspections: Guide to activities and tasks (Volume 3)

APPENDIX D – REGIONAL OVERVIEW OF FISHERIES AND AQUACULTURE IN ASIA AND THE PACIFIC

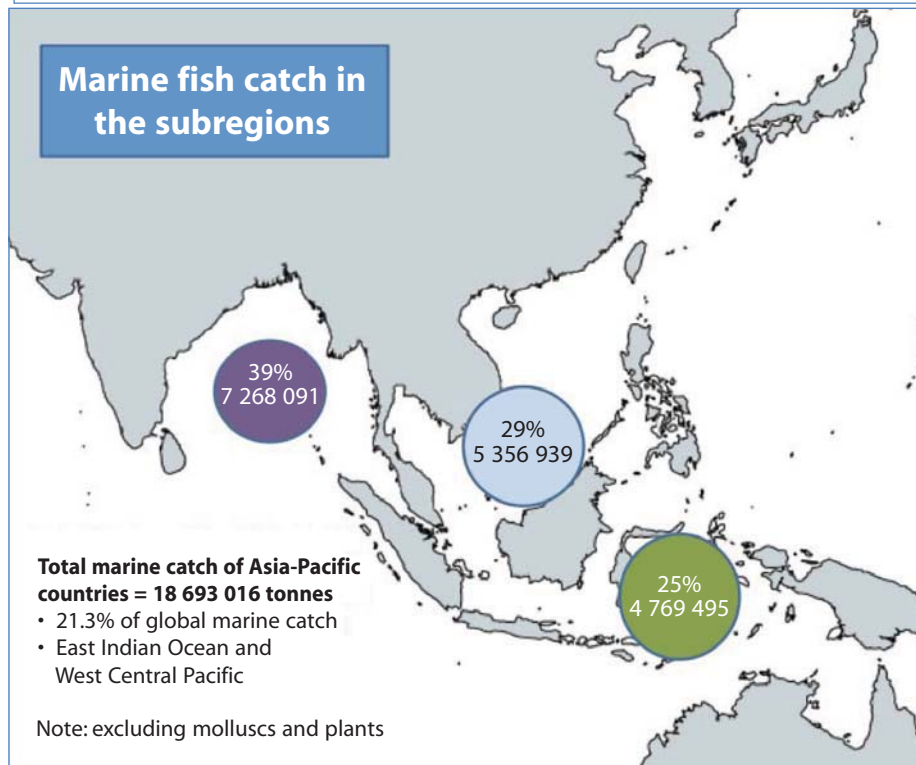
GLOBAL AND REGIONAL MARINE FISHERY TREND OVER THE PAST DECADE

1. Asian fishery production from all marine waters has continued to increase (reaching 48.9 million tonnes in 2012), which is about 61 percent of total global production. Global marine capture fisheries (79.7 million tonnes in 2012) are not increasing and decreased over the previous year (mainly due to low production from the Peruvian anchoveta fishery).
2. The statistics reported by some countries indicate continuous increases in production that do not reflect normal year by year variations in fishery production. In such cases, this steadily increasing reported production seems unlikely to be correct when matched against survey and other fishery assessment data. The risk is that continuous over-reporting can lead to serious errors over successive years, especially if the fishery is not actually increasing (e.g. by annually reporting an 8 percent increase in production for a fishery that is not actually increasing, will result in a 100 percent error over the course of 10 years, the annual increase may seem minor, but the aggregated effect is considerable).
3. This problem is most severe when there is no actual data collection from the fishery upon which to base an estimate for the report. This situation is by no means uncommon in local offices where there is no routine data collection or monitoring or where only part of the fishery is monitored and the reporting officer must give an estimate of other sources of production.

SUMMARY OF FISHERIES PRODUCTION BY SUBREGION

4. The APFIC regional overview focuses on three fishery subregions which lie within the heart of the APFIC area. These three subregions are largely EEZ waters of the APFIC membership in Asia with relatively little high sea. These subregions are:
 - South China Sea
 - Bay of Bengal
 - The Sulu Sea, Sulawesi Sea, Indonesian territorial seas, Arafura-Timor Sea
5. Deriving fish catches for subregions within FAO statistical areas is often a challenge and typically requires access to statistical data at the sub-national level. There is relatively little high seas in the APFIC subregions covered by the Regional overview and the APFIC members do not, typically, grant foreign fishing access to their waters (although neighbouring countries may fish in their waters, legally or illegally). This means that catches from long distance fishing nations and nations outside of the region are less important in deriving these subregional estimates.
6. Unreported catch and the catch of IUU fishing is a far greater issue in getting real estimates of the production from the subregion. In some cases there is systematic over-reporting of marine catch, which may also be responsible for driving catch figures continuously upwards as is seen in the reported catch (e.g. Bay of Bengal).
7. The total marine fishery catch for the Eastern Indian Ocean and Western Indian Ocean by the countries of the Asian region was 18 555 716 tonnes in 2012. This total represents 21.3 percent of the total global marine fish catch of 79 719 854 tonnes (excluding plants).

Figure 1: Catches in the three subregions, indicating percentage of total regional catch



8. The estimated total marine catch of the three subregions is 16 984 728 tonnes and accounts for 91 percent of the FAO regional total (Figure 1). This nine percent difference is probably due to use of some non-FAO national statistics and exclusion of the catches of the eastern Philippines and underestimates of the Indonesian catch in its territorial seas.

9. The Bay of Bengal marine fishery catch is estimated⁴ as 7 268 091 tonnes which is approximately 9.1 percent of global marine fishery catch, excluding seaweeds.

10. The South China Sea marine fishery catch is estimated at 5 356 939 tonnes⁵, representing 6.7 percent of total global marine catch (excluding seaweeds).

11. The Indonesian territorial Seas, Sulu Sea, and Arafura-Timor Sea marine fishery catch is estimated at 4 358 698 tonnes⁶ representing 5.5 percent of total global marine catch. This catch is largely the catches of Indonesia and the Philippines. The catches of Timor-Leste and Australia comprise less than 20 000 tonnes of the total.

⁴ Based on 2012 FAO FishstatJ data for the eight BOB countries' landings in the Eastern Indian Ocean

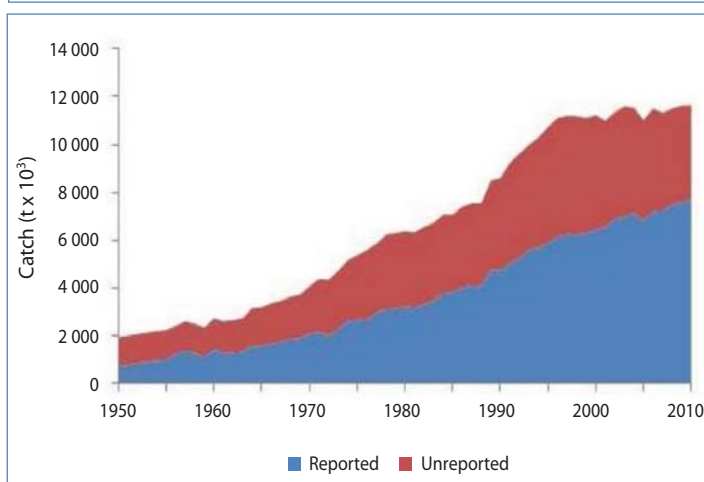
⁵ Estimated from the Western Indian Ocean catches of Thailand, Viet Nam, China, Cambodia, Brunei Darussalam and Singapore. The FMA 711 catch for Indonesia (2008) is added, together with the 2012 BAS data for Philippines regions adjoining the South China Sea (Ilocos, Central Luzon, Mimaropa and Batangas, Cavite and Qezon)

⁶ Estimates for Philippines are from the 2012 BAS data for regions in the Sulu and Sulawesi Sea areas (Western Visaya, Central Visaya, Zamboanga Peninsular, Northern Mindanao, Davao, Soccskargen, ARMM and Masbate. (<http://countrystat.bas.gov.ph>, fisheries statistics query, accessed 2014); the Indonesian catches of Timor Arafura, Banda Sea and Sulu-Sulawesi Sea (2011, reported in the APFIC regional overview 2012)

USING CATCH RECONSTRUCTION TO INVESTIGATE REPORTED CATCHES

12. The challenge of unreported fishing as well as over-reported fishing can be illustrated by the recent catch reconstruction for the Bay of Bengal⁷. The catch reconstructions indicate that the total catch of the Bay of Bengal may be substantially higher than that reported to FAO (Figure 2), primarily due to unreported catches from commercial fisheries, underestimation of artisanal catches and the catches lost to IUU fishing. There are also some adjustments made for over-reporting. The total catch for BOB reconstructed by is 10 700 000 tonnes.

Figure 2: Catch reconstruction for Bay of Bengal – showing possible level of historic under-reporting of marine fishery catches



13. Overall, the total catches increased from 1950 to the mid-1990s, after which reconstructed catches flattened off. This is in contrast to reported landings, which suggest a continuous increase in landings during the 2000s. This reconstructed catch also indicates that there may be as much as 47 percent unreported catch in the subregion.

Table 1: Marine fishery catch the Bay of Bengal by main groupings in tonnes and percentage composition

Species group	Catch (tonnes)	Percent of identified catch	Percent of total catch
Unidentified	3 246 323	n.a.	50
Small pelagic, anchovies	1 355 590	35	18
High value demersal	754 580	19	10
Crustaceans	552 409	14	7
Large pelagics, tunas	529 830	14	7
Small, low value demersal	287 572	7	4
Jellyfish	133 271	3	2
Cephalopods	112 953	3	1
Sharks rays	94 606	2	1
Others	50 456	1	1
Total identified catch	3 871 267	100	

BAY OF BENGAL SUBREGION

14. On the eastern side of the Bay of Bengal heavy fishing pressure has seen substantial declines in fish stocks with many of the species groups considered to be overfished (APFIC overview 2012). The detailed reports (Table 1) are blurred by the lack of detail of Myanmar's reports (principally 2.4 million tonnes of "Marine fish nei").

15. Overall there is 3.2 million tonnes of unidentified fish (~50 percent of total catch). In most countries this unidentified catch is low value catch that is landed for use in fishmeal and feeds or is the estimated catch from artisanal fisheries. Improved reporting is needed, as there is an important distinction which needs to be made regarding the value for food security and livelihood versus other uses such as fishmeal and use in feeds of this "unidentified" fish fraction.

16. Looking at the species details reported, the fishery is dominated (~35 percent) by small pelagic (Indian mackerels, Indian scad, anchovies) species. Higher value demersal species comprise 19 percent of catch and crustaceans (mainly shrimp/prawns) contribute 14 percent. Large pelagic species (tunas,

⁷ "Reconstructed total fisheries catches for the countries of the Bay of Bengal Large Marine Ecosystem: 1950–2010, Report to the Bay of Bengal Large Marine Ecosystem Project" (www.boblme.org) prepared by: Dirk Zeller, Danielle Knip, Kyrstn Zyllich and Daniel Pauly, Sea Around Us Project, Fisheries Centre University of British Columbia

neritic tunas, seerfish) are 14 percent of the catch (much of this is contributed by the southern part of the Bay of Bengal).

17. Small demersal species that are now principally used for surimi comprise 7 percent of total catch, although recent trawl surveys in Myanmar indicate these species dominate this trawl catch and much of the unidentified part of the catch also may also comprise this group. Jellyfish, cephalopods and sharks/rays along with other minor invertebrate species provide the other 9 percent of the identified catch.

18. The UBC catch reconstruction indicates that the large-scale, industrial sector has increasingly dominated total catches, accounting for 41 percent of total historical catches, but that there is an indication of a levelling off or even slight decline in industrial catches in recent years. Small-scale and small-commercial catches seem to be increasing.

SOUTH CHINA SEA

19. The catch composition of the northern part of the South China Sea (Table 2) is dominated by large pelagic species, neritic tunas (it is almost impossible to separate the catch of South China Sea area from that off the east coast of the Philippines and this leads to higher values for the larger tuna/pelagic species). Small pelagics species are caught throughout the subregion.

20. In the southern shelf areas, small demersal species are a more significant catch and these are often destined for surimi and processing (Natuna Sea area). A significant part of the catch is directed for fish meal (see section on fishmeal) and for direct feeding to marine fish aquaculture cages. In Thailand alone, 353 000 tonnes of low value/trash fish. This is principally the unidentified marine fish nei component which comprises 38 percent of the total catch.

Table 2: Marine fishery catch the South China Sea by main groupings in tonnes and percentage composition

Species group	Catch (tonnes)	Percent of identified catch	Percent of total catch
Unidentified	2 338 291	n.a.	38
Large pelagics, tunas	977 027	26	16
Small pelagic, anchovies	911 511	24	15
Cephalopods	502 771	13	8
High value demersal	445 756	12	7
Crustaceans	421 465	11	7
Small, low value demersal	323 242	11	7
Others	123 213	3	2
Jellyfish	16 017	<1	<1
Sharks ray	15 814	<1	<1
Total identified catch	3 736 816		

SULU SULAWESI, ARAFURA-TIMOR, INDONESIAN TERRITORIAL SEAS

21. The marine fishery catch of the Indonesian territorial Seas, Sulu Sea, and Arafura-Timor Sea marine fishery catch is estimated as 4 358 698 tonnes. This catch is largely comprised by the catches of Indonesia (~69 percent) and the Philippines (~30 percent). The catches of Timor-Leste and Australia comprise less than 1 percent of the total (20 000 tonnes). The total catch of the Arafura Sea was estimated at around 793 000 tonnes⁸.

22. The 2012 APFIC Regional Overview indicates that the status of the demersal species groups (including crustaceans) are over-fished. The status of small pelagic and large pelagic fisheries is less severe, but these are also moderately or fully fished, indicating that there is little scope for increase in

⁸ Stacey, N. (editor), S. Nurhakim, D. Nugroho, H. Soselisa, B. Resosudarmo, O. Kalis, J. Monteiro, J. Prescott, J. Martin, & J. Karam (2011). Socio-economic Profile of the Arafura and Timor Seas. Report prepared for the Transboundary Diagnostic component of the Arafura and Timor Seas Ecosystem Action Program, ATSEA Program, Jakarta, 135 p.

catches. A 2010 Indonesian stock assessment report classified many of the fisheries of the Arafura and Timor Seas fisheries as fully exploited or over exploited⁹.

23. The subregion is also highly vulnerable to IUU fishing, which has been historically difficult to control due to its relative remoteness. In the early 2000s it was estimated that 85 percent of vessels (~7 000) over 50 gross tonnes were operating without a licence¹⁰. Recent estimates (2011) suggest that IUU fishing in Timor-Leste is widespread and that loss of income is approximately US\$36 million per year¹¹. Estimates of the IUU fishing the Sulu-Sulawesi Sea indicate that up to 33 percent of the catch is IUU¹².

IUU FISHING IN THE REGION

24. IUU fishing remains a pervasive global problem, but it means a challenge to derive adequate regional estimates this is important, because the nature of IUU fishing varies around the world and will require different strategies to combat IUU fishing according to the context.

25. A 2009 report estimating global IUU¹³, indicates that the illegal trade in fish could account for 11 million to 25 million metric tonnes of seafood. This was derived estimation of IUU based on source studies, which use a number of different methods to estimate the level of illegal fishing, including surveillance data, trade data, stock assessments based on fishery-independent (survey) data and expert opinion. The losses from the Eastern Indian Ocean and Western Central Pacific (FAO Statistical areas 57 and 711) ranged between 1 253 762 and 2 700 177 tonnes (average 2000–2003)

26. Other studies of subregions or the semi-enclosed seas indicate potentially higher figures for IUU. A study of unreported Indonesian fishery catch reveals approximately 1.5 million tonnes per year for the Arafura-Timor Sea alone. Much of this catch is illegal¹⁴. The financial loss from IUU fishing in the Sulawesi Sea has been conservatively estimated at about a third of the total annual value of marine fisheries in the Sulawesi Sea (total catch 1 190 000 tonnes worth \$715 million in 2003). The value of the illegal catch does not include social and environmental costs⁹. This value probably represents less than one third of the total catch.

27. The three subregions covered by the APFIC regional overview have an important characteristic, not found in other regions where there are large open oceans. The majority of the area is contained within domestic waters, territorial seas and EEZ areas of the countries which border the three subregions. This lack of high sea area means that combatting IUU fishing is a strongly national issue.

28. There are reports of IUU fishing by vessels of other countries encroaching into the EEZ of the countries. In almost all cases, the member countries of APFIC do not allow foreign flagged vessels to fish in their EEZ waters. A notable exception to this is Myanmar which has until recently had an access agreement with Thailand. India has allowed a number of Letter of Permit Vessels to fish in the EEZ.

⁹ Anon. 2010, Komisi Nasional Pengkajian Stok Sumberdaya Ikan Tahun 2010. Jakarta: Kementerian Kelautan dan Perikanan Badan Litbang Kelautan dan Perikanan. Pusat Penelitian Pengelolaan Perikanan dan Konservasi Sumberdaya Ikan. Cited in ATSEA (2012). Transboundary Diagnostic Analysis for the Arafura and Timor Seas Region. 111 pp.

¹⁰ Resosudarmo, BP, Napitupulu, L & Campbell, D 2009, Illegal Fishing in the Arafura Sea. In: RESOSUDARMO, B.P. & JOTZO, F. (eds.) Working With Nature against Poverty Development Resources and the Environment in eastern Indonesia. Singapore: Institute for Southeast Asian Studies, pp. 178-200.

¹¹ Bateman and Bergin (2011) cited in Arafura and Timor Seas Ecosystem Action Program (2012). Strategic Action Programme for the Arafura and Timor Seas Region. Report prepared for the Arafura and Timor Seas Ecosystem Action (ATSEA) Program.

¹² M. Palma & M. Tsamenyi (2008) Case Study on the Impacts of Illegal, Unreported and Unregulated (IUU) Fishing in the Sulawesi Sea. APEC

¹³ Agnew DJ, Pearce J, Pramod G, Peatman T, Watson R, et al. (2009) Estimating the Worldwide Extent of Illegal Fishing. PLoS ONE 4(2): e4570. doi:10.1371/journal.pone.0004570

¹⁴ G.A. Wagey, S. Nurhakim, V.P.H. Nikijuluw, Badrudin, T.J. Pitcher (2009). A Study of Illegal, Unreported and Unregulated (IUU) Fishing in the Arafura Sea, Indonesia.

29. The closure of EEZ waters to foreign flagged fishing vessels has resulted in a number of other arrangements coming into play. Probably the most common example is that of joint ventures or front companies based within the country where the vessels are operating. The fishing vessels in these cases may be domestic, or perhaps more commonly, reflagged vessels from the country which has partners in the joint venture. This means so-called beneficial ownership may still reside outside the country where the vessels are fishing. The reflagging of vessels seems relatively widespread and does raise a question about the de-registration process. Almost all the member countries in the region cite weaknesses in the registration and licensing of their domestic fleets as a constraint to effective capacity management, It may be also considered that this extends to some extent to the ability to check where vessels are deregistered before reflagging.

30. Importantly, the reflagging of vessels to fish under joint venture arrangements or as local registered companies with beneficial ownership outside the country, challenges the effectiveness of Port State Controls, as these are generally focused on foreign vessels. In the case of dual flagged vessels, these vessels may also avoid detection under a Port Inspection Scheme if the focus is only on foreign vessels, because these vessels enter port under a national flag.

31. The IUU catch that is taken from the different subregions also varies. Around coral seas the species may be high value products with niche markets in other parts of Asia (e.g. live reef fish, coral, ornamental shells, giant clam, sea turtles, sea cucumber etc.), IUU products of longlining include shark fins as well as unreported or illegally transhipped tuna and other species. Trawl fisheries and purse seiners in the region may illegally access neighbouring waters or illegally transship fish onto carrier vessels and return this to the country of beneficial ownership of the fleet.

32. Other IUU activities include vessels operating under access agreements carrying the same markings and illegal landings of fish in ports of neighbouring countries in contravention of national laws. Alongside the illegal operations are commercial servicing operations that may support the illegal activities of fishing vessels. At sea bunkering, resupplying, provision of spare parts and crew repatriation services are increasingly available, enabling vessels to remain at sea for longer periods.

33. The close linkage between vessel registration, capacity management and combatting IUU fishing emphasizes that this is an area where there is a need for improvement, and also potential from more effective regional cooperation. An updated review of IUU fishing in the APFIC region would contribute to improved regional understanding of the issues and also support regional initiatives such as the Regional Plan of Action to combat IUU fishing (RPOA).

FISHING LABOUR, MIGRATION

34. Over the past 15 years there has been a transformation in the mobility of fishing labour. This has been driven by rising labour prices and enabled by the great ease of movement of migrant labour between countries of the region. Now Thai and Indonesia flagged fishing vessels have crew that come from Myanmar, Lao PDR and Cambodia. Taiwanese vessels may have crews from the Philippines and Indonesia. In the Maldives, fishing crews are being sourced from Bangladesh. This shift to the use of foreign labour has revealed both labour trafficking and illegal labour procurement practices. This has also shown that labour legislation and controls over fishing vessels are very weak when operating far from shore or in the waters of neighbouring countries. This is a flag state responsibility, but is complicated if the beneficial ownership is in another country.

35. The ability of vessels to remain at sea transshipping and refuelling, often in remote locations means that crews may not have the chance to return to shore for long periods and in some documented cases this has been effectively forced labour or slavery.

36. The issue of straying of small scale fishing vessels into the EEZ of neighbouring countries is another problem that is variously tolerated or not around the region. Increasing maritime security concerns has seen tougher measures against straying fishers and they may end up spending long periods in confinement before eventual repatriation.

MCS AND VMS – AN INCREASING TREND IN THE REGION?

37. Electronic monitoring systems (e.g. VMS) are still in relatively limited use across the region considering the number of fishing vessels. They are becoming a requirement in some fisheries for larger vessels as countries start to take a greater interest in the monitoring fishing vessels activity and particularly because these systems offer additional benefits such as ease of location in an emergency. In the later case, the interest is from the private sector to install for their own corporate benefit.

38. For smaller fishing vessels and artisanal fishers, some countries are exploring low cost, low range systems to assist with navigation as well as having options for recording observations of IUU fishing and raising the alarm when a vessel is in distress.

39. The costs of both the VMS/VPS service and the equipment is now reaching a point where it is a financially viable option for many fishing vessels, however, until member countries establish their own systems for monitoring and communication, these systems will not contribute to monitoring of IUU fishing.

WHAT TO DO ABOUT FISHING VESSEL OVER-CAPACITY?

40. One of the greatest drivers of overfishing and IUU fishing is over-capacity in the fishing fleet and on-shore processing industry. Investments in processing capacity based on rapid growth of the fisheries of the region took place through the 1980s to late 1990s. Initially driven by capture fishery products, this soon diversified into aquaculture products for export as well. With the decline in quality of the marine catch, the processing sector also re-equipped to develop surimi and other processed products from lower grade food fish.

41. From individual countries there are some signs that fish vessel numbers in some fisheries are declining. This is presumably driven by lack of economic viability. The fishing sector has for a long time, been the beneficiary of fuel subsidies in many countries, in some cases these were temporary events (to buffer against fuel price spikes), elsewhere they are long-running support schemes. There are other subsidies such as support to construction of new vessels (low cost loans), fisheries insurance schemes (a social security system in case of injury or death), fishery compensation schemes (to compensate for loss of fishing days during closed seasons).

42. The impact on fishing is that economic factors which might limit vessel numbers do not come into play until well after the real economic viability of the fishery is exceeded. Alongside subsidies, there has been a technology shift that has allowed fisheries to utilize species (e.g. lizardfish, threadfin bream) that were previously only locally consumed and not part of a regional or international market chain (e.g. shifting to species that must be processed to surimi before marketing).

43. Aquaculture development is another technology shift that has driven demand for fishmeal and this enabled fisheries that produce low value/low quality fish to land their catch and still obtain a return (although this seems to be generally around a breakeven point).

44. The use of foreign labour, often paid lower rates than domestic labour has been another mechanism whereby fishing operations have been able to trim operational costs and remain viable even when catch quality and quantity has deteriorated.

45. These systems have not been systematically reported, but have a strong influence on the ability of a fishery to reform, particularly if the goal is reduction of fishing capacity.

ASIAN FISHMEAL – WHERE IS IT COMING FROM?

46. At the same time as fish processing capacity was increasing, fish meal plants have also been increasing capacity to supply the regional demand for fishmeal, primarily for aquaculture. The Asian production of fishmeal is difficult to estimate. In the 2012 Regional overview APFIC estimated production in the South China Sea area at 641 000 tonnes, produced principally by Thailand (505 000). Bay of Bengal production is low at around 30 000 tonnes.

47. The raw material for fish meal is derived from several sources: fresh fish (higher quality fishmeal and also to prevent price drop when catches are unusually high); degraded fish that has been stored on board (“trash fish”); frames and trimmings from fish processing (canning, surimi, freezing). The Thai fishmeal producers claiming that up to 65 percent of the fishmeal is derived from the processing wastes of canning and surimi and other seafood processing (Figure 3 and Table 3).

48. The use of processing wastes to produce fishmeal appears to be substantially higher in the Asian region than elsewhere, where targeted reduction fisheries are a more important source of raw material for fishmeal.

49. There are increasing signs that pelagic fisheries elsewhere in the region will become targeted for fishmeal, particularly as there is an increase in the use of compound aquaculture feeds. The fishmeal inclusion levels in many aquaculture finfish feeds are now relatively low (especially in feeds for freshwater species).

50. The exception is marine finfish, which are remain a small percentage of the regional production, but even at current production levels the requirement for fishmeal will be in the order of millions of tonnes.

51. Shrimp aquaculture feeds continue to decrease fishmeal inclusion levels, but the volume of production of shrimp means that this is still the principal aquaculture use of fishmeal in the region.

52. Declining quality fish from marine fisheries and the increasing demand for marine carnivorous fish driven by economic growth of the region is likely to make this an expansion sector, and thus demand for fishmeal in this area is likely to rise.

Figure 3: Sources of raw materials for fishmeal in Thailand

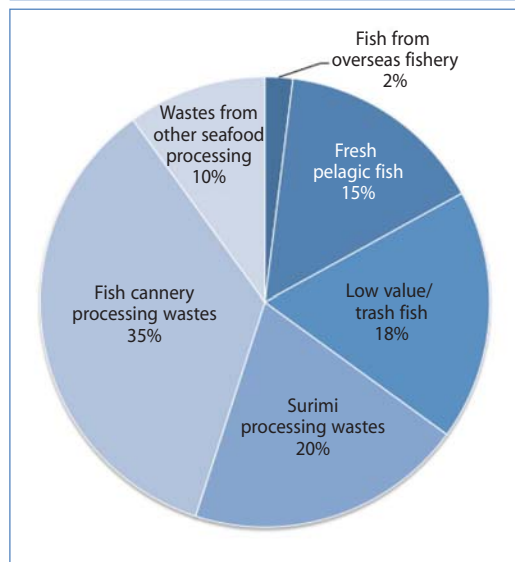


Table 3: Percentage contribution of different sources of raw material for fishmeal in Thailand

Source	Fresh weight (tonnes)	Percent of total fishmeal production	Fishmeal (tonnes)
Fish from overseas fishery	39 133	2	7 827
Fresh pelagic fish	293 499	15	58 700
Low value/trash fish	352 199	18	70 440
Surimi processing wastes	391 332	20	78 266
Fish cannery processing wastes	684 831	35	136 966
Wastes from other seafood processing	195 666	10	39 133
Total	1 956 661	100	391 332

INLAND FISHERIES

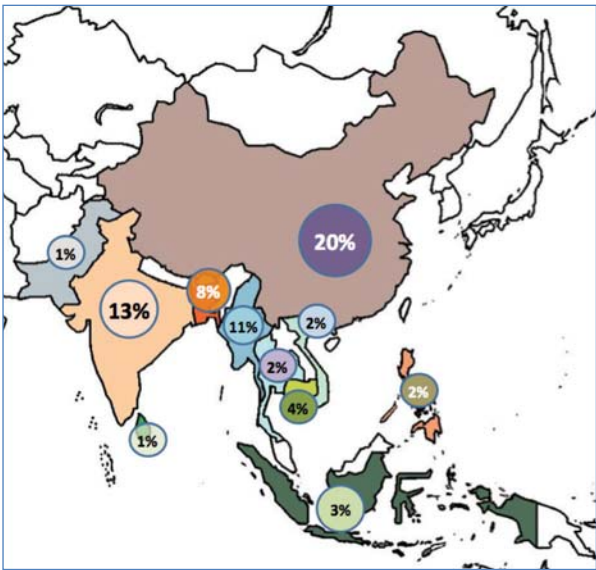
ASIAN INLAND FISHERIES ARE A MAJOR SOURCE OF INLAND FISHERY PRODUCTS

53. Fish produced from inland fisheries are a major source of food and food security throughout the region (Table 4 and Figure 4). These inland fisheries are often overlooked in national statistics and in considerations of food security, yet they are present throughout the large river floodplains, deltas and rice farming areas of the region. The large irrigation tanks and reservoirs of the region also provide considerable quantities of fish in some countries. Inland fish consumption is not confined to these areas, as even in mountainous areas, fish are still a prized food in many cultures.

Table 4: Inland fishery catches of top 11 countries in Asia (2012)

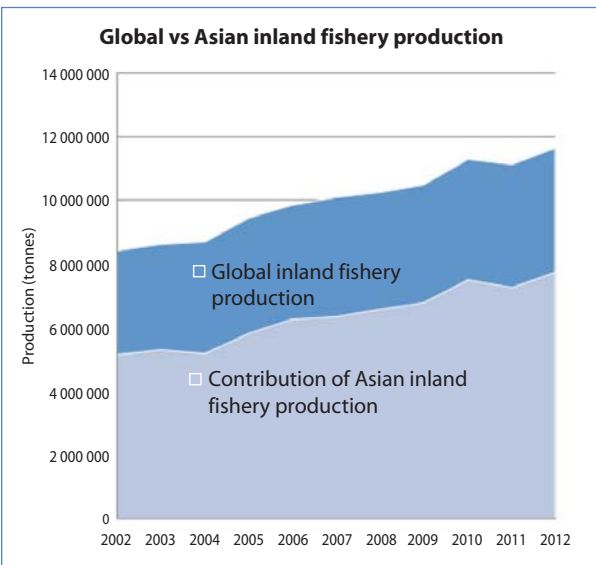
Country	Tonnes	Percent
China	2 297 839	19.8
India	1 460 456	12.6
Myanmar	1 246 460	10.7
Bangladesh	957 095	8.2
Cambodia	449 000	3.9
Indonesia	393 553	3.4
Thailand	222 500	1.9
Viet Nam	203 500	1.7
Philippines	195 804	1.7
Pakistan	120 240	1.0
Sri Lanka	68 950	0.6
Rest of the world	4 014 923	34.5
Total global inland fishery production	11 630 320	

Figure 4: Map indicating percentage contribution of Asian countries to global inland fishery catch (2012)



54. Eleven APFIC member countries in the Asian region produce 65.5 percent of global fish catch from inland fisheries. The national percentage production do not reveal the locations precisely of the inland fishery production and suggest that it may be nationwide. In fact, in land fisheries production is often focused in specific areas. In these areas it is highly linked to increased rates of fish consumption and this may be seen to some extent by looking at the sub-national details of fish consumption (see next section).

Figure 5: Total global inland fishery production and the contribution of the Asian countries to this (2012)



INLAND FISHERIES TREND

55. Asian inland fisheries production shows a continuous strong increase, rising 50 percent over the past decade (compared with 21 percent in the rest of the world's inland fisheries). There are a number of notable increases in inland fisheries production amongst some Asian countries.

56. In some instances production increases of over 50 percent more than the previous year have been reported during the past decade (this is rather unlikely even in the highly variable inland fisheries). In another case, consistent annual increases of 10–15 percent are reported. Leading to a massive increase over the decade.

57. Most countries report increasing production from inland fisheries, Japan and Viet Nam being notable exceptions (reporting decreases of 47 and 10 percent respectively over the decade).

58. Very large decadal increases are reported by Myanmar (389 percent), Sri Lanka (170 percent).

59. In cases where very large changes in production have been reported, some form of validation might be helpful, especially in cases where the inland fishery production is not based on catch collection data but on estimates.

60. The quality of reporting of inland fishery species is rather poor, with 74 percent of the catch reported as "miscellaneous freshwater fish". This prevents any real trend analysis and highlights the need for some more targeted work to try to improve the detail of the inland fishery catch throughout the region. The tropical inland fisheries of the region are renowned for their biodiversity and almost all species are consumed in some form or another.

61. Without improving information on inland catches, the real value and importance of inland fisheries remains hidden and more importantly, greatly undervalued.

AQUACULTURE

ASIAN AQUACULTURE DRIVING GLOBAL PRODUCTION

62. World aquaculture production in 2012 reached 90.4 million tonnes, including 66.6 million tonnes of food fish, 23.8 million tonnes of aquatic algae (mostly marine macroalgae/seaweeds), and 22.4 thousand tonnes of non-food products (pearls and shells, etc.).

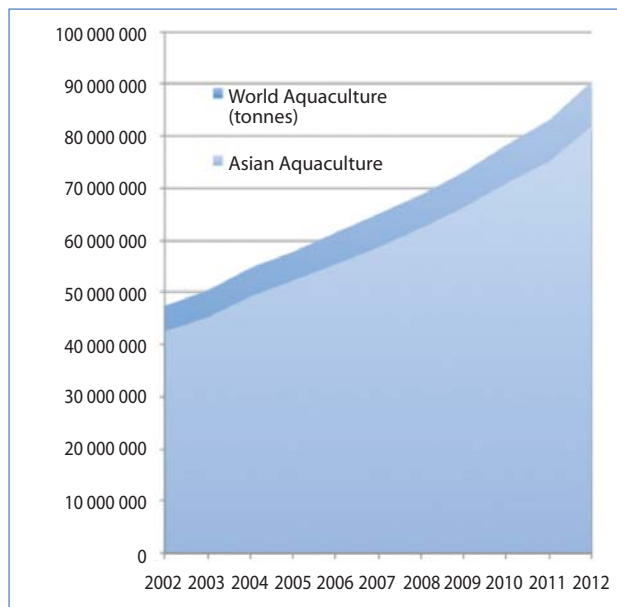
63. Asian aquaculture production reached 81.9 million tonnes in 2012, representing 90 percent of the total world aquaculture production. This was a 9 percent increase over the previous year, and a jump from the consistent 6-7 percent per annum increase over the past decade.

64. In terms of aquatic animal products ("foodfish"), excluding aquatic plants, the Asian region produced 58.5 million tonnes of aquaculture products in 2012.

65. This accounts for 89 percent of the total, global aquaculture production of 66.7 million tonnes.

66. Seven APFIC member countries are in the global top ten aquaculture production countries by weight in 2012: China (1), India (2), Viet Nam (3), Indonesia (4), Bangladesh (5), Thailand (7) and Myanmar (10).

Figure 6: Total global aquaculture production 2002–2012 and the contribution of Asian countries (2012)



THERE IS AN EQUAL SPLIT BETWEEN MARICULTURE AND FRESHWATER

67. When looking at overall reported aquaculture production (including aquatic plants and molluscs), the production from aquaculture in the Asian region was almost equally split between mariculture (38.5 million tonnes) and freshwater aquaculture (38.6 million tonnes), with 4.8 million tonnes coming from brackishwater aquaculture. The production areas are high focussed around coastlines and plains that have good freshwater resources.

FRESHWATERS ARE PRODUCING MOST OF THE FISH

68. If molluscs and aquatic plants are excluded, freshwater aquaculture is the predominant source of cultured fish for food is (85.8 percent, 38 million tonnes). Brackishwater aquaculture produces 3.9 million tonnes (8.9 percent) and the contribution from mariculture is only 2.4 million tonnes (5.3 percent).

DIVERSITY OF AQUACULTURE SPECIES

69. There are a total of 97 species are reported in aquaculture production, and 34 species are produced in quantities in excess of 100 000 tonnes. Aquatic plants made up 23.6 million tonnes and molluscan shellfish a further 13.9 million tonnes. This means that aquaculture provided approximately 44.4 million tonnes of food fish.

ANALYSIS BY SUBREGION GROUP (EXCLUDING AQUATIC PLANTS)

SOUTH ASIA

70. In South Asia (2012) the total production was 6 121 709 tonnes and valued at US\$13 488 936. This is an increase of 28.8 percent in terms of value and 16.2 percent in terms of volume between 2002–2012. South Asia's production is dominated by the production of freshwater and diadromous fish, with freshwater fish (predominantly Indian major carp species) accounting for about 90 percent of total aquaculture production in South Asia. This is an important contribution of high value food based on very-low input systems. Production of other species such as marine finfish and marine and brackishwater shrimp is still relatively low representing less than 8 percent of total production. The culture of marine finfish in the subregion is concentrated in India and Bangladesh.

SOUTHEAST ASIA

71. Compared to other subregions in Asia-Pacific the aquaculture production in Southeast Asia is highly diversified with a high number of species cultured in fresh, brackish and marine environments. Total production in terms of quantity is Southeast Asia, excluding aquatic plants was 9 544 216 tonnes and valued at US\$20 436 824. Over the past ten years the production increase has been 176.6 percent in volume and 244.40 percent in value.

72. Pangasius (*Pangasius sp.*) and Nile tilapia (*Oreochromis niloticus*) are the two dominant species with Whiteleg shrimp (*Penaeus vannamei*), Milk fish (*Chanos chanos*) and Giant tiger prawn (*P. monodon*) as the next three most popular species produced. The impact on the whiteleg shrimp production by the EMS disease is not yet reflected in the 2012 statistics, but production has been increasingly severely affected in the region since its first occurrence in 2010. More than 63 percent of the total production is based on species that do not require high protein diets (carps, freshwater fish) or are filter feeders (bivalve molluscs).

73. Brackishwater shrimp production is the principal form of crustacean production (total crustaceans 1 712 997 tonnes in 2012), although there are four other lobster and crab species produced in significant quantities. Marine finfish represent only 143 575 tonnes, but the group is comprised of 47 species.

CHINA

74. China, is by far the largest and most diverse aquaculture producer in the world. The total volume and value of aquaculture in China in 2012 is estimated to be 41 459 361 tonnes with a value of US\$67.5 billion. This has grown 12 percent since 2010 and 69 percent over a ten year period (2002–2012).

75. There is a steady increase in all top 15 species produced over the past decade. China cultured 35 different species of freshwater and diadromous finfish in 2012, of which Carps and barbs are the most important group, although other groups including Tilapia sp. and Pangasius sp. are now increasing their share.

76. In total, freshwater fish that are low trophic level feeders, represent 43 percent of total production. These are principally freshwater carp species (40 percent) with a further 25 percent being marine filter feeding molluscs. Crustaceans (freshwater and brackishwater) represented 8.7 percent of total aquaculture production. Marine finfish represent 1 068 519 tonnes (2.5 percent of total aquaculture production excluding aquatic plants).

CHINA'S PRODUCTION IS HIGHLY VARIABLE ACROSS THE COUNTRY

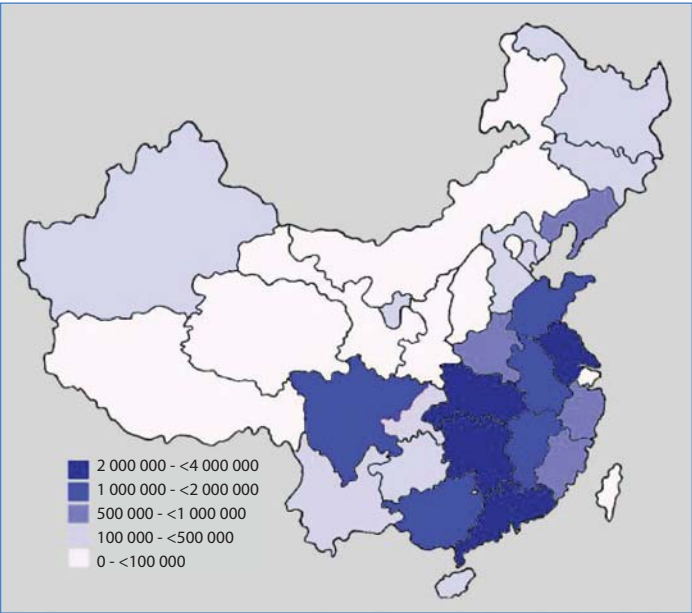
77. The production in China is not evenly distributed between the provinces of China. In Figure 7, the provinces in China in terms of aquaculture production (volume) for marine and fresh water aquaculture are listed (excluding plants and molluscs)¹⁵.

78. Five provinces alone produce 85.5 percent of all China's fresh water aquaculture. Five coastal provinces produce 54.6 percent of the total marine/brackish aquaculture in China.

This indicates the focussed nature of aquaculture production in the Asian region. This also underscores the strong variation in potential between areas that currently have low aquaculture production.

79. A similar situation may be seen in the geographical concentration of freshwater production in: India (Andra Pradesh and West Bengal); Myanmar (Ayerwaddy delta) and Viet Nam (Mekong delta).

Figure 7: Map of China showing the main fish aquaculture producing provinces (excluding molluscs and aquatic plants)



Fresh water aquaculture		Marine and brackish aquaculture	
Province	Tonnes	Province	Tonnes
Shangdong	4 362 443	Hubel	3 676 396
Fujian	3 326 595	Guangdong	3 440 941
Guangdong	2 757 362	Jiangsu	3 118 368
Ciaoniing	2 635 627	Hunan	2 109 424
Guangxi	977 307	Jiangxi	2 105 141
Total	16 483 105	Total	26 445 448

OTHER ASIA

80. The subregion "Other Asia" had an annual aquaculture production (excluding aquatic plants) of 1 188 952 tonnes at a value of US\$5.68 billion in 2012. This is less than 5 percent of the total global aquaculture production and has declining by about 6 percent over the past decade. Japan and Republic of Korea are the principal producers with a strong focus on higher value species, principally due to production costs and the high value markets that are targetted. Both countries also produce marine plants in high quantities, but these are not included in this analysis.

OCEANIA

81. Oceania's total aquaculture production amounted to 186 759 tonnes worth US\$1.2 billion in 2012. This is principally the production of Australia and New Zealand with some contribution from the Pacific Island countries and territories. There has been a slight decrease in production between 2010 to 2012 (dropping 0.5 percent), however over the last ten years (2002–2012) there has been an average yearly growth of 4.43 percent. Oceania's production is dominated by the production of high value molluscs (mussels, oysters, abalone) and freshwater and diadromous fish (salmon, Asian sea bass, bluefin tuna). Shrimp and tilapia are also cultured.

¹⁵ Bureau of Fisheries, Ministry of Agriculture. 2013. Chinese Fishery Statistical Yearbook 2013. China Agricultural Press, Beijing 145 pp.

FISH CONSUMPTION

ASIA REMAINS A NET EXPORTER OF FISH

82. The APFIC Asian countries are balanced at the point whereby they are just a net importer of fishery and aquaculture products (Table 5). However, it is important to note that this balance does not apply to products for consumption.

83. There is a significant import of fishmeal (1.67 million tonnes) and fish oil (72 334 tonnes) to the region, as well as 111 951 tonnes of other inedible products, and this balances exports such as crustaceans (principally frozen shrimp) and prepared fish products (including canned fish and surimi).

Table 5: Export and Import to the Asian region of major fishery and aquaculture commodity groups, and net trade flow (2011)

Commodity (FAO major group)	Export	Import	Balance	Net trade flow
Fish, fresh, chilled or frozen	6 362 410	7 165 668	803 258	Import
Crustaceans & Molluscs, live, fresh, chilled, etc.	2 708 812	1 788 729	-920 083	Export
Fish, prepared or preserved	1 642 121	440 845	-1 201 276	Export
Crustaceans and molluscs, prepared or preserved	833 396	377 948	-455 448	Export
Aquatic plants	261 314	309 469	48 155	Import
Meals	252 193	1 920 538	1 668 345	Import
Fish, dried, salted, or smoked	234 876	159 195	-75 681	Export
Oils	103 541	175 875	72 334	Import
Sponges, corals, shells	52 542	76 391	23 849	Import
Inedible	47 147	135 249	88 102	Import
Total	12 498 352	12 549 907	51 555	Import

Source: FAO FishStatJ, 2011 data

APFIC REVIEW OF FISH CONSUMPTION

84. At the Thirty-second Session of the Asia-Pacific Fishery Commission (APFIC), the importance of fish in the diet and nutrition of the APFIC member countries was noted and that effort should be made to communicate this into policy decision making. In order to respond to this request the Asia-Pacific Fishery Commission (APFIC) has collated and examined two principle sources of information on fish and fish product consumption from 30 Asia-Pacific countries.

85. The objective of the APFIC review is to provide an insight into both national figures as well as differences within countries. This downscaled information covers contributions by types of seafood, differences between rural and urban areas and in some cases regional differences within countries. It must be noted that due to the differences in how data is collected and also the sample sizes and quality of data, no attempt has been made to undertake rigorous statistical comparisons between countries, or even within them.

86. This review simply attempts to draw attention to the value of comparison of different sources of information related to consumption of aquatic products and at the same time, highlight the contribution and importance of fish in diets across the Asia-Pacific region.

FISH CONSUMPTION IS HIGHLY VARIABLE ACROSS THE REGION

87. The countries of the Asia-Pacific region have a range of environments, spanning landlocked mountainous areas, large tropical floodplains, arid grasslands and oceanic tropical islands. This affects accessibility to fish in its different forms and unsurprisingly, fish consumption figures vary considerably; from 110.7 kg per capita per year in the Pacific island of Tuvalu to 0.18 kg per capita per year in Mongolia and parts of western China. Fish consumption figures can be broken down across geographical regions as follows:

88. Pacific Island countries: Of 16 nations surveyed: Tuvalu had the highest consumption at 110.7 kg per capita per year while Papua New Guinea was lowest at 13 kg per capita per year.

89. Southeast Asia: Data was obtained for eight nations in Southeast Asia. Of these consumption in Cambodia was highest at 63.5 kg per capita per year while Timor-Leste was lowest at 6.1 kg per capita per year.

90. South Asia: Data was obtained for four nations in South Asia. Sri Lanka recorded the highest consumption of 15.3 kg per capita per year while Pakistan recorded the lowest at 0.6 kg per capita per year.

91. Inland landlocked countries: Consumption in Lao PDR was 19.1 kg per capita per year, reflecting the important role of fish in the diet and the considerable freshwater resources of the country. Consumption in Bhutan was recorded as 5.6 kg per capita per year while Mongolia was only 0.2 kg per capita per year.

PROTEIN CONTRIBUTION OF FISH IN THE DIET IS SIGNIFICANT IN SOME COUNTRIES

92. Of the ten countries which reported percent of protein fish provided the highest levels of protein in the diet in Cambodia, accounting for 37 percent of total protein consumed. Myanmar was also significant at 22 percent of total dietary protein.

93. The lowest levels were recorded in India where fish represented just 2 percent of protein intake. This is unsurprising in a country where 31 percent of the population are vegetarians and lacto-vegetarians. This also hides the contribution to that part of the population which does consume fish in the eastern part of the country. Mongolia where a figure of 0.1 percent reflects the negligible levels of fish consumed.

Figure 8: Cambodia example of country detail of fish consumption from the APFIC review

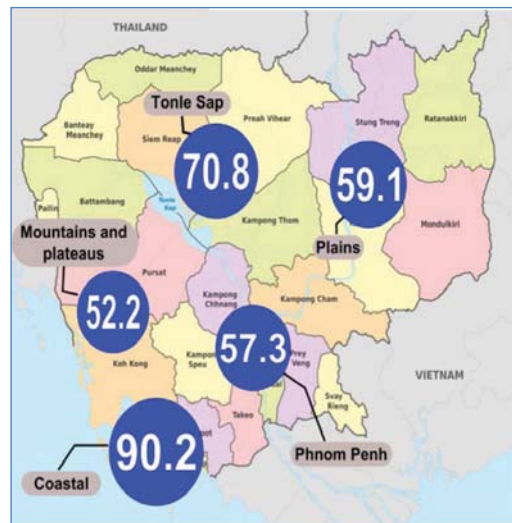
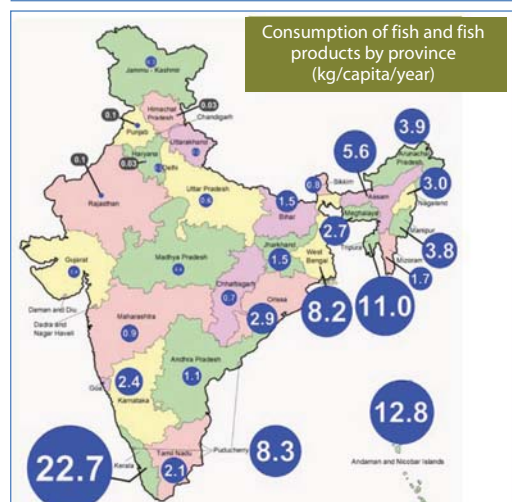


Figure 9: India example of country detail from the APFIC review, showing high national variation in fish consumption



CONSUMPTION OF MARINE AND INLAND FISH AND OTHER AQUATIC ANIMALS

94. Only six surveys identified the type of fish species consumed and their origin. In Cambodia, Myanmar and Bangladesh more inland water fish and aquatic animals were consumed than marine counterparts. For example in Cambodia the breakdown by weight was 71 percent inland to 27 percent marine. Meanwhile in Thailand, Indonesia and Sri Lanka more marine fish were eaten than inland fish. In Indonesia for example close to 80 percent by weight of all fish consumed were marine species.

IS THERE A DIFFERENCE BETWEEN URBAN AND RURAL AREAS?

95. There was no clear divide between rural and urban areas. In 13 of the countries consumption in rural areas was higher than that urban areas. In nine other countries urban consumption was higher.

96. This difference may reflect the higher purchasing power of urban residents, allowing higher levels of consumption of food. Notably those countries which have large freshwater fishery resources, but relatively high levels of poverty (e.g. Bangladesh, Cambodia, India, Pakistan, Sri Lanka, China, Papua New Guinea).

97. In those countries where rural areas were higher than urban centres, it is almost certainly linked to proximity to the resource (i.e. close to water bodies or inland fisheries; near coastal fisheries), as most of these were Pacific island countries, as well as Thailand, Viet Nam and Myanmar.

SUGGESTED ACTION BY THE COMMISSION

98. The Commission is invited to consider the information in the APFIC 2014 Regional Overview with particular respect to improving the quality of reporting and information on fisheries and aquaculture in the region.

APPENDIX E – SUMMARY RECOMMENDATIONS OF THE FIFTH APFIC REGIONAL CONSULTATIVE FORUM MEETING

The Fifth APFIC Regional Consultative Forum Meeting (Fifth RCFM) was convened from 19–21 June 2014 in Hyderabad, India. Unlike previous APFIC RCFM’s, the Fifth RCFM convened two parallel sessions on Fisheries and Aquaculture, in addition to general plenary sessions.

- The fisheries and environment parallel session was aimed at improving coordination between ongoing and pipeline line GEF and GEF/IW marine ecosystems, capture fisheries and marine environmental projects in the region. This session built on previous networking activities which took place in 2013 and will also contribute to the GEF International Waters Learning process. It drew together best practice lessons, identified gaps and needs, and made recommendations on actions and areas for future cooperation.
- The aquaculture session focussed on promoting sustainable intensification of aquaculture (SIA) in the region. It shared the experiences and progress in different areas related to sustainable aquaculture intensification, identified gaps and recommended policy strategies to promote the SIA. In particular it focus on the roles of public and private sectors and areas for cooperation and coordination and comprised governmental, research, non-governmental and private sector representatives.

Session 1: “Lessons learned and future directions of the marine environmental and fisheries initiatives in the Asia region”

Strengthen fishery management, reform fisheries

Technical measures alone do not result in improved fishery management as compliance and buy-in by fishers are keys to success. If subsidies and overcapacity are not addressed, then almost all fishery or conservation measures will be of little impact or be undermined. Management plans and relevant legal reforms need to be developed, and the EAFM framework offers a practical means to achieve this. A key strength is the emphasis on stakeholder involvement to determine key issues, priority actions, trade offs and practical management measures. It is important to recognize that there are different perspective on management and that many fishing operations operate at marginal profitability making change difficult. Closed season and closed areas are probably the most effective way to reduce effort and capacity, especially if these are linked to short term incentives. Reforms can be driven from within the fishery when the benefits are clear to fishers. (e.g. fishers calling for extension of closed season or increased zoning).

Action	<ul style="list-style-type: none"> – Develop EAFM pilot management plans for some key fisheries (sub-national level) – Implementation the APFIC tropical trawl fishery guidelines – Redirect fishery sector support/subsidies/incentives to drive fishery improvements, e.g. <ul style="list-style-type: none"> ○ Redirect fuel subsidies towards effort reduction measures ○ Encourage price incentive programmes (e.g. premiums linked to catch certification, vessel licensing and compliance) ○ Direct compensation schemes for lost fishing days can lead to beneficial outcomes that reduce rather increase fishing effort
Knowledge	<ul style="list-style-type: none"> – Use of logbooks to improve reporting – Improve vessel registration and licensing – Develop and scale up the use of proven analytical and science based tools to determine spatial and temporal fishery management measures

Cooperation	– It is essential to establish effective dialogue with the industry to get acceptance of changes/regulations.
Capacity building	– Develop institutions for management e.g. fishery management committees/ councils which are inclusive and involve local government authorities, fishers, fishery value chain stakeholders and the national fishery institution.

Intensify effort to combat IUU fishing

IUU fishing remains a pressing problem within the region, both within and between countries. Transboundary and border issues are also relatively common in the region where there are many adjoin EEZ and in many cases, maritime boundaries have not yet been fixed. There is a regional need for better understanding of IUU fishing to inform relevant management action. IUU fishing is also linked to other complex issues relating to labour conditions and trans-national crime. Combatting IUU fishing therefore requires effective coordination between a number of national agencies as well as cooperation and information exchange between countries. Whilst this may be sensitive, it is increasingly going to become an issue that will affect trade and will even affect market access of products that are not IUU.

Action	<ul style="list-style-type: none"> – Develop (or implement) national plans of action (NPOAs) to combat IUU fishing – Catch landing procedures for foreign vessels – Establish VMS requirements for priority segments of fishing fleets and link to vessel licensing and registration – Improved MCS networking and sharing of information [through RPOA] – Strengthen regional dialogue on IUU, through a roundtable process with private sector [within the framework of the RPOA]
Knowledge	– Assess IUU fishing issues and identify priority actions (as part of NPOA)
Cooperation	<ul style="list-style-type: none"> – Develop effective coordination between other agencies responsible for maritime transport, labour, vessel safety and other dimensions related to fishing that do not come under the direct competence of the department of fisheries – There is still a major need for greater cooperation between the countries in the region to address compliance of vessels that have foreign crews and foreign beneficial ownership (including deregistration, dual flagging, transshipment). – Programme improved communication regarding fishing vessels registration/ de-registration
Capacity building	<ul style="list-style-type: none"> – Training for all relevant departments in Port Inspections of fishing vessels – Training of fishery inspectors, fish wardens and MCS staff to conduct correct procedures to ensure that IUU court cases are not dismissed on technicalities – Work with vessel owners to understand the need for, and benefits of, VMS and MCS related identification systems

Improve policy coherence between national and local levels

In situations where there is a high degree of local autonomy over management of natural resources, there may be a break down in policy coherence between national and sub-national levels. This may occur where national regulations are undermined or adjusted locally, enabled by the decentralized powers accorded to local authorities. Harmonization of policy and regulations can help maintain policy coherence between national and local governments. Involvement of local government is a crucial part of generating political will to support fishery management and reform of fisheries. Short term political horizons may be overcome through longer term national policies linked to greater understanding of the political capital that can arise from effective fishery management.

Action	<ul style="list-style-type: none"> – Develop national strategies for longer term, more consistent policy for fisheries management – Link national fishery agency to fishery management committee to help balance short term thinking from local government
Capacity building	<ul style="list-style-type: none"> – Sensitize local government officials and local mayors/governors to develop greater political will and understanding

Improve information collection for fishery management and economic valuation to inform decision-making

Data collection for improved fisheries management remains a significant challenge, as is finding ways to ensure that knowledge is integrated effectively into decision-making processes. The valuation of natural resources, especially when they are subjected to pressures and become degraded, is of great importance. The lost potential to economies through this degradation is not always fully assessed nor taken into account when developing national fisheries policies. Where it is assessed, short-term solutions to the economic instability in fisheries rather than solutions that secure the long-term viability of the ecosystems and services that sustain fisheries, are often proposed. In addition to biophysical data there is a need for better social metrics to inform management decisions. There is also the need to use ongoing data and information collection systems, (e.g. social, ecological and environmental data) for incorporation into decision making.

Action	<ul style="list-style-type: none"> – Ecosystem valuations of fisheries should be carried out to ensure that natural resources are not undervalued by decision-makers and planners – Knowledge bases and decision-making systems for generating information on fisheries that actually support management decision-making should be created/strengthened – Economic analysis of fisheries management improvement measures is necessary to provide economic evidence/incentives for reform. Link measures to tangible economic benefits
Knowledge	<ul style="list-style-type: none"> – The economics of the fishery industry should be looked at broadly – both in terms of the national economy and long-term sustainability.
Cooperation	<ul style="list-style-type: none"> – Engagement with the fishing industry in discussions on fisheries management needs and proposed solutions, are necessary to gain buy-in for changes in fisheries management measures (e.g. gear measures).
Capacity building	<ul style="list-style-type: none"> – Staff involved in the generation of information for the effective management of fisheries, may require capacity building to develop the necessary skills. – The capacity of regional institutions to train trainers to undertake training and develop capacity for stock assessments and stakeholder analysis and dialogues should be enhanced. – The capacity to process and analyse information and to communicate effectively to policy and decision makers should be developed. This may involve seeking competent communication training partners, e.g. COMPASS and others. – Demonstrations and information support may be required to help industry engage in dialogue with governments and agencies.

Promote innovative sustainable financing and economic incentives

To achieve improved sustainable fisheries management, there is often a need to move away from grant-based/project based drivers towards institutionalizing change and making sure these changes are long-lasting. Access to local government budgets for fishery management and reforms may be

poorly understood (as opposed to tourism etc. which are often quick to capitalize on these opportunities). In many cases improved fisheries management may require harnessing commercial investment to provide the necessary finance to bring about desired changes. However, there is a need to increase understanding of the potential for investing in fisheries. Recent moves towards the production of responsible fishmeal has been driven by real demand through the value chain, Economic incentives exist but need to be captured and transferred to producers.

Action	<ul style="list-style-type: none"> - Potential benefits in the value chain that can reach producers should be identified - Investments in fisheries management should be leveraged from local government funds, including from fisheries related government revenues (landing fees, markets, park fees etc.) - Proven business models for insurance and microfinance for fisher stakeholders and SMEs should be applied - Future projects/initiatives should support changes that are being driven or pressured by market requirements - Adding value to fishery products should concentrate on opportunities for women's groups
Knowledge	<ul style="list-style-type: none"> - The communication of knowledge on fisheries, with those outside the fisheries sector, particularly into the investment arena, is required to generate the confidence to invest.
Cooperation	<ul style="list-style-type: none"> - Cross-sectoral representation, particular from the business of banking sector would strengthen the dialogue on sustainable financing.
Capacity building	<ul style="list-style-type: none"> - Awareness building with women on fishery management and fisheries product value addition

Capture the opportunities of improved value chains and markets to incentivise reforms

In order to achieve change and adoption of good practices for responsible fisheries, fishery stakeholders need to have sufficient incentives and compensation for decent work and livelihoods. Better integration into financially beneficial value chains and markets is absolutely necessary. The basis for any fisheries value chain is a fisheries product which is of good quality and safe to consume, but there is also a wider range of contributing elements.

Action	<ul style="list-style-type: none"> - Promote and assist countries in the Asia-Pacific towards organizational development of associations and cooperatives and other structures to improve livelihoods and sustainable fishing practices - Design and implement interventions to improve the value of fisheries products, particular in the post-harvest sector, as many fisheries in the region still have significant potential to improve the value of the catch and food safety. <ul style="list-style-type: none"> ○ Establish a “safe fish” competition (equivalent to the “Smart Gear” competition) to promote innovations in the sub-sector to reduce post-harvest losses. - Develop, promote and implement responsible monitoring and traceability systems geared at reducing the flow of IUU products into responsible and certified market chains (including improved catch documentation and traceability systems) <ul style="list-style-type: none"> ○ Raise awareness with companies ○ Assist fishers to better achieve and also identify the quality of their fish, ○ Promote “tagging” and improved traceability systems to assist entry to international markets ○ Support the development and applications of mechanisms that facilitate and ensure the return of the premium to the producers
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Knowledge	<ul style="list-style-type: none"> - Identify fisheries which would benefit from sustainable seafood Certification/ recognition <ul style="list-style-type: none"> ○ Base this on performance and monitoring for targeted fisheries as examples of good practices for scaling up; such has Fair Trade and other sustainable certification schemes. ○ Investigate the inclusion of such mechanisms into Fishery Improvement Projects or linkage to certification (e.g. MSC), noting the requirement to put the adequate logistics in place (volume, timeliness, transport facility). - Identify and use ways and means to get incentives passed down the value chain <ul style="list-style-type: none"> ○ Existing price incentives for better practice may be skimmed off by traders and not reach the vessel operators/fishers. ○ Create greater awareness by fishers of the incentives available and obtainable, where incentives are being used
Capacity building	<ul style="list-style-type: none"> - Develop capacity in on-board handling practices; e.g. preventing delay in icing, improving hygiene and cleanliness, deck layout, landing site facilities and management - Increase value addition of fisheries products, focusing on women's groups, while at the same time creating awareness and strengthening capacity of women in fishery management

Promote the use of EAFM as a planning framework for management in the region

The Code of Conduct for Responsible Fisheries (CCRF) remains the relevant instrument to improve fisheries, and also the benefits derived from them. The Ecosystem Approach to Fisheries Management (EAFM), and the more recently adopted Blue Growth strategies, are ways to implement the CCRF. In particular, the ecosystem approach offers a practical and effective means to manage fisheries more holistically. It represents a move away from fisheries management that focuses on target species, towards systems and decision-making processes that balance environmental, human and social well-being within improved governance frameworks. However, many fisheries, environment and planning staff lack experience in how to implement the ecosystems approach. The Essential EAFM training course has been developed by a group of partner organizations to address these capacity development needs. Essential EAFM training will help institutions and their staff to prepare and implement improved fisheries management plans and provides the practical skills, tools and resources to do so.

Action	<ul style="list-style-type: none"> - Establish an EAFM coordination unit and helpdesk to act as a moderator of the EAFM community of practice and facilitator of a (virtual) network for trainers <ul style="list-style-type: none"> ○ Encourage feedback from regional trainers - Develop the Essential EAFM into an online ("MOOCS") course, starting with the EAFM LEAD - Adapt the EAFM course further to its application for inland fisheries and aquaculture systems
Knowledge	<ul style="list-style-type: none"> - Establish and maintain an inventory of EAFM plans that have been developed as a result of the training and application of EAFM in the region - Integrate fishers' knowledge into fishery management planning, through an EAFM approach to planning, which safeguards their participation and inclusion - Mobilize private sector investments for EAFM/ICM programmes gives, private sector representatives a place on the board of the ICM committee and improves access to and collaboration with local government officials

Cooperation	<ul style="list-style-type: none"> – Improve the linkage of EAFM to broader ICM planning processes by linking EAFM and ICM training – Encourage PEMSEA, WWF to join the E-EAFM consortium to develop capacity in their networks for EAFM
Capacity building	<ul style="list-style-type: none"> – Scale up EAFM training and capacity development and realize benefits from all the good practices and experiences gained by national and regional projects and programmes

Increase efforts to integrate environmental and fisheries management

There is a strong, direct linkage between fish, fisheries, and habitats and therefore, linkage between fisheries resources management and considerations for environmental conservation. The need to improve the linkages also between the responsible institutions, and related actors, with the aim to improve coordination and cooperation has become even greater when applying the Ecosystem Approach to Fisheries Management.

Action	<ul style="list-style-type: none"> – Reduce the ecological footprint of fisheries <ul style="list-style-type: none"> ○ Including: gear impacts, optimal use of energy
Knowledge	<ul style="list-style-type: none"> – Explore further the expected impacts from external sources <ul style="list-style-type: none"> ○ oil and gas exploration and exploitation, mineral extraction, water management (inland fisheries) – Improved monitoring of abandoned, lost and discarded fishing gear <ul style="list-style-type: none"> ○ e.g. potential in ghost fishing and entanglement of ETP ○ Land-based runoff and pollution in nearshore coastal areas ○ e.g. microplastics in the food chain and nutrient pollution or land based runoff
Cooperation	<ul style="list-style-type: none"> – Facilitate and further improve collaboration between Regional Seas Action Plans, Regional Fisheries Bodies and regional projects working on management of marine ecosystems for support services such as fisheries <ul style="list-style-type: none"> ○ e.g. Bay of Bengal LME SAP and the South Asian Seas Biodiversity Action Plan – Promote and foster the improved collaboration between fisheries and environment agencies at all levels

Strengthen policy support to small-scale fisheries

The Code of Conduct for Responsible Fisheries continues to be even more relevant as these are now strengthened by the *Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines)*, which were adopted by the Thirty-first Session of COFI, the *Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security, The Right to Food and the outcomes of the Rio +20, The Future We Want, Sustainable Development for Food Security*.

The APFIC region remains the home to the majority of the world's inland and marine small-scale fishers. The sector continues to provide highly nutritious fish and fishery products for food and nutrition security, employment and foreign exchange generation. However there remain many challenges and needs to improve their livelihoods and wellbeing as well as their social, cultural and economic contribution. There is a strong need to support the organization and empowerment of small-scale fishers to fully and effectively take part in the management of fishery resources. It was noted that there is competition and conflict between small-scale and industrial fisheries and that CPUE and length frequencies of commercial species are declining. Small-scale fisheries need to be effectively managed so as to maximize benefits and guarantee long term sustainability. Modernization, infrastructure

development and markets are driving small-scale fisheries towards more industrial/commercial fishing, with the consequent shift from traditional small-scale to commercial fisheries.

Action	<ul style="list-style-type: none"> - Develop national Policies for securing small-scale fisheries <ul style="list-style-type: none"> ○ incorporate the key recommendations of the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines), also other relevant instruments such as the Voluntary Guidelines for Governance of Tenure and the Right to Food and other relevant sustainable development instruments ○ Incorporate Safety at Sea, occupational safety of men and women in both marine and inland fisheries and social security and social protection measure into fishery development programmes
Knowledge	<ul style="list-style-type: none"> - Develop advocacy, awareness raising programmes to main stream the implementation of the SSF Guidelines in policy and planning processes and in project development and implementation - Lessons learnt related to methodology and benefits and the use of government financial transfers should be shared and consideration be given to using these types of transfers in a beneficial manner rather than to increase fishing capacity and effort. e.g. <ul style="list-style-type: none"> ○ Self-sustaining death and disability insurance schemes have been successfully implemented in Bangladesh ○ Social welfare payments are being used in India to offset income losses during temporal closures
Capacity building	<ul style="list-style-type: none"> - Since the main focus of the SSF Guidelines are stakeholders are small-scale fishers (men and women, fishers, fish workers and their communities) capacity development and awareness raising trainings and other media should be directed to them better know their rights and understanding of the SSF Guidelines.

Address pressing social issues that relate to sustainable fisheries

The national demand and globalization of trade in fish and fishery products have brought with it many aspects that are sometimes outside the area of competence of fishery departments. Gender equity and equality, human rights, migrant workers, internal migration of vulnerable and marginalized people into the fisheries sector have presented challenges and issues related to the sustainability of fisheries, regional and international trade, decent work and the economic and financial viability of certain fishing operations. In many instances and, common throughout the region, different Ministries and departments have responsibility and mandates to address these challenges. In order to address these challenges there is a need for improved coordination and cooperation between Ministries and Departments to effectively address these issues and challenges in integrated, holistic and coherent ways.

Action	<ul style="list-style-type: none"> - Mainstream gender equity and equality into policy, development, administration and management of fisheries and related areas - Develop legal, formal and informal mechanisms to promote coordination between competent authorities and agencies to <ul style="list-style-type: none"> ○ Strengthen Flag State Measures and develop instruments and mechanisms to address sea safety, OSH¹⁶, hygienic and decent¹⁷ work aboard fishing vessels, in processing plants and in all aspects related to operations along the value chain
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¹⁶ OSH = Occupational Safety and Health

¹⁷ ILO Work in Fishing Convention, 2007 (C.188)

	<ul style="list-style-type: none"> – Fishers, fish workers, both men and women and their fishing communities including have a right to social protection and social security, improved access to health, education, food and decent work. Policies, programmes and projects should: <ul style="list-style-type: none"> ○ Incorporate the rights of the child and the elimination of child labour¹⁸ in the fisheries value chain ○ Address the needs and importance of social, cultural and economic well-being of all fishers and fish workers
Capacity building	<ul style="list-style-type: none"> – Develop training and capacity building in gender, decent work, migration management and occupational safety and health for both State and non-State actors.

Promote preparedness and adaptation to impacts of climate change on marine and inland fisheries

Climate change and disasters are constant and real threats to the resilience of fishers and particularly to vulnerable and marginalized groups. More efforts are needed to carry out studies and implement projects on adaptation to climate change and to better prepare for disasters. Existing information and guidelines towards better preparedness for disasters and adaptation to the impacts of Climate Change and the inclusion of marine and inland fisheries into National Adaptation Plans of Action (NAPAs) are important elements to improve resilience of the small-scale fisheries sector.

Action	<ul style="list-style-type: none"> – Include marine and inland fisheries into National Adaptation Plans of Action (NAPAs)
Knowledge	<ul style="list-style-type: none"> – More effort needed to carry out studies and implement projects on adaptation to climate change and to better prepare for disasters – Promote greater awareness of existing information and guidelines towards better preparedness for disasters and adaptation to the impacts of Climate Change

Encourage regional harmonization, cooperation and networking

The wide range of initiatives in both fisheries and environment that have been identified during the RCFM highlights the importance of networking and communication. The opportunities to learn from best practices, approaches and even mistakes of different national or regional initiatives must be captured if they are to contribute to sustainable development and its associated implementation approaches (e.g. EAFM, ICM, blue growth initiatives, blue economy, green economy, etc.)

Action	<ul style="list-style-type: none"> – Promote cooperation between programmes to convene this sort of information sharing and networking events. e.g. <ul style="list-style-type: none"> ○ IW Learn Regional Asia-Pacific Workshops offer a venue or platform of exchange ○ Encourage APEC Ocean and Fisheries Working Group to engage more with Asia regional processes ○ Revive or strengthen fishery dialogue in BIMSTEC, SAARC, ASEAN FI WG – Encourage or develop focussed roundtable event that bring broad public private participation <ul style="list-style-type: none"> ○ Continue the Asia regional fishmeal roundtable ○ Roundtable of small-scale fisheries stakeholders for the implementation of Voluntary Guidelines on small-scale fisheries (VG SSF). This could be taken up by the Coral Triangle Fisheries Forum
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¹⁸ ILO Minimum Age Convention 1973 (C.138), Worst Forms of Child Labour Convention 1999 (C.182)

	<ul style="list-style-type: none"> ○ Roundtable on fishing labour and safety at sea ○ ASEAN Public-Private roundtable
Capacity building	<ul style="list-style-type: none"> - Harmonization and cooperation in best practice and training between fisheries/ environment planning frameworks (e.g. EAFM, ICM, including the management of protected and ecologically sensitive areas)

Session 2: Promoting sustainable intensification of aquaculture for food and nutritional security in Asia-Pacific

Intensification of aquaculture has been an ongoing process in the region which aims to increase the productivity and economic efficiency of aquaculture through intensified use of inputs (materials, energy and investment) and resources (water, feed ingredients), application of new technologies and changed production management practices. Intensification of aquaculture has largely contributed to the rapid production in the APFIC region in the past two decades. Intensification of aquaculture has contributed to food security and rural livelihood significantly in the region. The region has been contributing over 90 percent of world aquaculture for decades, which supply nearly 50 percent food fish for the world population. Meanwhile, issues come along with the intensification is attracting increasing concern of the public.

Being the most populous region with relative scarce natural resources, Asia aquaculture is facing a great challenge to maintain the growth trend to meet the increasing demand for fish inside and outside the region resulting from population growth and economic development. Efforts have being made by international/regional organizations, country governments civil society organizations and private sector to achieve sustainable intensification of aquaculture, which means “produce more with less”, that is, to increase the production and economic efficiency, with reduced consumption to resources and negative environmental and social impacts. This would be achieved through improved governance, management practices and adoption of innovative technologies.

The Fifth RCFM convened from 19–21 June 2014 in Hyderabad, India, held an aquaculture session which comprised governmental, research, non-governmental and private sector representatives. This session extensively shared the information on progress made though ongoing initiatives supporting sustainable intensification of aquaculture. Remaining issues/gaps in sustainable intensification of aquaculture were thoroughly discussed. The Fifth RCFM put forward the following recommendations for promoting the sustainable intensification in the region for the Thirty-third APFIC Session to review and endorse.

Improve governance and management practices in aquaculture

Policy	<ul style="list-style-type: none"> - Promote the application of complementary aquaculture planning and management tools (e.g. zoning tools, carrying capacity and impact monitoring) for sustainable development and support the required capacity building - Promote the implementation of good aquaculture standard and certification as the vehicle for sectoral improvement and encourage the cluster/group/zone approach in the process where possible - Support the ecosystem approach to aquaculture (EAA) as the important aquaculture planning approach and capacity building for such application, promote area management of aquaculture based on a zonal approach, implement conducive government policy and stimulate public-private partnership (PPP) in both the development and implementation of zonal processes
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Capacity building	<ul style="list-style-type: none"> – Develop and implement a regional training programme on aquaculture governance based on the necessary country level assessment and documentation of governance practices within and beyond the region – Scientific capacity building needs to be strengthened to support the development and implement of zonal and ecosystem approach
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Strengthen biosecurity control and animal health management in aquaculture

Organization and coordination	<ul style="list-style-type: none"> – Establish strong national/regional industry stakeholder groups/associations, through which governments and regional organizations can effectively interact with the private sector in strengthening biosecurity control and animal health management (Regional organizations, national government and industrial sectors) – Establish a regional industry watching system-mechanism to monitor, report and publicize the industrial performance on disease and health management in the region. NACA could coordinate such a mechanism together with the FAO/OIE. (International and regional organizations, national governments, private sector and NGO's) – Establish regional and national emergency response systems and operational mechanisms for tackling major disease problem in the region, including establishing a special funds for emergency response (NACA/FAO, national governments and private sector)
Policy	<ul style="list-style-type: none"> – Recommend zonal approach in managing biosecurity both in terms of environmental resource management and disease management. Government to develop guidelines for implementation at local levels (International and regional organizations, national government, private sector and NGOs)
Capacity building	<ul style="list-style-type: none"> – Strengthen capacity building for applying biosecurity measures at different levels (e.g. farm, watershed, national, regional levels). Use of a farmer group approach is recommended (i.e. farmers sharing the resource help each other for win-win). (NACA, FAO, academic institutions)

Facilitate small aquaculture farmer to market their products effectively

Knowledge and research	<ul style="list-style-type: none"> – Evaluate the performance of existing farmer (business) organizations and their operation in the region with reference to successful business organizations and management models effective in empowering smallholders in long supply chains in the rest of the world, document and demonstrate the successful organization operational models/practices identified inside and outside the region (NACA to take lead) – Support the development of national and regional aquaculture standards through an inclusive consultation process that ensures effective participation of all stakeholders, particularly private sector. (FAO/NACA, national governments regional government bodies e.g. ASEAN and SAARC)
Policy	<ul style="list-style-type: none"> – Support governments and IGO's to establish regulatory systems/mechanisms that will ensure/facilitate a fair share of value for primary producers in the profit distribution along the aquaculture value chain (FAO/NACA, governments)
Capacity building	<ul style="list-style-type: none"> – Strengthen the capacity of smallholders for doing aquaculture as a business training and other activities (FAO/NACA/SEAFDEC, governments)

Communication	<ul style="list-style-type: none"> – Promote public awareness on how consumers can benefit from certified aquaculture products and lobby the different stakeholders, particularly the consumers to share the added costs (Industry/private, government, civil society organizations)
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Promote responsible production and use of quality feed and seed

Organization and coordination	<ul style="list-style-type: none"> – Support a regional and national dialogue on production and use of responsible feed ingredients (particularly fishmeal and oil) in aquaculture feed production with multi-stakeholder participation (SEAFDEC/NACA, CSOs, government, fishing industry, feed industry and farmers) – Establish a joint industry/government working group including fisheries and aquaculture stakeholders to implement the APFIC trawl guidelines (SEAFDEC, APFIC) – Support private sector involvement in national genetic breeding and management programmes (NACA lead)
Regulation	<ul style="list-style-type: none"> – Strengthen the regulation on aquaculture seed production and distribution, promote the implementation of good hatchery practices and guide the farmers not to use poor quality seed from “copy” hatcheries (National governments and ASEAN/SAARC)
Research and development	<ul style="list-style-type: none"> – Support the development of alternative protein sources for production of more cost-effective aqua-feed and ensuring food security (Industry, academic institutions, government) – Establish a regional expert group for assessing the genetic improvement and management programmes in the region, to promote the sharing of information and products from the national genetic breeding programmes, including addressing intellectual property right issue and guide the regional collaboration on genetic breeding work
Capacity building	<ul style="list-style-type: none"> – Promote good feed management practices (including “farm-made feed”) at farm level and dissemination of available information on feed and feed ingredients and additives, including relevant FAO data being constructed (Government, FAO, NGOs, private)

Increase the resilience of farmers in confronting climate change and other risks

Policy	<ul style="list-style-type: none"> – Develop a regional strategy to assess and address the vulnerability and risks in aquaculture due to climate changes and variability (e.g. ocean acidification) (NACA, SEAFDEC, FAO, governments) – Develop a regional policy support platform on climate changes using available information to address specific risks with conduction of country level case studies (NACA)
Knowledge communication awareness	<ul style="list-style-type: none"> – Conduct regional assessment to address weaknesses and gaps in national capacities within fisheries and aquaculture to address climate changes including increased communication and information sharing among different government line ministries/departments (e.g. between fisheries and environmental departments) to ensure inclusion of fisheries and aquaculture into the NAPA’s (ASEAN/SAARC, NACA/SEAFDEC, FAO, governments) – Assess and promote awareness of potential positive contribution and opportunities of aquaculture in addressing climate changes (FAO, WB/GEF)

APPENDIX F – SUMMARY OF MEMBER COUNTRY RESPONSES TO THE APFIC 2014 QUESTIONNAIRE

Section 1: Actions taken to improve the governance of fisheries and aquaculture

Q1: Are fisheries and aquaculture policies linked to other sectoral policies (particularly agriculture) and to more general development policies? (APFIC 29th Session). These may be National Poverty Reduction Plans, International Conventions, National Development Strategies and Plans.

Of the 12 countries, all had linkages to other national sectoral policies of these, only one did not have a fisheries policy but was in the process of formulating (Nepal). However, the fisheries were under the umbrella of the Agriculture policies.

Q2: Is co-management formally recognized in national policy or legislation? (APFIC 29th Session)

Of the 12 countries, nine had formally recognized co-management, one was in the process of developing, one practiced through a project but it did not specify if formally recognized and one had good results in forestry but few successes in fisheries.

Q3: Are there special arrangements for small-scale fisheries – inland/marine? e.g. in particular improved fishing rights, zoning, allocation of fishing rights, special preferential treatment, social protection.

All 12 countries reporting had special arrangements for small-scale fisheries. There were a wide variety of arrangements ranging from zoning, to subsidies, co-management, installation of artificial reefs and protecting the environment. Most arrangements provided for special reserve areas for small-scale fishers.

Q4: Has there been significant amendment of national legislation (national law, or subsidiary legislation) to address fisheries or aquaculture? Can you please give an example(s)?

Three of the twelve countries reported that they were continually updating their regulations routinely, Japan, Australia and the United States of America. Most regulations that were updated or are being updated lean towards conservation and protection of the resources and to better integrate aquaculture. Timor-Leste's legislation is relatively new and not in need of amendments.

Section 2: Report back on national actions related to climate change and the fisheries and aquaculture sub-sectors (APFIC 32nd Session)

Q5: Describe relevant actions which support to adaptation and mitigation related to climate change e.g. projects and programmes implemented for adaptation and mitigation of the impacts of climate change.

All countries reported taking relevant actions and have ongoing programmes for adaptation and/or mitigation and have set up councils working groups and monitoring of Climate Change parameters are in progress.

Q6: Have the fishery and aquaculture sub-sectors been incorporated into climate related planning e.g. disaster risk reduction and risk management or climate adaptation? (APFIC 31st and 32nd Sessions)

Eleven of the twelve countries have incorporated the fisheries and aquaculture sectors in national plans at different levels. Implementation seems to be a challenge due to lack of data and on what adaptation and mitigation measures would be most appropriate. One country had no programme.

Q7: Are fisheries and aquaculture sectors included in the National Adaptation Plan of Action for climate change or in the formulation of policies (NAPA)?

Eight of the four countries have NAPAs where fisheries and aquaculture are incorporated. One, Australia has a different mechanism other than a NAPA. Although Fisheries and Aquaculture are being drafted for Cambodia it would be important that Fisheries be included in the NAPA. Nepal is working on having Fisheries and aquaculture incorporated.

Section 3: Actions taken to strengthen management of fisheries

Q8: Describe any action taken to strengthen the implementation of ecosystem approaches to fisheries and aquaculture management (APFIC 30th and 31st Sessions) e.g. EAF training courses, capacity strengthening, adoption of the EAF as national policy, studies use of EAF as a planning tool.

All 12 countries except Timor-Leste have participated in training or have embraced EAFM to varying extents. Some of the larger countries like the United States of America and Australia have EAF intrinsically incorporated into their normal business models, however, EAF is not the stated policy but contributes in a great part contribute to their fisheries management. One can say that many elements of EAF are incorporated into management strategies in all the countries but it is not fully mainstreamed as the main approach.

Q9: Have any key fisheries (inland/marine) been identified and/or prioritized for the development of management plans? (APFIC 29th Session)

The larger countries have fisheries management plans. However, the other countries have regulations to and strategies to develop the fisheries and interventions such as decrees which cannot be classed as fisheries management plans. India has ongoing assessment but no specific management plan was mentioned for a key species.

Q10: What was the reason for this decision? e.g. highly economic; losses from IUU fishing; important for food security; source of conflict; risk of collapse.

The main reason for the needs for management varied amongst the countries. Commonly however was the need to protect and conserve stocks, reduce conflicts, prevent overfishing and over exploitation and to reach optimal exploitation levels.

Q11: Has there been significant establishment of mechanisms to identify and protect juvenile nursery areas (refugia/closed areas, seasonal closure) and spatial approaches to management?

Of the 13 countries all except one (Timor-Leste) had some spatial and temporal closures to protect spawning and nursery areas, ongoing studies and in some cases gear restrictions. Apart from protection of juveniles almost all had some measures to enhance areas by replanting mangroves and establishment of protected areas. Although only reported by the United States of America, bycatch studies for trawl fisheries are being conducted in Philippines, Indonesia and Thailand.

Q12: Is there a programme for assessment of important fisheries resources or stocks for the purpose of policy development and management of fisheries? (APFIC 31st Session) e.g. closed areas/seasons; artificial reefs; coastal habitat restoration; as other government Agencies may be involved in these, and they might be consulted for more details.

Eleven of the thirteen countries had regular stock assessments in place. Some of these were are national programme level and some were partial level or targeting commercially important species. Both the United States of America and Australia had continuous monitoring and annual assessment reports. Research vessel for Bangladesh.

Q13: Is there a working system for monitoring fish catches? Can you briefly indicate which fisheries are covered and how?

Fisheries monitoring is expensive and all the larger countries have detailed ongoing monitoring Japan, Australia, the United States of America. However, the other countries use sampling programmes Bangladesh, Nepal, Thailand, Philippines, India. Indonesia and Malaysia used use self-reporting by vessels. Cambodia is developing a system for 2015 and Timor-Leste does not yet have a working system.

Q14: Please describe any significant actions or ongoing efforts taken to combat IUU fishing (APFIC 30th Session).

All countries except Timor-Leste and Nepal have measures or processes to combat IUU. Most countries have been formulation or already have NPOAs and seven of the countries are members of the RPOA. Registration systems for vessels need to be strengthened and PSM agreement needs to be adopted.

Q15: Please describe any important steps taken (APFIC 31st Session) e.g. NPOA, improved MCS, introduction of VMS, Port State Measures including improved Port Controls.

All countries are either formulating, implementing or already have NPOAs-IUU. VMS and documentation are becoming more important for all countries. For Timor-Leste and Nepal the question was not applicable.

Q16: Are you able to prevent or control the fishing activity of other nations vessels in your EEZ waters?

Nine of the thirteen countries had controls in place to prevent or control foreign vessels. VMS and naval or coast guard patrols were common. Four of the countries did not have the capabilities in terms of equipment and manpower to control and prevent foreign fishing vessels. The levels of success in preventing and controlling varied amongst countries that had controls. Having regulations do not mean control. For Nepal this question was not relevant. For TL control of IUU in EEZ was not being applied due to lack to capacity.

Q17: Has any action been taken to manage or reduce fishery overcapacity?

Eleven of the thirteen countries have some programme or measure or legislation to reduce capacity. They range from decommissioning, NPOAs, seasonal or spatial closure, limited entry. The remaining two had limited capacity or it did not apply as in the case of Nepal.

Q18: Please describe any important steps taken (APFIC 31st Session) e.g. NPOA, capacity reduction schemes; development or strengthening of vessel registers and licensing to control fishing capacity.

Eleven of the thirteen countries have some programme or measure or legislation to reduce capacity. They range from decommissioning, fisher and vessel registration and capping licenses and new construction and conversion to other gears. The remaining two had limited capacity or it did not apply as in the case of Nepal.

Section 4: Actions taken to improve the management of aquaculture

Q19: Please describe significant training or capacity building activities for government staff and fishers/aquaculture farmers for organization and effective co-management. (APFIC 29th Session)

All countries were engaged in capacity building for staff and for fishers and farmers.

Q20: Please describe any important actions taken to strengthen management of aquaculture (APFIC 31st Session), especially, by addressing issues related to: zoning, reduction of environmental impact, aquatic health management, strengthened biosecurity, improved quality of products and marketing.

All countries except India replies to this question. Timor-Leste had a National Aquaculture Development Plan however, implementation has not yet started. Those that did reply all had management measures in place including biosecurity, regulation, residue monitoring, some had certification in place. As the case of Thailand. There are different levels of management depending on the importance of the sector.

Q21: Please describe any progress in improving feeds for aquaculture (APFIC 29th and 31st Sessions) particularly by changing to compound feeds in mariculture, reduction of fish meal content of aquaculture.

All countries except Timor-Leste are working on some form of improvement in aqua feeds. These ranged from Legal acts, training in using pellet feeds, using rice bran and poultry intestine meal by products, fermented shrimp head meal, cassava leaf meal, establish organic aquaculture reduced us of trash fish, and trash fish certification.

Q22: Has there been any significant development of regional sources of responsible fishmeal? (APFIC 32nd Session)

Seven of the thirteen countries were making efforts for more responsible feeds. The United States of America and Australia were looking at reducing forage fish and use of biotechnology and other sources of protein respectively, while Cambodia was leaning to soybean meal, Philippines had many suppliers of feeds, Japan had 90 percent usage of fish residue. India was concentrating on local supplies and Indonesia was looking at plant based material through research.

Q23: Have any aquaculture operations or sectors been able to achieve aquaculture certification? (APFIC 30th Session)

Ten of the thirteen countries had varied certification schemes in place these ranged from Shrimp seed, GAP, SAAB and Health certification, GAA COC and HACCP etc. Some certification schemes were National such as in Indonesia and Malaysia. For Nepal it was not relevant, Timor-Leste is not as yet implementing the national plan and Australia did not respond.

Q24: Is there an effective monitoring system for surveillance of aquaculture farm area and production?

Eleven of the thirteen countries responded. However some reported surveillance of health, training and dissemination of information and appeared not to understand the question mixing area and production with health. However, some did periodic censuses, some did farm by farm inspection but not necessarily collected area and production, whereas one country noted the importance and was in preparation for better monitoring.

Section 5: Actions taken to improve the management of inland fisheries

Q25: Describe any actions that have been taken to improve the contribution of inland fisheries to food security. (APFIC 32nd Session)

Ten of the thirteen countries responded positively to actions to improve inland fisheries. These ten countries had stock enhancement programmes or seed multiplication. Of the remaining three countries, there was no information as it was either not available as it was under the jurisdiction of other departments or not applicable.

Q26: Are there any actions or initiatives related to enhancement or restocking of inland waters? (APFIC 29th and 31st Sessions) e.g. fish restocking, habitat and refugia development, re-engineering of water flow.

Of the 13 countries reporting ten had stock enhancement programmes. Some had continuous programmes to enhance inland waters in particular those with large delta areas.

Q27: Is there any monitoring of cost benefits or the environmental impacts of stock enhancement practices? (APFIC 29th and 31st Sessions)

Six of the thirteen countries conducted monitoring of the stock enhancement programmes however, these were not cost benefit analyses of the stock enhancement. On the other hand three countries reported good results from the resource enhancement situation. The others were either at the planning stage, sampling to analyze the results, not as yet ready to conduct the analyses or did not have the information or it was not applicable.

Q28: Is there any action or policy to improve connectivity and mitigation of impacts of small water control structures in inland fisheries? (APFIC 29th and 31st Sessions) e.g. fish passes, re-engineering to improved fish movements, dry seasons refuges, minimum river flows related to dams, irrigation and floodplain engineering.

Six of the thirteen countries responding either provided fish passes, heavy equipment to improve connectivity, had technical difficulties in implementing the connectivity. The remaining countries either were not able to respond, or it was not applicable, or had no activity related to the connectivity.

Q29: Is there a mechanism to promote co-management in inland fisheries areas? (APFIC 29th Session)

Eight of the countries had activities and mechanisms to promote co-management in inland fisheries. These included community based fisheries management, management and conservation plans, NGO engagement, formal mechanisms such as councils or federations. Of the remaining 5, 3 did not respond because of other agencies are in charge of inland fisheries, or it was not applicable and the other only practiced co-management in marine fisheries.

Q30: Please describe any issues or controversies related to inter-sectoral coordination or conflicts in these fisheries. These may relate to water management, agriculture, aquaculture, energy, irrigation, flood prevention, droughts etc.

Ten of the thirteen countries reported conflicts between sectors. These related to aquaculture, irrigation, hydro power destruction of mangroves, ownership user rights and water management. Lack of coordination, waste water management. The remaining three countries either did have the information or the question was not applicable.

Section 6: Action taken to improve the livelihoods of fishing and aquaculture communities

Q31: Describe significant programmes or actions taken to support the improvement of livelihoods of fisheries and aquaculture households (APFIC 31st Session) e.g. especially in relation to opportunities from small-scale fishing and aquaculture communities.

Eleven of the thirteen countries had programmes or actions to improve the livelihoods of fishers and farmers. There were a wide range of interventions including: giving exclusive rights, assistance in post-harvest funding support, specific plans and programmes, provision of housing, extension and training, distribution of gears and boats, fish, shrimp and squid banks, stock enhancement, artificial reefs, extension and technical and catch share programmes.

Q32: Describe any actions or policies which improve the rights of fishers, aquaculture farmers and their households (especially small-scale).

Ten of the thirteen countries responded to varying degrees. Many of the countries responded by detailing the support work in terms of funding support, grouping fishers for support and competitive advantage for market access, registration of fishers and one country had an awareness raising programme. Intrinsically some of these actions recognize the rights of fishers, but from the answers there was not specific significant action that could be recognized as advocacy for the rights of fishers (human rights, rights to rehabilitation after disasters, rights to decent work etc. More needs to be done on developing a framework for a rights based approach to fisheries.

Q33: What actions have been taken to increase the awareness on the significance of aquatic products to nutritional security? (APFIC 32nd Session)

All countries except one had programmes to raise awareness and promote the consumption of seafood. These actions ranged from campaigns, workshops, National food and nutrition Strategies, road shows, food fairs, improved market information, statistics and analyses, posters, pamphlets.

Section 7: Additional significant achievements of actions taken in support of responsible fisheries and aquaculture

Q34: Please describe any other significant achievements that have taken place that are contributed to the sustainable development of fisheries and aquaculture in your country.

All countries except the United States of America and Australia responded. A wide range of achievements were reported: conservation areas, fishery refugia, advisories on better practices, GAP, bio-security, EIAs, closures, artificial reefs, regulations of certain species and projects and programmes.

APPENDIX G – OPENING STATEMENTS TO THE THIRTY-THIRD SESSION

Mr Raja Sekhar Vundru, Joint Secretary (Fisheries), Department of Animal Husbandry, Dairying and Fisheries, Department of Agriculture

Good Morning,

Honourable Agriculture Minister Sri Radha Mohan Singh,
Esteemed delegates from APFIC member countries,
Distinguished participants from FAO and other international organizations,
Invitees, my colleagues from the Department, Ladies and Gentlemen,

It is indeed a great pleasure and privilege for me to be with you today. I wish to extend my greetings and a warm welcome to you all on behalf of the Government of India. I do hope that you had a comfortable travel to Hyderabad, a city of smiles and endearingly called the 'Pearl City'. City offers a variety of tourist attractions ranging from Heritage monuments, Lakes and Parks, Gardens and Resorts, Museums to delectable cuisine and a delightful shopping experience. To the traveller, Hyderabad offers a fascinating panorama of the past, with richly mixed cultural and historical traditions. So, I wish that all of you to take pride in attending this Thirty-third Session of Asia-Pacific Fishery Commission (APFIC) at Hyderabad.

I am very happy to know that APFIC is functioning effectively as a Regional Consultative Forum raising awareness amongst member countries, fisheries organizations and fisheries professionals in the Asia-Pacific region. This is evidenced by the fact that in recent years, APFIC has broached upon varied regional issues, such as, co-management of fisheries, low value/trash fish (may be referred to as bycatch where not targeted catch) in the region, illegal, unreported and unregulated fishing (IUU) and fishing capacity management, certification in fisheries and aquaculture, ecosystem approach to fisheries and aquaculture management and improving resilience of fishery livelihoods. Most recently, I understand that APFIC has focussed on developing a training course for Ecosystem Approach to Fishery Management and guidelines for tropical trawl management. These are all of topical interest and timely for the countries to take forward for sustainable fish production for ensuring livelihood and food security in the region. I recall the APFIC Executive Committee meeting organized by us in New Delhi last year.

All of us are aware that Oceans, seas, coastal areas and the associated blue economy are critical to global and national development, food security and the fight against hunger and poverty. They are both engines for economic growth and sources of food and jobs. However, overfishing, pollution and unsustainable coastal development are contributing to irreversible damage to habitats, ecological functions and biodiversity. Climate change and ocean acidification are compounding such impacts at a time when the rising global population requires more fish as food, and as coastal areas are becoming home to a growing percentage of the world's population.

We all know that Food Security and Blue Growth and the restore the health of the world's oceans and secure the long-term well-being and food security of a growing global population is the new slogan. Therefore, these issues should be deliberated since investing in Blue Revolution, with due regard to sustainable management and use of aquatic resources can ensure development of coastal areas and wetlands around the globe. Further, one needs to seriously contemplate that the blue revolution can further the capacity development in fisheries and aquaculture through eco-friendly environmental policies, institutional arrangements and the collaborative processes that empower fishing and fish farming communities, civil society organizations and public entities alike.

It is a fact that 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. But, yet, recognizing the importance of fish for food security and nutrition for growing populations in the region, it is essential to maintain or even enhance this contribution now and in the long term, on sustainable levels. This requires serious deliberations in the coming days given the challenges that both the fisheries and aquaculture sectors are facing in terms of sustainability, disease surveillance, climate change impact, governance etc., and given the economic constraints and demographic conditions that they have to respond to.

On the marine front, measures like enforcement of marine fisheries Acts banning the fish catches in breeding seasons, creation of marine protected areas etc., require routine assessments that have to be carried out for enabling adequate tracking of resources for management decision-making. These are particularly important in Asia-Pacific countries to assess ecosystem level changes in relative compositions and shifting trophic levels in response to fishing pressure, and to determine appropriate fishing effort/capacity levels in both near shore and offshore fisheries. Due to the fact of having large number of stakeholders in our countries; this is a big challenge for us especially in creating awareness and capacity building both at individual and Institutional levels.

As in capture fisheries, aquaculture systems and species are also diverse in the region, but the bulk of its food fish output comes from a few species and groups that include cyprinids, tilapias and catfish. All the three groups comprise freshwater species, bred in hatcheries, feeding low in the trophic level and cultured mostly in pond systems. The culture of marine finfish, raised mostly in small floating cages that are located in protected inshore waters is seen to grow rapidly in the region. Large offshore operations using higher-technology cages have begun and are now adding to marine fin fish output; however, for technical reasons they are not expected to become widely adopted. In India we are yet to make a beginning in this sector. The region remains the biggest producer of marine shrimp, now consisting mostly of white leg shrimp (*Litopenaeus vannamei*), a Latin American species introduced towards the end of the 1990s. Even though APFIC region accounts for around 90 percent of the global aquaculture production, it is of concern that Aquaculture production is not increasing steadily throughout the region, with some countries experiencing negative or zero growth in production. It is a fact that Aquaculture is an expanding sector in Asia and the Pacific region and very important for many of its economies. The current trend and current expectations are that aquaculture will play an even more important role in the future, both in terms of an important rural livelihood and an invaluable source of protein for both the poor and the rich in Asia and the Pacific region, although attention from outside tends to focus more on internationally-traded commodities.

Although social responsibility cannot be separated from environmental responsibility, it does have one distinct element, labour. It is difficult to assess this aspect of the region's performance. The antidumping charges that have been levelled by certain importing countries on shrimp and *Pangasius* catfish exports include this issue. It remains contentious and needs closer and dispassionate study. As to the complaint that the charges of social dumping are without science-based evidence or based on isolated cases, the sector could do well to provide its own evidence. The answer could come from the higher productivity, better access to market and more favourable image gained by the shrimp farming sector from having adopted BMPs and adhering to standards. The latter provides measurable evidence of responsibility in farming. The bigger implication for Asian aquaculture is whether its competitiveness has been helped by low-cost labour and, if the answer is yes, whether this is sustainable. As a corollary, should labour cost increase for any reason, what strategies could the sector adopt to remain viable and competitive? Greater efficiency of farming is one, value addition is another. I understand that the region employs about 92 percent of the world's estimated 23 million direct and indirect labour for aquaculture. However, its productivity is very low, and it takes almost three direct jobs to create one indirect employment. Innovations in farm management, logistics and technology are always a reliable option, but

improvement of skills to increase labour efficiency and productivity should not be overlooked. This has to be delicately balanced with the need to create employment rather than reduce the need for workers, as a growing number of people are entering the labour force in almost every country in the region.

The less typical farming systems such as floodplains, also called as bheels in India, are expanding and the production from these farming systems is often poorly captured in national statistical data collection, mainly because of the small unit size and scattered distribution. The production from individual operation of such systems may be insignificant. However, the large number of these floodplains and the aggregated production and value to the households engaging in the activity is probably very significant. The lack of reliable information about this part of the sector currently limits evaluation of the grassroots impact of rural aquaculture in the region. Therefore, the Member countries may deliberate on ways and means for improving upon the data collection for aquaculture statistics to fully capture the contribution of all kinds of aquaculture operations.

I think some of the important issues have been touched upon for further deliberations during the coming sessions and hope that practical and constructive opinions are aired by delegates for taking forward to ensure sustainability of fisheries in marine, inland and brackish water sectors, thereby ensuring livelihood, nutritional security and tackling unemployment problems in these countries. Sustainable development of the sector is challenging but not impossible. The tasks are quite clear – we have to conserve the fisheries, we have to increase production and also protect livelihoods.

With these few thoughts, I wish the Thirty-third Session of APFIC every success and I once again welcome you all and wish the guests from abroad a very pleasant stay in Hyderabad and a safe return home with sweet memories and pearls of Hyderabad.

Thank you.

Inaugural Address by H.E. Sri Radha Mohan Singh, Honourable Minister for Agriculture, Government of India

Good Morning,

Mr Peter Kenmore, FAO Representative in India,
Mr Simon Funge-Smith, Senior Fishery Officer and Secretary, APFIC, FAO Regional Office, Bangkok,
Dr M V Rao, Chief Executive, National Fisheries Development Board,
Dr Raja Sekhar Vundru, Joint Secretary (Fisheries), Department of Animal Husbandry, Dairying and Fisheries,
Distinguished delegates from Member Countries of Asia-Pacific Region,
Distinguished participants,
Ladies and Gentlemen,

I am pleased to be here with you today. At the outset, on behalf of the Government of India, the host Country, I extend a hearty and warm welcome to you all, especially, our guests and delegates from member-countries of Asia and Pacific region, FAO, etc., to Hyderabad, a beautiful city to attend the Thirty-third Session of APFIC, a biennial event organized by APFIC. I am sure some of you were here for the APFIC Regional Consultation Meeting as well, which concluded two days ago.

I understand that the Asia-Pacific Fishery Commission (APFIC) is an important platform for the Governments of APFIC members, international and regional fisheries and aquaculture organizations to discuss important and emerging issues related to the development and management of fisheries and aquaculture in Asia and Pacific region. Based on this, APFIC draws policy recommendations and relevant strategies for tackling important regional issues pertaining to sustainable fisheries and aquaculture management in the region.

As you all are aware, fisheries sector in our countries, although small-scale in nature, have a large number of stakeholders along the value chain from production to consumption. It is an important economic activity and in several countries including India it has been recognized as a powerful income and employment generator as it stimulates growth of a number of subsidiary industries. Fisheries in both inland and marine waters have been an important source of livelihood security and for providing nutritious protein for the growing populations. In fact with exponential increase in human population, the food demand, shrinkage of cultivable land and decline in the agricultural productivity, the role of fisheries sector to fulfil the growing demand for food is of paramount importance for nutritional security. Starting from a traditional activity, the fisheries sector has transformed into a significant commercial enterprise with impressive growth. As per the latest FAO statistics released in 2014 (The State of World Fisheries and Aquaculture, 2014), the global fish production has reached 158 million tonnes, with food fish supply increasing at an average annual rate of 3.2 percent, outpacing world population growth at 1.6 percent. India has a fishermen population of the 14.4 million and a fleet of about 200 000 fishing vessels.

We are happy to know that India stands world number two in global fish production. Further India stands world number two in Inland capture fisheries and aquaculture. We hold the seventh position in marine capture production/fisheries. Our total production is 9.51 million metric tonnes. India registered an increase of 92.8 percent in aquaculture and 15.1 percent in marine catches during the last 10 years (2003–2012). The share of India's production from aquaculture is 6.3 percent of the world production.

India is bestowed with wide array of natural resources for developing marine, brackish water and inland fisheries. Presently, aquaculture holds importance, since enhanced fish production from sustainable aquaculture is the key for ensuring food security and poverty alleviation. Aquaculture in India relies

heavily on inland aquaculture of finfish even though potential for mariculture production of finfish remains largely untapped. Now, we are finalizing the guidelines for mariculture in cages along with cage culture in inland open water bodies such as reservoirs. Cage culture is aimed at effective and optimal tapping of the potential for natural water resources of marine and inland waters.

Aquaculture has a long history in Asia and is also linked to our heritage and culture; although we are, of late, facing severe challenges in fisheries and aquaculture sustainability and its management. According to FAO estimates, the human consumption of fish is about 80 percent of the world's fish production at per capita of 17.1 kilogram, which is expected to rise considerably by the year 2030. Therefore, it is necessary that we need to collectively take measures for sustainable increase in fish production. It is well known fact that fishes are being over exploited from the waters; while little attention is given to pollution and other threats that are harming fish stocks. With the capture fishery resources dwindling at an alarming rate, the international community needs to take certain harsh/drastring measures for ensuring continuous supply of food fish. This underlines the importance that fisheries and aquaculture, directly or indirectly, play as an essential role in the livelihoods of millions of people in the region and entire world from the small-scale fishers and farmers who harvest the fish to the men and women who work in the post-harvest sector handling and large processing industry.

The APFIC meeting assumes great importance because the Asia-Pacific region is home to more than 87 percent of the world's fishers and fish farmers. Asia-Pacific region is not only the largest producer of fish in the world but also has the credit of being the 'cradle' of aquaculture due to the fact that major volume of around 90 percent of global aquaculture production comes with a variety of species coming from the producers. About two-thirds of the world's total fish production is consumed in this region, which accounts for over 21 kilograms per capita. This region also contributes to about 55 percent of the global capture fisheries production.

While formulating strategies for increasing fish production to meet the ever increasing population demands, our approach should be ecosystem based and environmental friendly to ensure sustainability at large. While drawing up strategies, thought should be given for tackling challenges such as climate change, marine resource management related to overfishing, loss of marine diversity, etc. and this has to be effectively addressed through international and regional cooperation.

Sustainable growth of fisheries and aquaculture is possible only if the sector's socio-economic benefits accrue to a large social spectrum. The objectives should therefore aim at ensuring the desired growth duly preserving the natural resource base and securing livelihoods of millions; since fisheries and aquaculture are predominantly livelihood activities. Therefore, we should not forget the marine fishers, fish farmers and their welfare in our obsession for increasing fish production and productivity.

As fisheries head of government of a country rich in natural fishery resources, I am concerned that this sector is confronted with serious inadequacies of planning, funding and management despite being one of the most rapidly growing sectors of the global agricultural economy and despite being the only solution to the global availability of food fish. There are innumerable challenges to the growth of aquaculture species, ranging from availability of seeds and feed, environmental threats, disease risks, trade barriers to name a few; these threaten both economic and socio-economic development in many developing countries of the world.

As I told you earlier, in India, fisheries are an important economic activity and an engine of growth and we consider it as a "sleeping giant". The aquaculture sector together with inland fisheries development is emerging as a major development initiative. Aquaculture contributes to nearly 5 million tonnes *i.e.* nearly 51 percent to the total production of 9.51 million tonnes. The production from capture fisheries is stable while culture fisheries are growing at 6.0 percent. In addition, fisheries and aquaculture in my country also contribute to foreign exchange earnings worth US\$5 billion through exports and our major

market is now the South East Asian region. Being a country in possession of rich and varied aquaculture resources, India would like to join other nations in the region to play a lead role in aquaculture and fisheries and its sustainable development and management. As in the rest of the region, aquaculture in India is the avocation of small farmers with carps as the mainstay of production. It is a matter of pride for me to mention here that the initiatives made by India in Better Management Practices have become a role model for others to replicate.

This Thirty-third APFIC Session in India is a timely one when the sector is passing through many challenges. I hope we carry this type of dialogue and interactions forward and share our experiences in the fisheries sector in general and aquaculture in particular. Our problems are both unique and common and if we stand together and combine our knowledge, experience and resources, we could capitalize on the sector to usher in accelerated socio-economic development of our region and our respective nations. As I understand; through this session of APFIC, you will be examining regional fisheries and aquaculture problems and issues and thereby suggest recommendations for action by governments and all other stakeholders including, regional fishery bodies, non-governmental organizations (NGO), fish workers, etc.

Ladies and Gentlemen, you are all aware that India has always played a proactive and responsible role in the management and development of fisheries and aquaculture. We expect that the regional community would recognize the uniqueness of small-scale fisheries and aquaculture in developing countries such as India and work towards its further growth and sustainability. I am happy to understand that the COFI meeting, held in Rome this month, passed the "Voluntary Guidelines for Security Sustainable Small-scale Fisheries". The Guidelines are of immense importance for the Asia-Pacific region.

While thanking you for your patience, I wish the Session all success and hope that you all will take home good memories of Hyderabad and India. I once again welcome you all for this Thirty-third Session of APFIC and wish the guests from abroad a very pleasant stay in Hyderabad and safe return home.

Thank you.

APPENDIX H – READ STATEMENT OF THE SECRETARY-GENERAL OF THE SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER (SEAFDEC)

The Chairperson,
Distinguished Delegates at the 33rd Session of the Asia-Pacific Fishery Commission,
Ladies and Gentlemen,
Greetings from the Southeast Asian Fisheries Development Center.

First of all, on behalf of the Southeast Asian Fisheries Development Center or SEAFDEC, I wish to express our sincere gratitude to APFIC for inviting us to participate in this 33rd Session of the APFIC. Although I am very much eager to take part in this Meeting, it is with deep regrets that I could not stay longer in this beautiful city of Hyderabad because of other equally important tasks that I have to attend to in our region.

Nevertheless, I wish to take this opportunity to congratulate APFIC for the progress that it has made during the past year which resulted in the significant development of fisheries in the Asia and Pacific region. As you may be already aware of, there are areas of common interest between SEAFDEC and APFIC which we have been promoting in our region. I would therefore wish to make a summary of such activities that are being carried out by SEAFDEC in the Southeast Asian region to keep you informed and to enhance the opportunity of sharing knowledge and experiences among the APFIC and SEAFDEC Member Countries.

In combating IUU fishing in the waters of Southeast Asia, various initiatives have been undertaken by SEAFDEC under the ASEAN-SEAFDEC collaborative mechanism, which include the development of Regional Fishing Vessels Records or RFVR for fishing vessels 24 meters in length and over, development of catch documentation system, and strengthening of port monitoring and control. Subregional collaboration is also being promoted by SEAFDEC to strengthen cooperation among countries in different subregions of Southeast Asia, particularly among neighbouring countries, to enhance the implementation of measures to combat IUU fishing.

In addressing the issue on by-catch, recognizing that by-catch from fishing operations is among the most serious issues that create substantial impacts on the sustainability of fisheries and aquatic ecosystems, SEAFDEC through our Training Department serves as facilitation unit for the FAO/GEF Project on Strategies for Trawl Fisheries Bycatch Management or REBYC-II CTI. This project is aimed at addressing the challenges related to by-catch through sustainable fishing, adoption of best fishing practices, and development of rational approach to maximize benefits from landed by-catch.

With regards to Ecosystem Approach to Fisheries Management or EAFM, please be informed that since the principle of EAFM is embedded in the Resolution and Plan of Action adopted by the ASEAN-SEAFDEC Member Countries in 2011, we have strengthened our activities starting in early 2014 based on the EAFM concept and in accordance with the Resolution and Plan of Action. While we have enhanced our capacity in this aspect, we have also extended our training course on EAFM to our Member Countries by making use of the training module developed by FAO, APFIC, BOBLME Project and NOAA. Starting with activities related to training for trainers in 2014, the training is now being extended to Member Countries to enable the countries to enhance their understanding and the application of EAFM in project formulation and implementation.

While SEAFDEC envisions that the increasing fuel price and issues on carbon emission from fishery-related activities are very important and would surely make significant impacts for the sustainability of fisheries in our region, we have been undertaking activities that aim to address this concern. Specifically, we have been promoting energy saving schemes for small fishing boats where the

activities put more emphasis on exploring the appropriate technologies that could be applied, taking into consideration the capacity of small-scale fishers in our Member Countries.

As SEAFDEC continues to work with several countries in the region, we also recognize the need for small-scale fishers to adopt appropriate on-board fish handling technologies considering that losses on-board fishing vessels could be one of the most important factors that could lead to over-exploitation of fishery resources due to the deteriorating quality of fish catch. This has resulted in low price of fish and reduced revenues for fishers, eventually leading to intensified exploitation while striving for increased incomes. Appropriate handling could therefore help in breaking this cycle by providing fishers the opportunity to land good quality catch and obtain equitable incomes without causing further damage to the natural resources.

On inland fisheries development, our activities at this moment may still be limited. Nonetheless, once the new SEAFDEC Department on inland fisheries development and management is officially established in Indonesia, we expect that our activities in inland fisheries development would be strengthened. In this regard, SEAFDEC through this new Department would explore the possibility of establishing collaborative arrangements with FAO and APFIC on inland fisheries development for the benefit of the countries in our region.

In the aquaculture sub-sector, important issues have been raised by our Member Countries on the need to address emerging diseases, particularly the Early Mortality Syndrome or EMS in shrimps that impedes sustainable aquaculture production of several countries in Southeast Asia. Our Philippine-based Aquaculture Department or SEAFDEC AQD has been conducting studies to address such concern. Moreover, efforts are also made by SEAFDEC AQD to avert the continued use of bycatch and low-value fish as feed for aquaculture by working on various plant-based sources for aquaculture feeds. Furthermore, there are also on-going initiatives of the Southeast Asian region such as the development of guidelines for Good Aquaculture Practices and on the safe use of chemicals and antibiotics to ensure sustainable aquaculture and enhance the competitiveness of the region's aquaculture products in the world market.

Before ending my remarks, please allow me to reiterate that by the very nature of fisheries in the Southeast Asian region, our fisheries have to engage large numbers of small-scale fishers who are able to produce catches that are made up of multispecies. It is therefore necessary to note that some of the management measures and instruments that work well for large-scale fisheries in other regions of the world might not fit and work well in our region. Therefore, countries and relevant organizations including SEAFDEC and APFIC should take the specificity of fisheries in the Southeast Asian region into consideration in charting future management measures for the sustainable development of fisheries.

Lastly, while we thank APFIC for this opportunity for SEAFDEC to report briefly on our activities, we also express the hope for the successful deliberations during its 33rd Session. We also look forward to closer collaboration with APFIC that would pave the way for enhanced sharing of our experiences and the results of our works in the future.

Thank you and good day.

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