

# APFIC Second Regional Consultative Forum Meeting

Adapting to emerging challenges – Promotion  
of arrangements for the management of  
fisheries and aquaculture in Asia-Pacific

Manado, North Sulawesi, Indonesia  
6–9 August 2008



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

## **APFIC SECOND REGIONAL CONSULTATIVE FORUM MEETING**

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## **PREPARATION OF THIS DOCUMENT**

This is the final report of the second APFIC Regional Consultative Forum Meeting, “Adapting to emerging challenges – Promotion of arrangements for the management of fisheries and aquaculture in Asia-Pacific” convened in Manado, North Sulawesi, Indonesia, from 6–9 August 2008.

### **Distribution:**

Participants of the RCFM  
Members of APFIC  
FAO Fisheries and Aquaculture Department  
FAO Regional Fishery Officers

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## ACRONYMS

APFIC	Asia-Pacific Fishery Commission
ASEAN	Association of South-East Asian Nations
ARFMM	ASEAN regional fisheries development and management mechanism
ATSEA	Arafura and Timor Seas Action Plan
BOBP-IGO	Bay of Bengal Programme Inter-Governmental Organization
BOBLME	Bay of Bengal Large Marine Ecosystem Project
CBF	Culture-based fisheries
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCRF	Code of Conduct for Responsible Fisheries
CGIAR	Consultative Group on International Agriculture Research
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COBSEA	Coordinating Body on the Seas of East Asia
COFI	FAO Committee on Fisheries
COFI-AQ	FAO COFI Sub-Committee on Aquaculture
CTI	Coral Triangle Initiative
CTNI	Coral Triangle Network Initiative
CTNI	WWF Coral Triangle Network Initiative
DWFN	distant water fishing nations
EAF	ecosystem approach to fisheries
EBFM	Ecosystem-based Fisheries Management
EEZ	Exclusive Economic Zone
ExCo	APFIC Executive Committee
FAO	Food and Agriculture Organization
FBA	fishery-based aquaculture
FIEL	Policy and Liaison Service of FAO Fisheries and Aquaculture Department
FMU	fisheries management unit
FRRP	fisheries resource restoration programme
GEF	Global Environment Facility
HACCP	Hazard Analysis and Critical Control Point
ICM	integrated coastal management
ICSF	International Collective in Support of Fishworkers
IMO	International Maritime Organization
INFOFISH	Intergovernmental Organization for Marketing Information and Technical Advisory Services for Fishery Products in the Asia and Pacific Region
IOTC	Indian Ocean Tuna Commission
IPOA	International Plan(s) of Action
IUU fishing	Illegal, Unreported and Unregulated Fishing
JTFED	Juvenile and Trash Fish Excluding Device
LME	large marine ecosystem
LOA	letter of agreement

MFF	Mangroves For the Future initiative
MMAF	Ministry of Marine Affairs and Fisheries, Indonesia
MOU	Memorandum of Understanding
MRC	Mekong River Commission
MCS	monitoring, control and surveillance
MSC	Marine Stewardship Council
NACA	Network of Aquaculture Centres in Asia and Pacific
NPOA	national plan(s) of action
PEMSEA	Partnerships in Environmental Management for the Seas of East Asia
RAP	Regional Office for Asia and the Pacific
RCFM	APFIC Regional Consultative Forum Meeting
RFB	Regional Fisheries Body
RFMO	Regional Fisheries Management Organization
RPOA	Regional Plan(s) of Action
RSAC	SEAFDEC Regional Scientific Advisory Committee
SAARC	South Asian Association for Regional Cooperation
SEAFDEC	Southeast Asian Fisheries Development Center
SIFFS	South Indian Federation of Fishermen Societies
TAC	Total Allowable Catches
TAE	Total Allowable Effort Quotas
TCP	Technical Cooperation Programme
TCDC	Technical Cooperation among Developing Country
UNCLOS	United Nations Convention on the Law of the Sea
UNFSA	United Nations Fish Stocks Agreement
WCPFC	Western and Central Pacific Fisheries Commission
WorldFish	WorldFish Center
WTO	World Trade Organization
WWF	World Wildlife Fund

## EXECUTIVE SUMMARY

*Report of the second APFIC regional consultative forum meeting “Adapting to emerging challenges: promotion of arrangements for the management of fisheries and aquaculture in the Asia-Pacific region”, Manado, Indonesia, 6–9 August 2008. FAO Regional Office for Asia and the Pacific, Bangkok, RAP Publication 2008/12, 69 p.*

The purpose of an Asia-Pacific Fishery Commission regional consultative forum meeting (APFIC RCFM) is to strengthen the role of APFIC as a coordinating body in transferring and exchanging information and experiences to assist APFIC member countries and the regional organizations to which they belong to address emerging issues in fisheries and aquaculture in the region. The RCFM precedes the main APFIC session and aims to provide Members with a neutral forum to discuss issues and develop recommendations for the commission to consider and act on. This has involved forging better links with member country technical agencies, regional partner organizations and relevant non-governmental organizations across the region, many of which contributed to the second APFIC RCFM.

The theme of the second APFIC RCFM was “Adapting to emerging challenges: promotion of effective arrangements for the management of fisheries and aquaculture in the Asia-Pacific region”. This built on the theme of the first APFIC RCFM that was held in Kuala Lumpur in 2006, “Reforming fisheries and aquaculture in the Asia-Pacific region”, which recognised the need for improved management of the region’s natural resources and a move towards more sustainable development. The forum was requested to develop and agree on ways of implementing policies and action plans developed to address these major issues.

The forum was given the opportunity to hear about the background on the status, trends and potential of Asia-Pacific fisheries and aquaculture as well as the economic, social, trade and environmental drivers that were underlying these trends and the specific regional actions which were being put in place to address them. The forum concluded that fisheries and aquaculture remain very important production sectors in the APFIC region and the livelihoods of large numbers of people in the region are connected to them. Although there are great challenges facing the sector, significant advances are being made in reforming it. Fisheries continue to be under pressure and the need for more effective management is increasingly urgent. Aquaculture offers opportunities to the region but its performance must continue to improve. The participants at the APFIC RCFM recognized that APFIC Members are adapting well to the new challenges that are facing fishers and aquaculturists in the APFIC region.

The forum reviewed member countries’ progress on the previous recommendation by APFIC that co-management become mainstreamed in government fisheries and aquaculture activities and used to address key national policy objectives, including reducing overcapacity and the overexploitation of both marine and freshwater fisheries. The RCFM emphasized the importance of mainstreaming co-management approaches to be part of management. Based on feedback from member countries it is apparent that co-management has been increasingly mainstreamed and now forms a significant part of approaches to fisheries, particularly inland, inshore and coastal fisheries and some forms of aquaculture management in the region. Co-management approaches differ across countries, but the fundamental aspect of improved dialogue in decision-making between fisheries agencies and fishers and fish farmers is common to all.

The forum reviewed progress on the recommendation that increasing catches of low value/trash fish be tackled by improved management of fisheries, improved utilization for human consumption, and improved feeds for aquaculture. It concluded that some progress has been made in addressing the issues relating to low value/trash fish production. Some improvements have been made in the areas of improved fishing gears and zoning and there are some efforts to reduce capacity in the trawl sector. Greater progress has been made in the areas of value adding and improved handling. However, there still remains significant production of low value/trash fish and the high proportion of low value/trash fish raises concerns about the growth in overfishing, including juveniles from high-value long-living species and this requires further attention by the member countries. There has been some progress in shifting aquacultural use of low value/trash fish over to compounded feeds.

The RCFM also reviewed policy, action plans and member countries' activities addressing two major issues which have been the thematic areas of the work of the commission during its current biennium, both of which will have a major impact on the future supply of and demand for seafood in the region, namely "Managing fishing capacity and IUU fishing in the Asian region" and "Certification schemes for capture fisheries and aquaculture".

The RCFM recommends that the action plans and recommendations developed as part of the APFIC regional consultative workshops on "IUU fishing and capacity management" and "Certification in aquaculture and fisheries" provide a basis for guiding the work of member countries and regional organizations and others in the region. In this respect, the RCFM recommended that APFIC continue to monitor member countries' progress against these action plans noting that the FAO guidelines for aquaculture certification will be submitted to the third session of the COFI Subcommittee on Aquaculture (COFI-AQ). The RCFM further emphasized that there is a need for continuing commitment from key stakeholders and recognized the cooperation and collaboration that is emerging in the region.

Looking to the future, the forum discussed the "ecosystem approach to fisheries" and "market linkages, trade and rural finance" as two emerging issues for the region. The forum concluded that APFIC can promote understanding of how to implement ecosystem approaches to aquaculture and fisheries management, particularly as applicable to the small-scale production sector, developing offshore fisheries and in the data-poor situations that prevail in the APFIC region. APFIC can promote the assessment of fisheries for their management needs. The forum also requested APFIC to explore the human dimension of fisheries and aquaculture in the region as these subsectors restructure or are driven to change by internal and external forces. This would form the basis of advice on the best approaches to improving livelihoods and securing the rights of fishers, aquaculturists and their households.

The forum recognized APFIC's coordination role and recommended that APFIC should continue to facilitate information sharing on key issues relating to fisheries and aquaculture between regional organizations and arrangements and member countries. This would be achieved through continuing the regional consultative forum role of APFIC and targeted communications and networking activities. APFIC should monitor the recent changes in member countries' policies and the drivers for these developments. More specifically, APFIC should monitor developments relating to the main biennial themes of APFIC such as IUU fishing, managing fishing capacity, certification, co-management and low value/trash fish.

APFIC should continue to promote improved reporting and information, particularly in the areas where data is not reported in sufficient detail and focus more on information relating to stocks and systems and issues relating to management, including socio-economic data.

APFIC should engage with subregional processes that aim to develop more effective management of fisheries and aquaculture, and broader environmental-focused initiatives (e.g. lost and abandoned fishing gear).

Finally, the forum recognized that regional partners and member countries could also contribute to addressing the challenges facing fisheries and aquaculture in the region through their own work plans and processes. The following tasks need to be carried out and APFIC urges organizations and arrangements to undertake these and communicate the results to APFIC for onward dissemination:

- review how fisheries and aquaculture can adapt or even benefit from the challenge of climate change;
- evaluate the benefits (human and environmental) of MPAs and their trade-offs;
- assess the impact of subsidies on fisheries and aquaculture in the region and the effect of their removal;
- identify positive and negative impacts of reducing fishing overcapacity, in particular strategies for mitigating negative human impacts;
- develop effective and practical methods for assessing fishing capacity and strategies for encouraging capacity reduction;
- promote harmonization of food standards and certification systems for member countries;
- develop regional cooperation to manage fishing capacity and combat IUU fishing;
- report on changing markets and trade in the region, in particular the effects of FTAs, economic integration and the WTO;
- review the implications of increasing fuel and feed prices on the sector;
- collate and review existing information on resource status in the region and develop indicators for system/fishery health;
- facilitate the harmonization of policies at provincial and national levels (as well as across agencies); and
- plan for water development with minimal negative impact on inland fisheries.

These recommendations of the second APFIC RCFM were forwarded to the thirtieth APFIC session for consideration and subsequent endorsement.

## **GOAL AND OBJECTIVES OF THE REGIONAL CONSULTATIVE FORUM MEETING**

1. The second APFIC RCFM was held at the Ritz Hotel in Manado, Indonesia from 6 to 9 August 2008. The meeting was attended by 92 participants from 17 countries and representatives from 15 organizations. The meeting was hosted by the Government of the Republic of Indonesia together with the Food and Agriculture Organization of the United Nations (FAO) and Asia-Pacific Fishery Commission (APFIC). The overall goal of the biennial RCFM was to provide a forum to synthesize, analyse and agree on actions needed to reshape fisheries and aquaculture in Asia and the Pacific region for future generations. The forum was requested to develop and agree on ways of implementing policies and action plans developed to address major issues for the region. Based on a review of the biennial status publication, reports of action plans of APFIC regional consultative workshops and presentations by member countries and regional organizations, the RCFM considered the major issues outlined in the agenda and developed a report and recommendations to inform the APFIC session.

2. The second APFIC RCFM was held to precede the thirtieth session of APFIC. The commission believed the RCFM and the linked thirtieth session would assist in strengthening APFIC's role as a coordinating body by transferring and exchanging information and experiences to assist Members to address emerging issues in fisheries and aquaculture in the region. Members worked together to develop and agree on ways of implementing policies and action plans to address these issues. The outcomes of the RCFM were to be used to inform the direction of the thirtieth session of APFIC.

3. The specific objectives were to:

- (i) provide a background on the status, trends and potential of Asia-Pacific fisheries and aquaculture;
- (ii) develop policy and action plans to address major issues that constrain reaching the potential of fisheries and aquaculture in the region;
- (iii) discuss the ecosystem approach and the challenge of improving livelihoods of fishers and fish farmers as two emerging issues for the region; and
- (iv) address some of the broader policy challenges facing all Members such as implementing the Code of Conduct for Responsible Fisheries (CCRF); the challenges of implementation of action to combat IUU fishing and manage fishing capacity; the opportunities and benefits presented by certification in fisheries and aquaculture; integrating fisheries management into broader large marine ecosystem management; and provide a forum for members to share experiences pertaining to their main policy directives.

## **OPENING OF THE MEETING**

4. The second APFIC RCFM was opened by Professor Widi Agoes Pratikto, APFIC chairperson and Secretary-General of Marine Affairs and Fisheries, Republic of Indonesia. As APFIC chairperson for the period 2007–2009, Professor Widi Agoes Pratikto expressed gratitude

for having the opportunity to open this important meeting and with the participants shared a vision for the development of the marine and fishery sector in Asia and the Pacific region. As the Secretary-General of the Ministry of Marine Affairs and Fisheries of the Republic of Indonesia, the APFIC chairperson expressed his sincere thanks on behalf of the Minister to all Government of Indonesia staff who helped to organize the meeting, and stated that he was deeply honoured that the Government of Indonesia had been entrusted to host such an important meeting. The focus of this RCFM is the promotion of effective arrangements for managing fisheries and aquaculture in the region. An important issue for both APFIC and the countries in the region, including Indonesia, is combating illegal, unreported and unregulated (IUU) fishing. Fish share natural resources, and most fish in the ocean, especially pelagic species have a high economic value. These may breed in one area and then spend the rest of their lives travelling the ocean following an instinct forged by million of years of evolution. In order to use the ocean's natural resources sustainably and responsibly, fishing activities on an industrial scale need to be closely regulated and monitored. The APFIC chairperson noted that there are strong indications that the ocean's fish stocks are in a steady decline and this is of great concern for Indonesia and other APFIC member countries. A balanced approach is necessary taking into account the ecology of fisheries and the fact that in Asia and the Pacific region fishing is one of the main livelihoods, even the only means of living for some coastal communities. The APFIC chairperson emphasized the need to work together towards the protection and use of marine resources in a sustainable manner.

5. On behalf of Mr Ichiro Nomura, Assistant Director-General of the Food and Agriculture Organization of the United Nations, and as the secretary of APFIC, Mr Simon Funge-Smith welcomed all participants to the second APFIC RCFM. The secretary noted that APFIC is the oldest fisheries commission in the world and over time it has undergone many changes. In its current role APFIC acts as a "regional consultative forum" to better inform member countries of issues affecting the sustainable development of fisheries and aquaculture across the APFIC region and to bring the Members together to plan actions and strategies to address those issues. The RCFM is now held every two years and is based on a number of intersessional workshops on selected issues that APFIC considers to be of major regional importance. During the last biennium, APFIC has focused its attention on two important issues, namely "Managing fishing capacity and IUU fishing in the Asian region" and "Certification schemes for capture fisheries and aquaculture". The secretariat has now organized regional workshops on each of these topics as well as associated issues. Both these issues will have a major impact on the future supply of and demand for seafood in the region and the RCFM provided the opportunity to hear about the outcomes of these workshops. The secretary thanked the Government of the Republic of Indonesia and the governor and people of North Sulawesi for kindly hosting this meeting and making everyone feel welcome at the forum. He gave special thanks to the chairperson of APFIC and the staff of the Ministry of Marine Affairs and Fisheries, Indonesia, who were responsible for much of the meeting organization. The secretary also thanked the participants for their commitment to participate and willingness to collaborate within the RCFM framework. In conclusion, he urged the participants to focus on giving support to the new course for fisheries and aquaculture in Asia and the Pacific region that is being charted by APFIC and its partners.

6. The opening speech delivered by Dr S H Sarundajang, Governor of North Sulawesi, Republic of Indonesia welcomed all participants to the island of Sulawesi and the city of Manado. He emphasized that fisheries and marine resources are of crucial importance for the island of Sulawesi and the whole region. Noting that the second RCFM and the theme "Adapting to

emerging issues” was timely in a changing world with climate changes and changing market and trade patterns, the governor stated that APFIC’s role as a policy forum and discussion platform was important in this changing environment. This should remind us to maintain a sustainable ocean management, particularly in the light of climate change. He noted the need to use the marine resources in ways that local stakeholders can sustain and hopefully increase their livelihoods and at the same time ensure that the resources will be there for generations to come. The governor then declared the second APFIC RCFM officially open.

## **SESSION 1: REVIEW OF STATUS AND CHALLENGES IN FISHERIES AND AQUACULTURE IN THE REGION**

7. Mr Simon Funge-Smith, the secretary of APFIC, informed the participants about the structure of the consultative forum and the practical arrangements.

8. The first session of the RCFM was an introduction to the theme of the second RCFM “Adapting to emerging challenges: promotion of effective arrangements for the management of fisheries and aquaculture in the Asia-Pacific region”. This session also included an introduction to the findings of the latest APFIC biennial review, *Status and Potential of Fisheries and Aquaculture 2008*.

### **Keynote address “Adapting to emerging challenges — promotion of arrangements for the management of fisheries and aquaculture in Asia-Pacific”**

*By Professor Hasjim Jalal, International Ocean Law Advisor to the Minister, Ministry of Marine Affairs and Fisheries (MMAF)*

9. The keynote address by Professor Hasjim Jalal set the scene for the RCFM by stressing the need for cooperation among countries and among fishery organizations in Asia and the Pacific region. He noted that prior to the development of the UN Convention on the Law of the Sea (UNCLOS) there was no real need for cooperation, since most of the fishery issues were national issues in near-coastal waters. After UNCLOS, and the establishment of Exclusive Economic Zones (EEZs) and sovereign rights, fisheries have become much more complicated and shared stocks require the cooperation both of coastal states and distant water fishing nations (DWFN) and he noted that 155 countries have now ratified UNCLOS.

10. A range of mechanisms for cooperation are available, including international, regional and bilateral arrangements. Important international agreements include the UN Fish Stocks Agreement (UNFSA) that was finalized in 1995 and is currently in force with 71 countries having ratified it. Post-UNCLOS, regional fisheries management organizations (RFMOs) also have a management mandate for certain stocks and areas. Other agreements such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) also require cooperation between countries. Many of these agreements provide a platform for regional and country action and have binding or non-binding requirements.

11. At the regional level other regional bodies, e.g. the Southeast Asian Fisheries Development Center (SEAFDEC), Bay of Bengal Program-Intergovernmental Organization (BOBP-IGO) are advisory in nature. In terms of RFMOs, regional agreements are based on stocks and areas. In the APFIC region, these are the Indian Ocean Tuna Commission (IOTC) and the Western and Central

Pacific Fisheries Commission (WCPFC). These RFMOs have a strong mandate to manage highly migratory fish, especially tuna. WCPFC is based on UNFSA and covers highly migratory species. IOTC has started to look at other species, e.g. sharks. Both RFMOs monitor the status of stocks and have a strong role in combating IUU fishing as well as providing management advice to their contracting parties based on scientific evidence.

12. Professor Hasjim pointed out that according to UNCLOS the area of competence of these RFMOs did not include the semi-enclosed seas, e.g. South China Sea, and areas of the seas of Southeast Asia including the Celebes Sea. These semi-closed seas included the archipelagic waters of Indonesia and Philippines. In such circumstances the cooperation of surrounding countries was required for management.

13. Other non-management agreements include APFIC that acts as a policy forum, building human capacity, facilitating the work of FAO in the region. APFIC's work focuses mainly on areas that lack regional agreements for management.

14. In inland waters, the Mekong River Commission (MRC) has a fisheries programme within its mandate for intergovernmental cooperation for water management. The aquaculture sector is specifically serviced by the Network of Aquaculture Centres in Asia-Pacific (NACA) whose regional work includes aquatic animal health, movement of genetic material, the advocacy of aquaculture certification, and the promotion of best practices in aquaculture management.

15. There are also several environment-related cooperating arrangements that have an impact on fisheries. These include the Coordinating Body of the Seas of East Asia (COBSEA), Partnership in Environmental Management for the Seas of East Asia (PEMSEA), UN Environment Programme (UNEP)/Global Environment Facility (GEF) South China Sea Project. All provide mechanisms to address fisheries issues, especially related to habitat and environmental issues.

16. There are also a number of science/research organizations. The WorldFish Center (WorldFish), part of the Consultative Group on International Agriculture Research (CGIAR) provides advice on science and policy with a particular focus on small-scale producers in developing countries. The South Pacific Community (SPC) provides scientific advice in the Pacific region, including the WCPFC.

17. The region therefore has many regional bodies and arrangements, but geographical gaps exist, especially with respect to RFMOs. Formal arrangements do not exist for many semi-enclosed seas, although UNCLOS requires cooperation under Article 123, e.g. South China Sea and its high seas area. Some shared stocks will require joint management, but this is not foreseen in the near future and developing cooperation is necessary. One of the ways forward will include vessel registers and information exchange, as major issues relating to IUU fishing in the region will require a high degree of coordination and cooperation. In the Bay of Bengal there is a need for regional cooperation for species other than tuna. Another major gap is the lack of coordination among the many international/regional arrangements in Asia and the Pacific region.

18. In summary, Professor Hasjim Jalal stressed the need for: (i) more effective syntheses of scientific findings; (ii) more consistency in implementing agreements; (iii) improved practice supported by informed policy and greater buy-in by countries; (iv) a shift away from a focus on

increased production towards sustainable use; and (v) improved cost-effectiveness and efficiency. He emphasized the need to be more proactive and include better monitoring and feedback on progress, especially on the implementation of agreements. Underpinning all of these is the need for better cooperation at all levels, both among countries and among all the regional organizations.

## **Status and potential of fisheries and aquaculture in Asia and the Pacific 2008**

*Simon Funge-Smith, APFIC Secretary*

19. The status and potential of the fisheries and aquaculture in Asia 2008 covered: (i) contribution of fisheries and aquaculture in Asia and the Pacific region; (ii) trends in fisheries and aquaculture; (iii) current regional issues; and (iv) emerging regional issues.

20. Fisheries contribute more than one percent of gross domestic product (GDP) (0.9 percent China) to the national economy in 23 states of the APFIC region and aquaculture contributes more than one percent in 11 states (16 percent Viet Nam). Data on employment is sparse but it is estimated that Asia accounts for ~87 percent of global employment of fishworkers with a total 41.4 million people employed full time (including 13 million in China), and huge numbers of part-time operators and employees.

21. In 2006, capture fisheries from the APFIC region made up 52 percent of global production (47.6 million tonnes, with six APFIC states among the top ten producers). Since 2004, production has increased by 3.5 percent. This has been achieved through increases in inland capture fisheries (19 percent) and marine capture fisheries (1.3 percent). Significant inland fisheries increases have been reported from Bangladesh, Cambodia, China, India, Myanmar, and Pakistan, but this may reflect improvements in reporting rather than actual increases in production. The proliferation of inland water stocking and increased fishing effort may also explain the increased production levels. However, many reports suggest a general decline in productivity.

22. Capture fisheries production is dominated by small pelagic marine species such as mackerel, scad, anchovy. There has been a recent increase in this group as a result of “fishing down the food chain” in fisheries where larger, more valuable species have been fished out. Unfortunately, an analysis of trends is problematic where a large number of fish are reported together in the “not elsewhere identified” (nei) group; this currently comprises about 36 percent of the reported catch. China has recently improved its reporting and the proportion of nei is reducing, however, overall the proportion of fish reported as nei is increasing. This is partly because many fisheries are catching low-value, small fish that are considered not worth reporting in terms of species. It was recommended that targeted surveys be undertaken to have a clearer picture of what fish make up the nei group.

23. Although production figures themselves cannot provide categorical information about the health of the resource or causes of change (e.g. environmental cycles, and economics), it is still interesting to compare trends in different subregions over past decades. Over the past 20 years, there has been a pronounced decline in high-value, large species and increasing proportions of smaller species in temperate waters. This can be explained by declines in the fisheries coupled with a reduction of fishing effort and a shift of effort to tropical waters.

24. This trend is not so obvious in tropical waters, where there have been increases in all groups, including the nei group. Tropical fisheries are highly productive and arguably more

resilient to fishing pressure, although there are clear signs of “fishing down the food chain” in many fisheries with small pelagic species now predominating. Sharks have declined dramatically in temperate waters but increased in tropical waters, (although there are signs of declines recently). The reasons for these differences are uncertain, but could involve changes in reporting because of conservation concerns, differences in the vulnerability of tropical and temperate sharks to fishing or actual changes in production. For tunas, skipjack tuna catches continue to increase, but the limits to this increase are unknown. All other tunas show a declining production and serious management interventions are being called for and applied, in both the Pacific Ocean and the Indian Ocean through RFMOs.

25. Major capture fisheries trends in the subregions are as follows: South Asia (6.2 million tonnes) has seen a large increase in inland fisheries, but much of this production is still grouped as nei; in Southeast Asia (15.4 million tonnes) inland fisheries are increasing with marine production still accounting for 88 percent of total production, but with increasing nei (probably small low-value species); China, has improved reporting through greater disaggregation of nei reports. As part of a review of its statistics, it will adjust past figures, which are expected to show a reduction of about 13 percent for both capture fisheries and aquaculture production; other countries in Asia (mainly Japan and Republic of Korea) show a levelling off of production after declining from a peak of 14.8 million tonnes in 1986. Oceania’s production is declining, but does not include increases in fishing being undertaken under access arrangements.

26. Aquaculture production in the region accounts for more than 90 percent of global production (46.3 million tonnes) and 70 percent of total value, with China still the dominant state. Inland fish culture production has tripled over the past fifteen years, mainly through carp production but also through significant increases of catfish (1.5 million tonnes), eels (480000 tonnes in 2006) and in the last four years, salmonids (900000 tonnes from Iran and China). Asian aquaculture production is still considered to be grossly underestimated because of the large number of small-scale producers and it remains difficult to assess. It was recommended that member countries improve estimates of production from backyard systems.

27. Production from marine and brackish water culture has also increased. Amberjack production is stable, Japanese seabass and seabream production is increasing, whiteleg shrimp (*Penaeus vannamei*) has shown large increases because of the widespread availability of specific pathogen free (SPF) stocks and overproduction is now occurring and prices are low. Mollusc culture is very high and aquatic plant culture is now at massive levels.

28. There are a number of major trends in the region. South Asia has experienced a large increase (a tripling in the last three years) in inland water culture production and this has become an important contributor to food security and is not heavily dependent on marine fish sources. Aquaculture production in Southeast Asia is extremely diverse with freshwater finfish culture increasing, large increases in seaweed production, and crustaceans accounting for 45 percent of product value. Chinese mariculture production is now at 45.6 million tonnes dominated by molluscs and aquatic plants, but with rapid growth in carnivorous marine finfish since 1995. Chinese inland aquaculture production has also increased by 9.2 percent per annum since 2004 with similar trends in high value carnivorous fish culture (Mandarin fish, eels and snakehead fish). Other Asian countries have stable aquaculture production except for aquatic plants (54 percent of total production); molluscs account for 28 percent of production and high value carnivorous finfish (10 percent of production) now account for 41 percent of aquaculture product value.

29. Two major current issues that were addressed by APFIC in the past biennium were: (i) inland fisheries, food security and data requirements; and (ii) marine fisheries policy, marine protected areas (MPAs), illegal, unreported and unregulated (IUU) fishing and capacity.

30. The first issue highlighted the lack of information on the importance of small-scale inland fishing where most of the catch is relatively small and used for subsistence purposes. The need for better trend data was highlighted so that a better understanding of this large but undervalued component of APFIC fisheries is better understood.

31. The second issue examined the role that MPAs can play as a fisheries management tool. It was concluded that it is possible to clearly demonstrate the value of MPAs as a tool to protect and conserve biodiversity, but more difficult to demonstrate their value as a fisheries management tool. More rigorous analyses of human and fishery benefits and trade-offs are required to provide guidance to fishery managers.

32. The number of parties that had ratified and accepted global conventions and agreements and their membership in a number of international/regional fishery bodies and other arrangements related to fisheries was updated, although APFIC still requires more accurate and up-to-date information.

33. The fight against IUU fishing in the region was discussed and some of the measures employed to combat it highlighted. Lastly, the constraints and challenges of expanding fishing into offshore waters were discussed.

34. The APFIC secretary concluded that the future looked good with significant progress in the areas of fisheries governance and improved management of aquaculture being achieved. However, he reminded the forum that many challenges still needed to be addressed so that fisheries and aquaculture in the region can meet their full potential in contributing to sustainable development.

35. During the discussion, the RCFM noted the need to take climate change into account when examining trends and potential. It was agreed that this was an important area for future work. Rising fuel and feed prices and their effects on fisheries and aquaculture were also raised as an issue of regional importance that is now affecting sector performance.

### **Country Reports — actions and achievements on items identified by the 29<sup>th</sup> Session of APFIC**

36. The twenty-ninth session of APFIC made a number of recommendations on actions that countries should pursue, namely mainstreaming co-management into fisheries management and reducing the catch of low value/trash fish (especially from marine coastal waters). Each country presented their progress in adopting these recommendations as well as describing overall progress in fisheries and aquaculture development in their countries. Many presenters provided an overview of the sector in their countries and as these statistics have already been incorporated into the review, *Status and potential of fisheries and aquaculture in Asia and the Pacific 2008*, they are not presented here. However, the presentations from each country are available on the APFIC Web site at [www.apfic.org](http://www.apfic.org).

37. **Australia** — Management systems are in place, with responsibility shared between the central and provincial governments and co-managed with the fishing industry through joint authorities. There is a major focus on ecosystem-based fisheries management (EBFM), including bycatch and ecological risk assessments. Both input and output management controls are used with a strong monitoring and reporting system to provide feedback on progress. Australia also has a strong monitoring, control and surveillance (MCS) system. It works both bilaterally and multilaterally and supports the global fisheries agreements. Climate change is an emerging issue and the policy is to adapt to climate change. Key management initiatives have included structural adjustment to remove fishing effort and adoption of harvest strategies to more sustainably harvest fish based on sound scientific information.

38. **Bangladesh** — Advances in mainstreaming co-management include developing new legislation to accommodate co-management, and a new policy to promote community-based management and the involvement of stakeholders, especially women. The lease-based system has largely been replaced by community ownership. The emphasis is on human capacity building and a focus on environment-friendly management to ensure sustainability and conserve biodiversity. Achievements include better community-based fisheries management, better linkages with government organizations (GOs), non-governmental organizations (NGOs), improved livelihoods, increased incomes of women. Bangladesh continues to cooperate with international and regional organizations and encourages their support.

39. **Cambodia** — The country has made progress in co-management through the community fisheries (CF) mechanism, where the government has allocated some previously leased fisheries (fishing lots) to communities. The period from 2000 to 2007 has been one of human capacity building and putting in place the fundamentals for co-management, including giving leases to communities, developing CF and preparing CF bylaws. From 2007, the focus shifted to CF strengthening and development, including registration and CF demarcation. Achievements, therefore, have been the new legislation, an organized management structure, building of networks and strengthening of capacity. Many positive changes have occurred with more secure access rights and increases in fishery resources. The challenge is to make the system self-reliant. Cambodia continues to collaborate with regional and global organizations (including FAO) in projects and implementation of CF.

40. **China** — Major changes in fisheries management have occurred, based on the country's Eleventh Five-year Plan. The focus has been on conservation of aquatic resources and protection of aquatic ecosystems, including building of artificial reefs, resource enhancement, control and reduction of marine fishing capacity (20600 vessels and 1.24 million kW power), job transfers (more than 800000 fishers), closed seasons and areas, and eco-fish farming (strict control on drugs, feeds, juvenile selection, water quality etc.). China has continued to be a major global and regional player in fisheries and aquaculture by implementing international agreements with neighbouring countries and is now a member of all RFMOs including the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).

41. **India** — The fisheries sector is an important resource for socio-economic development. In 2005, more than 3.51 million people were involved in the industry. A number of statistics on the Indian fishing fleet were presented. The challenge of maritime safety when dealing with large numbers of small-scale vessels was discussed. A national level review committee was constituted in 1997. The use of zonation in coastal waters for regulation of fisheries is successfully used. The

Government of India has, together with BOBP-IGO, implemented a number of very useful projects related to improving the fisheries sector.

42. **Indonesia** — Indonesia's actions and achievements included their increasing role in international/regional organizations, for example their membership in IOTC and NACA (and the country will soon join the WCPFC) and especially meeting their obligations to exchange information. They are working hard to combat IUU fishing, including strengthening of vessel surveillance, capacity building, and improved management through a new coordination forum. A new fisheries management plan has been developed and marine conservation areas have also been developed. There has been improved utilization of low value fish, and improved feeds for aquaculture through regulation of supply and distribution of feeds. Co-management is being successfully implemented in several areas.

43. **Japan** — Japan has embarked on a fisheries resource restoration programme (FRRP), based on a strong co-management approach. The new FRRP includes reducing fishing effort (through total allowable catches (TACs), total allowable effort quotas (TAEs), increasing resources through restocking and artificial reefs and improving the environment. Regional fisheries adjustment committees at provincial (prefecture) and local levels have been set up. The programmes are implemented by both national and provincial governments. One example of success is the Japanese Spanish mackerel that is managed by a provincial licensing system — the goal is to recover stocks to 1991 level by reducing fishing effort. Significant recovery in stocks has occurred although the goal has not yet been reached. Another example is sandfish in Akita Prefecture where catches were prohibited for three years (1992 to 1994) and a TAC introduced. After lifting the ban, catches have increased. Fishing associations and fisheries cooperative associations have been very important in gaining consensus and solidarity and making success possible.

44. **Malaysia** — Co-management has been successful in Kula Teriang, Langkawi, where it has been introduced in cooperation with SEAFDEC. This was based on a participatory process involving communities. The resources are now better managed, new business ventures have been developed and the encroachment of trawlers has been reduced. Malaysia plans to expand this model to other areas of the country. In terms of reducing low value/trash catches Malaysia tried to introduce increased mesh sizes, but met considerable resistance from fishers. However, a joint study between government and fishers demonstrated its benefits in improving catch composition and economic returns. The new measures are now being adopted. In addition, there have been joint trials with juvenile and trash fish excluding devices (JTFEDs) and trials of the Malaysian "Acetes efficiency device". Also incentives, through a certificate, to not use trash fish directly as feed in cage culture are being promoted.

45. **Myanmar** — Catches of low value/trash fish are high in coastal waters and more than 25 percent of the catch is discarded. Myanmar recognizes that these fish are important for food security, especially in areas away from the coast and they are attempting to divert more fish towards human consumption through value adding in small and medium scale processing plants. Livelihood benefits that have been derived from this initiative include understanding of product quality, quality assurance methods. A focus on trading higher-quality products rather than a large volume of lower-quality products is considered to contribute to reduced fishing pressure. Emerging challenges include the need to improve statistics on low value/trash fish and the need to achieve a better balance between fisheries management and sustainable livelihoods.

46. **Nepal** — Increasing fish production through expansion of the area of warm water aquaculture and trout production through “one-village-one-product” campaigns are being piloted. This will support income generation and address rural poverty. Large inputs of fish seeds into freshwater bodies is taking place, but there are still many problems requiring advice and support, including legislation and management. Livelihoods enhancement to address poverty alleviation and food security is the main area to be addressed. Nepal expressed its desire to have more technical assistance from FAO (e.g. Technical Cooperation Programme (TCP) and Technical Cooperation among Developing Country (TCDC) mechanisms, and from regional organizations.

47. **Pakistan** — Significant progress has been made through the formulation of policies. A new national fishery policy addresses many of the recognized weaknesses in fisheries including, overexploitation, weak assessments of stock status, joint ventures and improvements in value chains. A Fisheries Development Board has been incorporated under the Companies Act and will focus on sustainable and regulated harvesting. A stock assessment programme with FAO has also commenced and improvements in fish handling facilities on fishing vessels and fish handling practices have taken place. The focus is on shifting the emphasis from increasing catch quantity to improved catch quality. One business park model is also being developed, including two fishing processing plants. Aquaculture is also developing model fish and shrimp ponds and rehabilitating hatcheries. Pakistan is seeking assistance from fisheries organizations, especially in combating IUU fishing.

48. **Philippines** — Fisheries management activities to address resource management, environment and socio-economic issues are ongoing. Three policy thrusts are: (i) improved aquaculture productivity within ecological limits; (ii) optimized utilization of offshore fisheries and deep-sea resources; and (iii) improved product quality and reduced post-harvest losses. Achievements have included improved policies, plans and the introduction of a large fisheries resources management project. Fisheries management units (FMUs) have been identified and work is continuing on mesh selectivity, JTFEDs, fish sanctuaries, closure of fisheries and identification and establishment of fish refugia. Philippines has adopted an EBFM approach based on enhancement and development, regulatory and management programmes and improved governance structures.

49. **Republic of Korea** — Actions and achievements have included a restructuring of the Ministry of Maritime Affairs and Fisheries with fisheries now incorporated into the Ministry for Food, Agriculture, Forestry and Fisheries. There has also been a large increase in co-management participation (in 2007, 579 communities and 440000 fishers). Future challenges for co-management include: (i) lack of trained leadership among local level actors; (ii) a tendency for co-management groups to focus on easily implemented measures; and (iii) the presence of conflicts amongst stakeholders. Fishing capacity management actions have included decommissioning schemes for vessels. A national plan of action on IUU fishing was established in 2005. The key lesson learnt is that many policies need to be incorporated under a single objective to make them more rational, in this case a stock recovery plan. Republic of Korea is also improving safety and certification, traceability and quality assurance. It is interested in ecolabelling and would like more information on consumer acceptance and price differentials. International cooperation included ratifying UNFSA.

50. **Sri Lanka** — Improved management of fisheries include more legal actions against illegal fishers and prohibition of some gears in some areas. Mesh size regulation has also been

introduced in inland fisheries. Long-line technology is also being encouraged. Fisheries management areas have been declared and closed areas/seasons introduced to protect juvenile areas. Alternative income activities are also being introduced. Improved post-harvest fish handling on vessels and in harbours been encouraged also, including training programmes to improve food quality, e.g. training on Hazard Analysis and Critical Control Point (HACCP). However, many problems are still present and increased efforts are needed.

51. **Thailand** — Good experiences in co-management have occurred focused on capacity building and encouragement of self regulation. Several successful projects in collaboration with various donors have been carried out, e.g. the CHARM project. A legal framework to support co-management has been prepared, awareness building expanded and resource rehabilitation extended. There is a push to promote small businesses, ecotourism and cage culture. Lessons learnt include the need for better awareness, alternative jobs, more active participation, more encouragement of the young generation, and the building of local institutions. Advances in fisheries management have included a programme to better understand how to reduce trawling and push net effort and fishing capacity in the Gulf of Thailand. More selective gear (e.g. crab traps) have been introduced. Improved post-harvest fish utilization and handling, including new products, new technology (e.g. new fish baskets) and the development of high value products are a priority. Attempts are also being made to protect small-size fish through improving their identification and the proclamation of conservation areas and refugia. Thailand is also currently reviewing an update to the fishery law with the intention being to incorporate new developments such as port state measures.

52. **Viet Nam** — There are significant changes in Viet Nam fisheries including the merging of the Ministry of Fisheries into the Ministry of Agriculture and Rural Development. Aquaculture is also increasing and the focus on food quality has increased. The use of low value/trash fish remains high. Viet Nam is promoting offshore fishing expansion to reduce inshore fishing pressure and although vessel reduction targets are being set, they are difficult to achieve. Co-management, including awareness raising is increasing but is showing that a regulatory framework and the assignation of rights is not sufficient and significant human capacity building is required. Viet Nam recognizes the need to participate in international activities to combat IUU fishing and has drafted a NPOA on IUU fishing that is now being distributed for comment.

## **SESSION 2: CAPACITY MANAGEMENT AND IUU FISHING IN THE ASIA-PACIFIC REGION**

### **APFIC Action plan to Capacity reduction and combat IUU fishing in the APFIC region**

*Derek Staples, FAO/APFIC Consultant*

53. The participants of the APFIC regional consultative workshop held in Phuket from 13 to 15 June 2007 agreed that overcapacity and IUU fishing are major issues threatening economic development and food security. The proactive tackling of overcapacity and IUU fishing would deliver benefits throughout the fisheries sector and to the economy at large.

54. International plans of action are needed to turn policies into actions within a five to ten year timeframe. Coordination and partnerships need to be strengthened. Policy-makers and ministers need to be brought on board. Key steps in fishing capacity reduction were outlined including assessing current fishing capacity, developing national plans of action (NPOA), and

introducing rights-based measures. It was stressed that excess fishing capacity should be removed and not transferred to other fisheries. Support from regional and international organizations is expected for fishing capacity reduction programmes.

55. Participants called for a focus on IUU fishing within national EEZs, and the development of NPOA to tackle this problem. Steps must be taken to ensure that flagged vessels do not undermine conservation and management efforts. The adoption of port state measures will assist in this. The sharing of data and information between APFIC Members is essential to tackling IUU fishing in the region. Details on the status of resources and fleet capacity need to be shared and MCS efforts strengthened. A closer engagement with regional organizations is also called for.

56. Comments from the RCFM included the observation that recent literature suggests that the optimal fleet size may be hard to determine and less practical than imposing more stringent natural resource management measures. In response, the speaker commented that the way forward is to decommission fleets and pay compensation to boat operators.

### **Regional initiatives promoting more effective fisheries management**

#### **The Regional Plan of Action**

*Purwanto, Ministry of Marine Affairs and Fisheries, Indonesia*

57. The RPOA, adopted in May 2007, covers three areas: the South China Sea, the Sulu Sulawesi Sea and the Arafura and Timor Seas. The sustainable management of shared fish stocks is essential in helping to achieve regional food security and economic development. However, IUU fishing and overfishing are depleting these resources. Responsible fishery management practices are needed including the prevention of IUU fishing. Four meetings have been held since August 2007 when the coordination committee was formed and the outcomes of these RPOA implementation meetings, workshops and coordination meetings were described.

#### **SEAFDEC support to an ASEAN Regional fisheries development and management mechanism**

*Magnus Torell, Technical Adviser for SEAFDEC*

58. The SEAFDEC regional technical consultation in September 2006, recommended that Members work together to form a regional fisheries management body. The speaker outlined the process which is leading to an ASEAN regional fisheries development and management mechanism (ARFMM). ASEAN requested that the developing agreement cover both marine and freshwaters. The scope of the ARFMM would encompass: fishing capacity; monitoring; registration and licensing; zoning, IUU fishing and transboundary issues. Experience from other regional arrangements suggests that agreements of this nature should not be too complicated; mechanisms must be implemented under the framework of national laws, and the focus should be on boats, gears and people. Implications of conventions and regional agreements were also outlined by the speaker. Follow-up actions will include the continued development of the ARFMM and the establishment of an ad hoc working group to improve the speed of intersessional work.

## **Bay of Bengal Programme-IGO initiatives for fisheries management**

*Yugraj Yadava, Director BOBP-IGO*

59. The BOBP-IGO was established in 2003, marking 28 years of continued support for fisheries in the Bay of Bengal. The focus remains on small-scale fisher communities. Bangladesh, India, Maldives and Sri Lanka constitute the current membership. Thailand, Indonesia and Malaysia have been Members in the past, and Myanmar remains an observer. Eight countries exploit fisheries in the BOB and fish landings have increased from 0.91 million tonnes in the 1950s to 5.16 million tonnes in 2005. There has been a marked slowdown in production increases since the 1970s. Recent initiatives include: the preparation of a management plan for hilsa fisheries; preparation of a management plan for shark fisheries; a regional workshop on MCS; a safety at sea project; and the continued provision of information through regular newsletters, reports, posters etc.

## **COBSEA and fisheries — bridging the gap**

*Srisuda Jayaraband, Secretary, COBSEA*

60. Established in 1981, involving Indonesia, Malaysia, Philippines, Singapore and Thailand. Australia, Cambodia, China, Republic of Korea and Viet Nam joined in 1994. Now, has a new strategic direction focusing on three areas: marine and land-based pollution; coastal and marine habitat conservation; and management of and responses to coastal disasters. Recently, COBSEA has worked on: improving information management; building national capacity; developing nutrient pollution models; organizing the ‘Clean up East Asia’s Seas Campaign’; habitat protection; management of national disasters; and developing regional cooperation links. A major difference between COBSEA and main fisheries organizations is that COBSEA is concerned with the impact of fisheries and aquaculture practices on the environment rather than the effects of the environment on fisheries and aquaculture. Areas for inter-organizational cooperation include information exchange and tackling lost and abandoned fishing gear.

## **WWF’s Coral triangle programme — regional dimensions**

*Geoffrey Muldoon, WWF — Coral Triangle Network Initiative*

61. The speaker described the Coral Triangle Network Initiative (CTNI), its geographic scope (Fiji, Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands, and Timor-Leste) and areas of interest, which include MPAs, sustainable tuna fisheries, the sustainable live reef trade, turtle and bycatch mitigation, climate change and travel/tourism. Developing private/public sector partnerships are central to CTNI operational principles. Subprograms include the WWF-CTNI Tuna Sub Initiative and the WWF-CTNI Live Reef Food Fish Trade. The close interaction between the Coral Triangle Initiative (CTI) and the CTNI was outlined by the speaker.

## **Arafura-Timor Sea Action Plan**

*Tonny Wagey, ATSEA Regional Coordinator*

62. Established in 2002 at the Prep-Com UN Summit on Sustainable Development. Current member countries are Australia, Indonesia and Timor-Leste. The objectives of ATSEA are: the sustainable use and development of the Arafura and Timor Seas; poverty alleviation in coastal areas; and research and data sharing. Foci include: IUU fishing; preservation of fish stocks, habitats and diversity; alternative livelihoods, including aquaculture; understanding ocean

dynamics; and information management capacity. ATSEA is closely aligned with the CTI. The project will be fully implemented by 2009 and will be completed by 2013.

### **Towards addressing fisheries concerns through implementation of Integrated Coastal Management**

*Raphael Lotilla, Executive Director, Partnership for the Environmental Management in the Seas of East Asia (PEMSEA)*

63. Challenges to fisheries in East Asia highlighted including; the open access nature and unsustainable harvesting now causing overfishing in many areas; and the impact of other forms of economic activity on the region's fisheries. The speaker presented a common framework for sustainable development of coastal areas through integrated coastal management (ICM). The ICM program and implementation cycle was described; the demonstration sites shown and plans for replication outlined. Policies, strategies and Action Plans currently focus on how to integrate fisheries management and ICM, conflict resolution between fisheries and navigation, and mangrove rehabilitation; anti illegal fishing campaigns; supplemental livelihoods programs including crab condominium projects. PEMSEA has also established a network of local governments comprising of 23 member and 7 observers across 9 countries in the Region. PEMSEA aim to have activities covering 20 percent of the regional coastline by 2015.

#### **End of session**

64. The chairperson summed up the day's proceedings by stressing the growing prominence of co-management, the recognition of excess fishery capacity and the need to address this problem in many areas and the limitations of the promotion of offshore fishing. The rapid development of aquaculture requires the harmonization of the many certification schemes and a clearer understanding of potential costs and benefits. The many regional management mechanisms appear to have many commonalities and present a range of options for improving management.

## **SESSION 3: CERTIFICATION IN FISHERIES AND AQUACULTURE**

### **Regional Overview of Fisheries Certification**

*Miao Weimin, APFIC Secretariat*

65. Miao Weimin provided a review of older and newer environmental and social certification schemes in fisheries. Based on this review, the presenter considered the hypothetical and actual evidence for the demand for and benefits of such initiatives. Related costs were also discussed and it was noted that there are few studies and very little quantitative evidence published on the financial costs or the benefits of certification or branding schemes, but this lack of evidence is even more pronounced when it comes to an assessment of the net benefits. There is some evidence that the conditions attached to certified fisheries do encourage improved institutional structures and operational practices, but to date these are largely restricted to established, well-managed fisheries.

66. The presenter summarized the available reports and papers that have highlighted the potential problems faced by developing country producers in engaging with certification before presenting some possible solutions. It was noted that there is no magic formula to determine

whether it is sensible for particular products or fisheries to undertake certification initiatives. The net benefits are likely to be too specific to the particular country and product concerned, the end market, and the characteristics of the supply chain. Generalizing about the actual costs and benefits is neither possible nor advisable. The presenter made some suggestions about how to conduct cost–benefit analyses, using a simple decision-making tree. Some refinement of these tools will be needed for later use and it is suggested that a few pilot cases might provide some indications of how this might be done. This will also provide some practical assistance to the countries concerned in making decisions about the feasibility of certification or branding for particular products or fisheries.

### **Regional Overview of Aquaculture Certification**

*Jesper Clausen, APFIC Secretariat*

67. Mr Clausen briefly described the present status of aquaculture in Asia and how the sector is linked to certification. It was noted that there was an increasing demand for seafood because of population growth and the focus on fish as healthy food, but there also were consumer concerns over production methods. Given the projected world population growth, an additional 40 million tonnes of aquatic food will be required by 2030 just to maintain the current consumption level per person. Aquaculture is expected to produce much of this increase in fishery products. This will of course be important for APFIC member countries as 90 percent by volume and 78 percent by value of the world’s aquaculture production is now produced in Asia and the production is increasing in many countries. Aquaculture now accounts for almost 50 percent of the global food fish production. The presenter covered the challenges of how aquaculture certification can be adapted for small-scale producers that predominate in the APFIC region. In particular, it was emphasized that producers in the region should be closely involved in standard setting and that regional schemes could be a way to facilitate farmer entry.

### **Strategies and Recommendations for Certification in Fisheries and Aquaculture**

*Pham Trong Yen, Ministry of Agriculture and Rural Development, Viet Nam*

68. APFIC Members requested the APFIC secretariat to look at the opportunities and challenges presented to Asia and the Pacific region by labelling and certification. APFIC together with the Government of Viet Nam therefore held a regional consultative workshop on “Certification of fisheries and aquaculture in the Asia-Pacific region” held in Ho Chi Minh City from 18 to 20 September 2007. At the workshop it was recommended that national and regional initiatives for certification of aquaculture will follow the forthcoming international FAO guidelines for aquaculture certification and other international guidelines as appropriate. Other recommendations were: that the inclusion of small-scale producers and the recognition of traditional production methods in certification schemes should be encouraged; that access to markets for certified fish products in developing countries should be investigated and facilitated; certification schemes should be considered not only to promote South-North trade but also to support South-South trade and national markets; that regional or national flexible labelling and certification schemes — social, environmental, ecological, or cultural — that are built upon the comparative advantage of Asian aquaculture (e.g. traditional knowledge, sustainable fishing methods and unique fishery products) should be developed and it was noted that the involvement of small-scale producers in the region is of crucial importance; regional involvement in setting the certification standards should be continued and improved where possible and communication and information sharing between producers and consumers should be improved.

## **Regional Cooperation for Fisheries Trade**

*Sudari Pawiro, INFOFISH*

69. The presenter gave an overview of global fishery production which reached 145 million tonnes in 2007 (excluding seaweeds), with around 37 percent of the total traded in international markets. As the supply of and demand for fish and fishery products have increased, global trade has also grown consistently reaching US\$86 billion (export, FOB value) in 2006, with developing countries contributing around 50 percent of the total. Asia was an important seafood supplier exporting around US\$29.1 billion (33 percent). Global seafood trade, however, slowed down towards the end of 2007 and this trend has continued into 2008. This is because of the rising fuel and food prices affecting consumers. Moreover, the global seafood trade is currently facing tremendous challenges and issues that affect the competitiveness and export of fishery products from developing countries. Among the issues faced by the industry are: sustainability; proliferation of private ecolabels and a growing number of certification schemes that in some cases lead to increasing production costs, increasing trade disputes and the growing influence by multinational chain retailers; failure in the WTO-Doha round negotiation resulting in the expansion of free trade agreements and regional trade agreements; rising production costs and issues related to safety and traceability.

## **Aquaculture Certification Guidelines — Common Frameworks and Small-scale Producers in Asia**

*Sena De Silva, Director-General NACA*

70. The presenter mentioned the FAO and NACA work on developing guidelines for aquaculture certification. The process has been ongoing for the last two years with stakeholder meetings in Asia, Latin America, Europe and the United States. Stakeholders from all links in the value chain have been present at these stakeholder meetings. The final draft of the FAO guidelines for aquaculture certification will be presented at the fourth meeting of the COFI-AQ from 6 to 10 October 2008 in Puerto Varas, Chile. The small-scale farmers are a concern for NACA and for the region. Most aquaculture production comes from small-scale farmers and this large group of people should be part of the development of certification standards and its input should equal its contribution. Small-scale operations are characterized as: (i) users of small land and water areas; (ii) family-scale operations/businesses often using family labor; and (iii) operations based on family land. More than 80 percent of an estimated 12 million aquaculture farmers in Asia are considered to be small-scale aquaculturists.

## **SESSION 4: COUNTRY INITIATIVES IN COMBATING IUU FISHING AND CAPACITY MANAGEMENT AND PROMOTING CERTIFICATION IN FISHERIES AND AQUACULTURE**

71. **Australia** — Australia has been very active in combating IUU fishing during the last biennium. It was noted that port state measures and the global record of fishing vessels were not reported in the previous country presentations, but that they nonetheless were important initiatives that should be supported. Australia mentioned it had been working together with its northern neighbours: Indonesia, Papua New Guinea and Timor-Leste. It was highlighted that this cooperation was highly appreciated.

72. **Bangladesh** — There is some IUU fishing in Bangladesh. The nearshore coastal fisheries are overexploited and there is a lack of awareness about marine resources. Policy reforms have been initiated to manage marine resources better. Bangladesh is working together with BOBP-IGO on these issues and it was noted that the projects conducted within this framework were of great importance for Bangladesh. The implementation of the FAO CCRF related with IPOA and IUU fishing was mentioned. It was requested that APFIC play an active role in promoting regional cooperation in relation to IUU fishing. Certification of aquaculture and fisheries is an important issue in Bangladesh. In particular, the involvement of and the incentives for small-scale farmers and fisher folk are of concern. Certification at the post-harvest level is important for Bangladesh, both for export-oriented products and nationally-consumed commodities.

73. **Cambodia** — The presenter mentioned that the management of fishing capacity is of great importance for Cambodia. Fisheries are an important sector in the Cambodian economy and contribute about 14 percent of the GDP. Annual consumption of fish is 30 to 40 kg per person, which is high.

74. **China** — China is combating IUU fishing at both international and national levels. Gradually reducing motor power and decreasing the number of vessels are important steps to manage the Chinese fisheries. Seasonal fishing lock-out is now strongly implemented in some areas of special importance. Joint law enforcement patrols are carried out with neighbouring countries. In addition, a US-China joint fisheries law enforcement programme on the North Pacific High Sea has been implemented. Certification of aquaculture products has increased rapidly. In the early 1990s a number of national certification schemes were developed. It was noted that only a small number of fishery products are included in certification schemes because of the high costs and limited incentives for small-scale producers to participate. More work should be done to increase the incentives for small-scale producers. It was noted that the FAO guideline for aquaculture certification is a good way to standardize various aquaculture systems to facilitate the trade, provided it is done in a way that does not discriminate against certain producer groups and/or countries. In this respect, some concern about the development of private scheme standards was expressed.

75. **India** — India noted that there are several regulations in place to manage fishing and fisheries in India. Within the territorial waters of the exclusive province of the state they are under province regulation, whereas beyond territorial waters it is the exclusive domain of the union government. The central government regulates foreign fishing vessels, but there is no law to regulate the Indian-owned fishing vessels in the EEZ. However, the existing laws provide for prohibition of fishing by larger motorized fishing vessels in the areas earmarked for traditional and small-motorized crafts. The Indian EEZ is an open access realm for Indian nationals and only possession rights exist. There are no property rights. Implementation of MCS in small-scale fisheries presents a range of unique problems, which relate to the large number of widely dispersed fishers, mixed gear/species and landing points.

76. **Indonesia** — IUU fishing in Indonesia was described in its various forms, including foreign fishing vessels using the Indonesian flag illegally, fishing without a license, fishing in the waters outside of permitted fishing areas, operating prohibited fishing gears, and the transfer at sea of catches from Indonesian fishing grounds. Indonesia now has several initiatives to improve fishing capacity management, among them are: the onboard and port observer programmes; improvement of licensing (including computerization of the registry); verification of vessel

ownership and flagging; and development of staff capability. MCS in cooperation with Australia in the Arafura Sea has been particularly successful and has resulted in a drastic reduction in the number of illegal vessels fishing in Indonesian waters and a 31 percent increase in shrimp trawler productivity following increased surveillance and enforcement. Good practices for onboard and landing site fish handling have been promoted. A system for the certification of manpower is under development. A national initiative for aquaculture certification has been introduced and has now certified 110 grow-out farms and 31 hatcheries. Good aquaculture practices have been promoted.

77. **Malaysia** — An overview of the Malaysian fishing fleet's capacity was presented. The development of a NPOA on IUU fishing and fishing capacity has been an important step during the last biennium. In addition, the enforcement of fisheries regulation has been strengthened. Four fishing zones have been established in Malaysia. A very limited number of commercial fishing licences have been issued since 1992. A buy-back scheme to address vessels fishing within the 5 to 12 nautical miles zone has also been implemented.

78. **Myanmar** — Myanmar is actively trying to limit capture fisheries and increase cultured production. The fisheries and aquaculture of Myanmar have been seriously devastated by Cyclone Nargis. Policies on IUU fishing have been developed and in the future Myanmar will strongly reinforce legislation and aim at improving its implementation. It was noted that the establishment of an MCS system is of crucial importance for IUU fishing and regional sharing of information.

79. **Nepal** — Nepal has no real fisheries exports, however, there is unregulated import and export with neighbouring countries. It was noted that IUU fishing is not only a matter of marine waters but also inland fresh waters. Aquatic resources in Nepal are decreasing because of overfishing in some areas and because of the destruction of the aquatic system by other industries. The lack of knowledge among stakeholders is clear. There is currently no laws/bylaws for the use of aquatic resources, fisheries and aquaculture. The Aquatic Life Protection Act (1960) exists, but is not implemented effectively because of the lack of regulations approved by the Government of Nepal. These are currently in the process of being formulated for approval. Authentic data keeping and a reporting system are still to be established and implemented. In Nepal, there are some groups in rural communities who have been supported to form cooperatives for co-management. Cluster certification approaches may be useful for some small-scale farmers.

80. **Pakistan** — IUU fishing is being addressed through fish stock assessment and development of an exclusive fishing zone act for sustainable management of marine fisheries resources. The Maritime Security Agency has been established and all national fishing vessels have been equipped with a global positioning satellite (GPS) system. Certification is mainly focussed on mandatory requirements related to food safety where HACCP is widely used. Microbiological and chemical laboratories have earned Norwegian international accreditation in 2007 and 2008 respectively. It was noted that FAO had quickly responded to a request from Pakistan to help with modification of fishing boats so they could comply with the onboard hygiene standards of European Union markets.

81. **Philippines** — In terms of the management of fishing capacity there has been a change from open access to limited access. The increase in oil prices has limited fishing activities.

Reduction of the fishing fleet in limited areas of up to 25 percent has been investigated, but not yet implemented. No new fishing licences have been issued. Philippines is actively participating in the RPOA on IUU fishing and has hosted the first coordination committee meeting related to this. Certification is mainly focussed on the post-harvest sector, certified laboratories, and monitoring of red tide.

82. **Republic of Korea** — Progress has been made on both IUU fishing (an NPOA has been developed) and certification of aquaculture and fisheries products. Regulation of fishing capacity is vital for its sustainable utilization. Recovery of fish stocks is considered a cornerstone in the management plan. Under the Fish Stock Rebuilding Plan, established in 2005, 93 species were reviewed and ten species have been targeted so far and the plan will run until 2017 when it is expected that fish stocks will have made a good recovery. An emerging challenge is how to analyse the many factors affecting fish stocks. A decommissioning programme implemented since 1994 bought back 80500 vessels. Certification in fisheries has been investigated. There is an increasing awareness for the necessity of more research on consumers' recognition and willingness to pay for certified seafood products.

83. **Sri Lanka** — The fisheries sector was the hardest hit sector by the tsunami, but has since recovered well. In 2007 the total fish production was 291 000 million tonnes. The presentation mentioned a number of fisheries statistics to underline the recovery and indicated also the increase in fishing boat numbers over pre-tsunami levels. The challenge of managing fishing capacity and IUU fishing were mentioned in this respect. Stock assessments have been carried out for shrimp, lobster, chanks and beach fisheries. Sri Lanka has developed and implemented a licensing system for better management practices in aquaculture and for different types of fishing gears.

84. **Thailand** — It was noted that both IUU fishing and certification of fisheries and aquaculture were important issues for Thailand. It was further noted that it was a large task to manage the fishing fleet capacity and Thailand currently had some new initiatives to reduce fishing capacity. Push nets and trawlers especially were damaging and should be regulated. Other control measures include mesh size control, use of prohibited areas, and expansion of coastal conservation zone. Regional cooperation and coordination were important measures and supported government-to-government joint ventures. Thailand has been involved actively in certification both at a national level and at an international level. A national certification scheme has been developed and Thailand is working together with Malaysia and Myanmar in developing an organic shrimp certification scheme. Tuna certification, seafood safety programmes and traceability systems were also mentioned as activities.

85. **Viet Nam** — An overview of the fishing fleet was given and it was reported that there have been significant actions to address IUU fishing in the last biennium. It was noted that there are some violations of Vietnamese waters by foreign vessels as well as by Vietnamese vessels themselves. Some of the fishing gears used do not conform to national laws, e.g. nearshore trawling, use of push nets, explosives and other damaging fishing techniques. Viet Nam has developed a national plan to combat IUU fishing until 2015 and underlined the need for regional information sharing on IUU fishing. The plan is to review, adjust, and amend legislation documents related to IUU fishing prevention. The use of a vessel monitoring system was mentioned as was training and capacity building of both fisheries and inspectors. In addition, increased port measures would be part of the plan to address IUU fishing activities.

## Discussions

86. During the discussions it was noted that climate change is an important emerging issue that will need the attention of APFIC Members and partners. Climate change has the potential to greatly influence both aquaculture farmers and fisherfolk. Several participants asked questions about what measures can be taken to mitigate the impacts of climate change. SEAFDEC noted that a meeting on climate changes and its influence on fishing communities had recently taken place and SEAFDEC would be pleased to share information available from the meeting. It was also noted that WorldFish Center had established a programme on climate change and cooperation with this new programme was welcomed.

87. It was noted that emerging challenges should include a note on the rising costs of fuel and this affected both fisheries and aquaculture. This is an emerging challenge for both APFIC and APFIC Members and partners.

88. Small-scale farmers and fisheries make a large contribution to the production of seafood products. There should also be a focus on the livelihoods and rights of fishing communities. It was noted that small-scale farmers and fishing communities would have the most difficulties in adapting to climate change since they had few alternatives.

89. It was noted that information management and use of new technologies to manage fisheries (e.g. traceability of products, development of database) was not mentioned in the meeting. It is an important task to utilize the new possibilities and opportunities that these technologies bring.

90. It was recommended that APFIC should promote South-South cooperation and use the capacities and technologies that are available in the region. It was noted that there is a real need to coordinate the efforts of all the regional organizations that share a common interest. A more frequent exchange of information using new technologies should be followed up.

91. In summing up, the chairperson noted that it cannot be assumed that joining certification schemes will increase benefits to producers, although there are clear advantages in some parts of the sector relating to market access. Improvement in other areas such as value chain improvements may be more advantageous. It was noted that Member Governments are developing schemes and these should be in accordance with the guidelines developed by FAO. The chairperson also noted the calls for simple systems that are relatively straightforward to implement and comply with, and which would be accessible to the region and small-scale producers.

92. The chairperson noted with appreciation that there was an increased openness between countries regarding IUU fishing and that country reporting to the RCFM was frank and open, which was not the case previously. Member countries have noted on several occasions that there was a great need for regional coordination and information sharing on IUU fishing. Port state measures and the FAO global vessel recording system were not mentioned in member country presentations largely because these initiatives are still relatively new. Reports on their performance will be included with the next RCFM reporting requests.

## **SESSION 5: POLICY SECTION AND THE CODE OF CONDUCT FOR RESPONSIBLE FISHERIES**

### **Presentations on Regional Policy Issues**

#### **Moving fisheries offshore, economic and policy implications**

*Gabriella Bianchi, FAO*

93. The presenter reported on a workshop held in Bangkok, Thailand from 17 to 19 June 2008 on “Assessment and management of the offshore resources in South and Southeast Asia”. The workshop was organized because of the recognition that many countries in the region are moving towards exploiting offshore resources (both pelagic and demersal), with the expectation that there are substantial untapped resources. The countries of South Asia and Southeast Asia all have policies to promote and expand fishing farther offshore from their coasts. The main policy drivers are: (i) overfishing in inshore areas; (ii) attempting to realise the potential of offshore fishing; (iii) building up catch history records for subsequent negotiations in RFMOs; and (iv) ensuring full utilization so that others cannot fish under the provisions of UNCLOS. Governments are providing a number of incentives to facilitate this move.

94. There is some concern that the policy to move offshore could backfire if not managed effectively and overall fishing capacity could increase even further if effective controls were to put in place. Attention will need to be given to what could happen if the incentives are removed, the potential has been overestimated, or the costs of fishing in the offshore are too high relative to the revenue gained. The workshop provided an excellent overview of the many exploratory fishing/research cruises that have been carried out in the region and identified the main species that may support commercial fishing. The overall conclusion, however, was that these resources are rather limited, and in the case of oceanic tuna, already heavily exploited. There is also a large number of technological, social and ecological constraints that makes offshore fishing a high-risk undertaking.

95. Accordingly, the workshop recommended a precautionary approach to offshore fishing in South Asia and Southeast Asia, starting with in-depth economic feasibility studies, risk assessments — especially with respect to impacts on existing fisheries and potential environmental concerns — and gradual development as more information and knowledge are accumulated. A need for better regional collaboration in carrying out and analysing exploratory and research cruise data was noted. In terms of future management, the role of the RFMOs for highly migratory species was acknowledged and the lack of regional arrangements for other shared fish stocks was highlighted. The workshop recommendations provide a number of important actions that need to be undertaken if South Asia and Southeast Asia are to benefit from the sustainable development of their offshore resources. A workshop report and other relevant documents will be available on the APFIC and FAO Web sites.

#### **Fisheries assessments — a tool for management?**

*Duncan Leadbitter, MSC*

96. MSC has developed a risk assessment evaluation tool based on several other tools for rapid assessment and evaluation of the performance of fisheries. This new integrated approach to assessment can aid judgments in data-poor situations, is cost effective, flexible and applicable to

different categories of fisheries. The tool is also designed to be relevant to management needs. A test case for the tool was an assessment of tuna stocks carried out for the Forum Fisheries Agency (FFA) in the Pacific. It had two main components, namely strategic assessments of the fisheries and advice on areas where performance could be improved. It covered four species and five gear types assessed across the entire distribution of the species. Three criteria were used, namely stock, ecosystem and management and these were rated as being in “good shape”, “requiring minor remediation” or “requiring major remedial work”. Good science was available and lowered the need for risk-based assessments.

97. Mr Leadbitter stated that this tool can be applied to Southeast Asia. He pointed out that such strategic assessments will help implement the Code of Conduct for Responsible Fisheries (CCRF) and implement one of the main recommendations of the APFIC certification workshop and strongly recommended that the assessments be carried out. He also pointed out that the approach was not linked directly to certification and labelling, but added that it could be used as a precursor to a consideration of these, if a client wanted it.

98. During the discussions, an observation was made that the approach is similar to that taken by FAO. The workshop was also advised that funding may be available to assist the process and if there is interest and agreement by countries in the region, a workshop could be held, preferably in the first half of 2009.

### **MPAs and fisheries management — the human dimension**

*Ramya Rajagopalan, ICSF*

99. MPAs are used to regulate extractive use of an area to conserve natural diversity and historical and cultural features. They range from “no-take” zones to “multi-use” zones, although for some people, only “no-take” zones are considered as MPAs. This is not consistent with the accepted definitions. From a fisheries perspective, they are a spatial closure tool and form a part of a package of fishery management tools that can be used. Although there have been many studies on their effectiveness from a biological perspective, there are very few studies on the social implications of MPAs.

100. ICSF examined six case studies to look at ways that livelihood concerns were incorporated into MPAs. The first case was India where there were inadequate consultations, despite the fact that the constitution has significant provisions to support the rights and responsibilities of communities. In Thailand, the participatory approaches were limited and communities did not perceive any benefits. There was also inadequate capacity to manage the MPAs. In Africa, there were also few benefits for small-scale communities living in or adjacent to MPAs; they tended to exclude these communities. In Latin America, the situation was similar.

101. In all cases there was a lack of appropriate alternative livelihood options. In summary, the case studies showed: (i) loss of livelihoods; (ii) ineffective processes; (iii) that whereas natural science plays an important role social science plays no role; (iv) ineffective implementation of legislation and poor institutional capacity; and (v) economic and social benefits do not flow back to communities. It was concluded that there is a need to adopt a human rights approach to MPAs and it is important to recognize that traditional actions for conservation can be used as a starting point for MPAs.

102. During the discussions it was asked whether there was any link between who develops the MPA and the degree of inclusion of social dimensions. The answer was that MPAs are often designated by environment departments for environmental purposes, without any consideration of social objectives, and they were often designed as no-take zones.

### **The World Oceans Conference 2009**

102. The World Oceans Conference 2009 is to be held from 11 to 15 May 2009 in Manado, North Sulawesi and the RCFM was informed about the background and prospectus of the conference. The goal of the conference is to better understand how climate change might adversely affect the social and economic welfare of the people. It is important for the conference to build consensus and hopefully produce a fully endorsed Manado Declaration after the meeting. For more information on the conference please visit [www.woc2009.org](http://www.woc2009.org).

### **Promoting Long-term Sustainable Management of Marine Fisheries by Addressing Illegal, Unreported and Unregulated Fishing — Issues and Challenges for the APFIC Region**

*Ndiaga Gueye, FAO*

104. The presenter first reviewed the pattern of adherence to international fisheries instruments and reporting to FAO. It was also highlighted that IUU fishing issues in the APFIC region have been identified and the relationship between IUU fishing and fishing capacity has been explored. Not all countries in the APFIC region have ratified UNCLOS and UNFSA. It was recommended that APFIC Members should review their commitments to these instruments. NPOA are also important, but only a few APFIC countries have formulated them.

105. The importance of port state measures was emphasized. Their purpose is to ensure that fish associated with IUU fishing do not move through national ports. Work is in progress to develop binding port state measures and APFIC Members need to become more active in this development. Another important tool is a global record of fishing vessels. At present there is no single source of information for fishing vessels and no agreement yet on how to proceed with developing one. Flag state performance initiatives are also being considered, but it is important to agree on what constitutes a responsible flag state and what possible actions can be taken against irresponsible flag states.

106. The importance of VMS as part of the MCS package was also highlighted. FAO is reviewing the status of VMS worldwide through a questionnaire and encourages APFIC Members to participate. FAO is actively carrying out the following activities: (i) developing indicators to assess progress; (ii) reviewing policy and legal issues; and (iii) assessing the VMS status in the APFIC region.

107. The APFIC secretariat provided further information on the status of NPOA in the region: six countries have or are developing NPOA to tackle IUU fishing.

### **Global drivers and their implications for SE Asian fisheries**

*Steven Hall, Director-General, WorldFish Center*

108. The focus of this presentation was fisheries, although many of the conclusions are also applicable to aquaculture. In order to identify the main drivers, it is necessary to first understand

the dependence of people on fisheries and how sensitive national economies and national food security are to fisheries. The top 50 countries who are most dependent on fisheries are those with a low Human Development Index. In Asia, Viet Nam, Indonesia, Bangladesh, China are the countries most highly dependent on fisheries and their products.

109. The most obvious drivers are trade and markets. Global climate and environment are also major drivers with many impacts. A considerable number of analyses of the impact on resources have been carried out but there have been fewer analyses of the impact on communities. A map of vulnerability shows Africa and sub-Saharan Africa as most vulnerable to climate change, but large impacts will also be felt across Asia. Another driver is health and disease, especially high rates of HIV among fishers that have serious implications for fishing communities. In Asia, 36 to 40 million fishers are at risk. Trends in governance are another driver — decentralization and community-based participation are all positive trends as this will mean more emphasis on human rights.

110. The increasing pressure on implementing global/regional agreements will also have an impact, but there is a need to consider negative impacts, for example the links between fishing and crime. There is a known link between vessel decommissioning and the increase in human trafficking. Demography is a driver that is of considerable importance. Migration is high within and between developing countries, but little is known about fishing populations and the impacts of human movement. The causes of migration are complex and include both “push” and “pull” factors that are poorly understood. There is a need to consider migration scenario planning, e.g. consequences of dams and coastal inundation. The presenter concluded with some consideration of how to make research count and have an impact. This requires: (i) a framework for thinking about drivers; (ii) research orientated towards policy; and (iii) including external drivers in fisheries assessments.

111. A question was asked about the impact of resource allocations, e.g. commercial catch versus recreational catch. In reply it was noted that social impacts are rarely considered. The issue of “hidden people” was raised, for example the millions of people who work as crews on fishing vessels. Little is known about these yet the origin of the crew is important in terms of its ability to change. The impact on women was also emphasized and actions such as restructuring of fleets also have a large impact on women as they are often involved in the post-harvest sector.

### **Adapting to challenges — water development and inland fisheries**

*Chris Barlow, Fisheries Programme Coordinator MRC*

112. The presentation outlined the size and importance of the Mekong basin fishery. Many millions of people depend on the Mekong and its fish. Most people in the basin do not have any alternative and fish is extremely important for food security and livelihoods. Small fish are the most important source of food. Fishing activities are extremely varied, ranging from river fishing to rice field fishing. The best estimate of importance of the fishery can be gained by calculating the consumption of fish and then back calculating the yield from the fisheries. An estimated 2.1 million tonnes fish and 0.5 million other aquatic animals are consumed in the lower Mekong each year. Per capita consumption is 29 to 39 kg per year. This corresponds to a yield of 2 to 3 million tonnes per year, which is 2 percent of the world capture fishery. There are little data on value but it is estimated to be in excess of US\$2 000 million.

113. Major threats to the fishery include: (i) changes to extent and timing of annual flood; (ii) barriers to fish migration; (iii) loss of habitat; and (iv) overfishing. Although river fish are highly resilient and able to adapt to a changing environment, overfishing is still possible. Many fish are also highly migratory and undergo migration during their life cycle and it is this cycle that is vulnerable to outside pressures.

114. The main pressure is from the development of hydro projects, especially on the main stream of the Mekong. There are currently three dams in China and plans to build more in Cambodia, Lao PDR and Thailand. Dams cause fundamental changes — changes in hydrology and reduced habitats, less recruitment and possibly changes in migratory cues. The barrier across the river blocks fish migration and fish cannot complete their life cycle. On the positive side, reservoir fisheries may be developed. It is extremely difficult to estimate the impact of dams on fisheries. Information is needed to assess the trade-offs between fisheries versus hydropower and irrigation. Hydropower and irrigation benefits are easier to define and understand, for example the formal economy and focused income versus the informal economy and generalized wealth.

115. The presenter stressed that it is possible to have both hydropower and fisheries with proper planning. However, planning requires institutional systems and information that are not in place and planning is non-existent. In deciding the trade-offs, fisheries are seldom a determining factor. The challenges are: (i) having sufficient fisheries data, especially data relating to economic and livelihood values; (ii) having isolated developments without considering the cumulative effects; (iii) communication problems; and (iv) political imperatives and decision-making that work against fisheries.

116. It was suggested that value should be based on the price that consumers pay and not the “farm-gate” price. It was also pointed out that damming also impacts coastal areas through hydrographic changes such as silting. It is important to understand the underlying driving factor the belief that people can live without fish but they cannot live without rice.

### **Aquaculture developments in the Asian region and associated issues that need attention**

*Sena De Silva, Director-General, NACA*

117. Aquaculture now accounts for 50 percent of the fish consumed in the world and the bulk of this is finfish, mostly freshwater fish. For many of these cultured fish, the farm gate price is less than US\$2 per kg and has not changed for many years. For Asia, it is important to understand the changes in markets and the formation of niche markets. These open up many opportunities and the focus on shrimp needs to change. For example, the fastest growing farm sector is Pangasius from Viet Nam. It is now provided cheaply in overseas markets and is replacing white fish in developed countries. It is extremely important in Viet Nam as it supports the livelihoods of 80 000 people. Another example is rohu, which is cultured in Myanmar and sold to Indian expatriates, mainly in the Middle East.

118. Culture-based fisheries (CBF) refers to the use of existing public waters to grow and harvest fish. CBF are becoming important because of the scarcity of water and the fact that they have many benefits, including no capital outlay, low environmental impact and are community-based. In Asia, 6.25 million km of suitable water is available. If 20 percent of this is used it would add an extra 1.25 million tonnes of food. This form of aquaculture was not popular in the past for various reasons, but is now being increasingly used.

119. Fishery-based aquaculture (FBA) uses wild seed/fish as a source of the cultured species. FBA also has an important place in Asia, especially in the production of high-value species. For the live fish market (grouper and wrasses), aquaculture is now replacing destructive fishing practices and where undertaken responsibly, can be considered as contributing to conserving biodiversity. The presenter then considered several issues associated with the sustainable development of aquaculture. A major concern is the dependence of aquaculture on low value/trash fish sourced from both large-scale commercial and small-scale artisanal fisheries. Of most concern is direct feeding of low value/trash fish in cage culture, although compounded feeds also need fish meal and much of this comes from low value/trash fish. It is estimated that 2.5 million tonnes of material will be needed for direct feeding alone. However, 60 percent of fish meal is used in salmonid and shrimp culture, although these species only account for less than 10 percent of world production. The shift to compounded feed will also have socio-economic impacts that are little understood. Furthermore, use of these low value/trash fish for other purposes are not even considered, e.g. fish used for cat food amounts to 2.5 million tonnes annually.

120. Climate change will have the greatest impact on delta areas. How much does aquaculture contribute to carbon emission and greenhouse gases is a question that is going to be asked more and more. We need answers to this question and will have to accept that public scrutiny of aquaculture will be intense. However, it was pointed out that livestock accounts for 18 percent of greenhouse gases and this gets little scrutiny, despite the fact that globally it contributes more than the transport sector. Shrimp culture is very energy intensive, especially whiteleg shrimp and it is possible that lower impact culture may have a greater role in the future, especially systems that result in carbon sequestration rather than emissions.

121. A comment was made that culture/fisheries interactions need further work, e.g. capture of black tiger shrimp (*Penaeus monodon*) for broodstock. We also need to consider the lack of natural broodstock for future genetic improvement and to preserve the genetic variation.

## **SESSION 6: NEW AREAS OF APFIC'S WORK**

### **Implementation of the Code of Conduct for Responsible Fisheries through the Ecosystem Approach**

*Derek Staples, FAO/APFIC Consultant*

122. At the world summit on sustainable development in 2002 states were requested to introduce the ecosystems approach to marine resource assessment and management by 2010. The ecosystem approach has now been applied widely in many sectors and can be defined as “a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.” In short, it is a holistic management system that promotes sustainable development. This requires finding a balance among the social, economic and ecological dimensions of sustainable development.

123. In a fisheries context, the ecosystem approach to fisheries (EAF) represents a move away from management systems that focus only on the sustainable harvest of target species to a system that considers the management of all the major components in an ecosystem, including associated species, habitats, and vulnerable species and also considers the social and economic benefits that can be derived from harvesting fish. This is not a new concept but one that was already enshrined

in the FAO CCRF. In fact, for fisheries, the ecosystem approach can be considered as simply an approach that assists in implementing the sustainable development principles contained in the CCRF.

124. There are also many other approaches put forward by different sectors and interest groups, e.g. integrated coastal management (ICM), sustainable livelihoods approach, ecosystem-based fisheries management etc. However, it is important to understand that these are all variants of a theme and are all management systems to promote sustainable development. Some place emphasis on ecological sustainability so that human development will continue whereas others emphasize the need to focus on wealth generation so that economic well-being can be achieved. Some include several sectors, such as a large marine ecosystem (LME) approach and others work within a sector. Implementing an EAF requires: (i) participatory approaches through co-management; (ii) moving beyond principles and niceties by developing objectives that can be addressed by management measures; (iii) developing an effective planning/management system that facilitates planning, implementation and monitoring; (iv) implementing EAF at different scales; and (v) integrating fisheries with broader ecosystem management initiatives, e.g. ICM, LME. A range of tools is available to assist in making sure all these basic components of EAF are in place, including tools that facilitate a participatory process and help prioritize the major issues that need to be addressed by management.

125. A checklist on the things that need to be in place in order to claim that the ecosystem approach to marine resource assessment and management has been introduced. The list includes: (i) a regional road map for fisheries based on a broad ecosystem approach; (ii) national policies outlining goals under an ecosystem approach; (iii) fisheries plans outlining objectives, management measures and how their performances are to be assessed; (iv) local community plans that align with national policies and fisheries plans; (v) fisheries better integrated with broader planning initiatives such as ICM; (vi) strengthened MCS (both self-regulatory and preventive systems and regulatory systems under both formal and informal laws and regulations); and (vi) having monitoring and evaluation systems in place.

### **Reducing Vulnerability and Improving Fisheries Livelihoods of Coastal Communities**

*Richard Gregory, FAO/APFIC Consultant*

126. Many fishing communities are caught in a poverty trap because they are dependent on a resource base that is declining. This requires more fishing and increased costs, which drives them further into poverty. Finding alternative livelihoods for these people is not easy. Most have limited access to land, capital or assets and live in remote areas. Many of the solutions offered are usually very simplistic and are not based on a full analysis of the costs and benefits of these alternatives.

127. Alternatives can be categorized as being within a community or outside of the community and being extractive or non-extractive. Extractive options within the community, such as aquaculture, fit with existing activities and are close to existing houses. However, this type of option has a number of negative impacts, including the fact that it can suppress the local price of fish and its sustainability is questionable. Because fish need to be caught as feed for aquaculture this can increase rather than decrease fishing pressure. One such example is spiny lobster culture in Viet Nam.

128. Policies such as moving fleets to fish farther offshore can provide alternatives, but increased fishing capacity that develops offshore can move back inshore and cause more problems in the longer term. Another option is to improve marketing opportunities, but again in remote areas these markets can be limited. Nevertheless, innovation is occurring — a building made especially to harvest bird’s nests for bird nest soup in southern Thailand was given as an example.

129. Non-extractive options such as tourism may be available, but a number of prerequisites is required and many fishers are not in position to benefit. Tourist investors are often outsiders. At the very best, fishers may be hired to man tourist boats etc. There are often other downsides, including increasing prices and the cost of living in the area. Other resource-independent options such as small shops and business are a possibility, but need business skills. Handicrafts and village industries are one such option. Most fishing communities do not have access to capital and credit. Formal credit systems see lending to these communities as too high a risk and are reluctant to lend. To offset this, many schemes such as revolving schemes have emerged.

130. In conclusion, it was suggested that it is “time to face up to some truths”, including that a growing number of coastal fishers are going to struggle to maintain their livelihoods. Many do not want their children to take up their occupation and although diversification may be able to maintain status quo, it will not be sufficient to move these people out of poverty. The solution is much more long term and governments have a responsibility to assist fishers to move away from their dependency on fishing and assist with compensation, e.g. fishing boat and gear “buy-back programmes”. Most importantly, education and skills training is needed for the next generation so that this group is prepared to adapt to future opportunities and options.

## **Discussions**

131. During discussions it was noted that there is a need to find alternatives for unsustainable fishing within the fisheries sector as many fishers do not want to move out of the sector. It was accepted that education and skills training for young people might be a long-term solution, but options within the sector are needed now.

132. For some people fisheries is already an alternative livelihood. Taking up work on larger fishing vessels was one example mentioned. When looking for alternatives to fishing it was noted that it is important to remember there is also an increased demand for fish both globally and locally and some people need to do the fishing.

133. The meeting was informed that SEAFDEC was to organize a meeting on livelihood alternatives sometime next year.

## **SUMMARY AND RECOMMENDATIONS FOR REPORTING TO APFIC**

134. Fisheries and aquaculture remain very important production sectors in the APFIC region and the livelihoods of large numbers of people in the region are connected to them. Although there are great challenges facing the sector, significant advances are being made in reforming it. Fisheries continue to be under pressure and the need for more effective management is increasingly urgent. Aquaculture offers opportunities to the region, but must continue to improve its performance.

135. The participants at the APFIC RCFM recognized that the APFIC Members are adapting well to new challenges that are facing fishers and aquaculturists in the APFIC region. The RCFM emphasized the need for continuing commitment from key stakeholders and recognized the cooperation and collaboration that is emerging in the region.

136. The participants at the RCFM reviewed the main themes of the programme of work of APFIC over recent years and were informed of the developments and achievements of the APFIC member countries. In this respect, the RCFM concluded that:

#### **Low value trash/fish**

137. Some progress has been made in reducing low value/trash fish production. Improvements have been made in fishing gears, zoning and some efforts have been made to reduce capacity in the trawl sector. Greater advances have been made in the area of value addition and improved handling contributing to improved utilization of catch.

138. However, there remains still significant production and a high proportion of low value/trash fish is raising concern about the growth of overfishing, including juveniles from high-value long-living species and this requires further attention by the member countries. There has been some progress in replacing the use of low value/trash fish with compounded feeds in aquaculture.

#### **Co-management**

139. The RCFM emphasized the importance of mainstreaming co-management approaches as part of fisheries management. Based on feedback from member countries, it is apparent that co-management has been increasingly mainstreamed and now forms a significant part of fisheries management, particularly the management of inland, inshore and coastal fisheries and some forms of aquaculture in the region. Co-management approaches differ across countries, but the fundamental aspect of improved dialogue on decision-making between fisheries agencies and fishers and fish farmers is common to all.

#### **APFIC work programme in the current biennium**

140. The RCFM recommends that the action plans and recommendations developed as part of the APFIC regional consultative workshops on “IUU fishing and capacity management” and “Certification in aquaculture and fisheries” provide a basis for guiding the work of member countries and regional organizations and others in the region. In this respect, the RCFM recommended that APFIC continue to monitor member country progress against these action plans noting the FAO guidelines for aquaculture certification will be submitted to the third session of COFI-AQ.

#### **What APFIC can do**

141. APFIC can promote understanding of how to implement ecosystem approaches to aquaculture and fisheries management, particularly as applicable to the small-scale production sector, developing offshore fisheries and in the data-poor situations that prevail in the APFIC region. APFIC can promote the assessment of fisheries for their management needs.

142. APFIC can explore the human dimension of fisheries and aquaculture in the region as these subsectors restructure or are driven to change by internal and external forces. This would form the basis of advice on the best approaches to improving livelihoods and securing the rights of fishers, aquaculturists and their households.

### **What APFIC can help coordinate**

143. APFIC should continue to facilitate information sharing on key issues relating to fisheries and aquaculture between regional organizations and arrangements and member countries. This would be achieved through continuing the regional consultative forum role of APFIC and through targeted communications and networking activities.

144. APFIC should monitor the recent changes in member countries' policies and the drivers of these changes. More specifically, APFIC should monitor the main biennial themes of APFIC such as IUU fishing, managing fishing capacity, certification, co-management and low value/trash fish.

145. APFIC should continue to promote improved reporting and information, particularly in the areas where data is not reported in sufficient detail, and focus more on information relating to stocks and systems and issues relating to management, including socio-economic data.

146. APFIC should engage with subregional processes that aim to develop more effective management of fisheries and aquaculture, and broader environmental-focused initiatives (e.g. lost and abandoned fishing gear).

### **What APFIC needs others to do**

147. The RCFM acknowledged that there are many areas of work relating to the issues confronting fisheries and aquaculture in the region. The RCFM also recognized that this would require extended activity, research or analysis which lay beyond the capabilities of APFIC to undertake directly. The following tasks require attention and APFIC urges organizations and arrangements to undertake these and communicate the results to APFIC for onward dissemination:

- review how fisheries and aquaculture can adapt to or even benefit from climate change;
- evaluate the benefits (human and environmental) of MPAs and their trade-offs;
- assess the impact of subsidies on fisheries and aquaculture in the region and the effect of their removal;
- identify the positive and negative impacts of reducing fishing overcapacity, in particular strategies for mitigating negative human impacts;
- develop effective and practical methods for assessing fishing capacity and strategies for encouraging capacity reduction;
- promote harmonization of food standards and certification systems for member countries;
- develop regional cooperation to manage fishing capacity and combat IUU fishing;
- report on changing markets and trade in the region, in particular the effects of FTAs, economic integration and the WTO;

- review the implications of increasing fuel and feed prices for the sector;
- collate and review existing information on resource status in the region and develop indicators for system/fishery health;
- facilitate the harmonization of policies at provincial and national levels (as well as across agencies); and
- plan effectively for water development with minimal negative impact on inland fisheries.

## **CLOSING OF THE RCFM**

148. In closing, the APFIC secretary thanked the host, the Ministry of Marine Affairs and Fisheries, Indonesia, and the local hosts, the Provincial Fisheries Department and the governor and provincial staff of North Sulawesi, for their excellent facilitation of the second RCFM.

149. The secretary also thanked all the participants from APFIC member countries and other organizations for their active participation. The sharing of information and ideas between the member countries remains a major APFIC objective and was clearly achieved over the course of the three days. APFIC remains the only regional policy forum for the exchange of information on Asian fisheries and aquaculture. The attendance and participation of several regional and international organizations bode well for closer future collaboration over the development of the sector. The recommendations of the RCFM and the draft report of the RCFM were to be presented to the thirtieth APFIC session in Manado, to be convened from 11 to 13 August 2008.

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## AGENDA



**APFIC 2<sup>nd</sup> Regional Consultative Forum Meeting**  
Manado, North Sulawesi, Indonesia, 6-9 August 2008

**TUESDAY 5 AUGUST 2008**

15.00 – 17.00 **Pre-registration at the Secretariat Room**

**DAY 1: WEDNESDAY 6 AUGUST 2008****Introduction**

08.00 – 09.00 **Registration**

09.00 – 10.15 **Opening Ceremony**

*Welcome remarks by Prof. Widi Agoes Pratikto APFIC Chairman and Secretary General, Ministry of Marine Affairs and Fisheries, Republic of Indonesia*

*Statement to the RCFM by the Secretary of APFIC, on behalf of the Assistant Director-General, FAO Fisheries Department*

*Opening speech by Dr S H Sarundajang Governor of North Sulawesi, Republic of Indonesia*

10.15 – 10.45 **Morning Tea/Coffee and Group Photo**

10.45 – 11.00 **Forum arrangements**

*Simon Funge-Smith, Secretary APFIC*

**Session 1: Review of status and challenges in fisheries and aquaculture in the region**

11.00 – 11.30 **Keynote address:**

**“Adapting to emerging challenges – promotion of arrangements for the management of fisheries and aquaculture in Asia-Pacific”**

*Prof. Hasjim Jalal, International Ocean Law Advisor to the Minister, MMAF, Republic of Indonesia*

11.30 – 12.00 **“Status and potential of fisheries and aquaculture in Asia and the Pacific (2008)”**

*Simon Funge-Smith, APFIC Secretary*

12.00 – 12.45 **Country reports – actions and achievements on items identified by the 29<sup>th</sup> Session of APFIC**

*Presentations of actions and achievements by Member country Representatives  
Each country 5 minutes*

*– Australia, Bangladesh, Cambodia, China PR, India, Indonesia, Japan, Malaysia*

12.45 – 14.00 **Lunch**

14.00 – 14.45 **Country reports – actions and achievements on items identified by the 29<sup>th</sup> Session of APFIC (cont.)**

*Presentations of actions and achievements by Member country Representatives  
Each country 5 minutes*

*– Myanmar, Nepal, Pakistan, Philippines, Republic of Korea, Sri Lanka, Thailand, Viet Nam*

## Session 2: Capacity management and IUU Fishing in the Asia-Pacific Region

- 14.45 – 15.00    **“APFIC Action plan to Capacity reduction and combat IUU fishing in the APFIC region”**  
*Outcomes of the APFIC Regional Consultative Workshop – Derek Staples, FAO Consultant*
- 15.00 – 15.30    **Regional initiatives promoting more effective fisheries management**  
*“The Regional Plan of Action” – Indonesia/Australia joint-coordinators*  
*“SEAFDEC support to an ASEAN Regional fisheries development and management mechanism” – Magnus Torell, SEAFDEC Secretariat*
- 15.30 – 16.00    **Afternoon tea/coffee**
- 16.00 – 17.30    **Regional initiatives promoting more effective fisheries management (cont.)**  
*“Bay of Bengal Programme-IGO initiatives for fisheries management – Yugraj Yadava, Director BOBP-IGO*  
*“COBSEA and fisheries – bridging the gap” Srisuda Jayaraband, Secretary, COBSEA*  
*“WWF’s Coral triangle programme – regional dimensions” – Geoffrey Muldoon, WWF(CTI)*  
*“Arafura-Timor Sea Action Plan” – ATSEA*  
*“Towards addressing fisheries concerns through implementation of Integrated Coastal Management” – PEMSEA R. Lotilla, Executive Director PEMSEA*
- 17.30 – 17.55    General discussion
- 17.55 – 18.00    5 minute summary by RCFM coordinator

## DAY 2: THURSDAY 7 AUGUST 2008

### Session 3: Certification in fisheries and aquaculture

- 09.00 – 09.30    **Regional review “Overview of fisheries certification”**  
*Miao Weimin, APFIC Secretariat*
- 09.30 – 10.00    **Regional review “Overview of aquaculture certification”**  
*Jesper Clausen, APFIC Secretariat*
- 10.00 – 10.30    **“Strategies and recommendations for certification in fisheries and aquaculture”**  
*– Outcomes of the APFIC Regional Consultative Workshop – Pham Trong Yen, MARD, Viet Nam*
- 10.30 – 10.45    **Morning tea/coffee**
- 10.45 – 12.25    **Presentations on the certification theme**  
*“Regional cooperation for fisheries trade” – Sudari Pawiro, INFOFISH*  
*“Aquaculture certification guidelines – common frameworks and small-scale producers in Asia” Sena De Silva, Director-General, NACA Secretariat*
- 12.25 – 12.30    5 minute summary by RCFM coordinator
- 12.30 – 14.00    **Lunch**

#### Session 4: Country reports on actions taking under the APFIC themes

14.00 – 15.30 **Country presentations – initiatives in combating IUU fishing/capacity management and promoting certification in fisheries and aquaculture.**

*Presentations of actions and achievements by Member country Representatives 5 minutes per country: Viet Nam, Thailand, Sri Lanka, Republic of Korea, Philippines, Pakistan, Nepal, Myanmar, Malaysia, Japan, Indonesia, India, China PR, Cambodia, Bangladesh, Australia,*

*(Note: There will be additional information in posters from non-presenting countries)*

15.30 – 16.00 **Afternoon Tea/coffee**

#### Session 5: Policy section and the CCRF

16.00 – 16.55 **Presentations on regional policy issues**

*“Moving fisheries offshore, economic and policy implications” – Gabriella Bianchi, FAO*

*“Fisheries assessments – a tool for management?” – Duncan Leadbitter, MSC*

*“MPAs and fisheries management – the human dimension” – Ramya Rajagopalan, ICSF*

16.55 – 17.00 5 minute summary by RCFM coordinator

17.00 – 17.30 **“The World Oceans Conference 2009”**

*Presentation by Dr S H Sarundajang Governor of North Sulawesi*

18.00 – 19.30 **Poster Session & reception**

*Country posters or exhibits on key issues that are being addressed by the Members “A focus on a success story”. In conjunction with light buffet reception*

#### DAY 3: FRIDAY 8 AUGUST 2008

#### Session 5: Policy section and the CCRF (continued)

08.30 – 10.40 **Presentations on regional policy issues**

*“Promoting Long-term Sustainable Management of Marine Fisheries by Addressing Illegal, Unreported and Unregulated Fishing – Issues and Challenges for the APFIC Region” – Ndiaga Gueye, Chief, FAO Fisheries Liaison Service, FIEL*

*“Global drivers and their implications for SE Asian fisheries.” – Steven Hall, Director-General, WorldFish Center*

*“Adapting to challenges – water development and inland fisheries” – Chris Barlow, Fisheries Programme Coordinator, Mekong River Commission Fisheries Programme*

*“Development of a Bay of Bengal Large Marine Ecosystem programme” – Participating country*

*“Aquaculture developments in the Asian region and associated issues that need attention” Sena De Silva, Director-General, NACA Secretariat*

10.40 – 10.45 5 minute summary by RCFM coordinator

10.45 – 14.00 **Long break for Friday Prayers**

## Session 6: Summary and recommendations for reporting to APFIC

14.00 – 14.50 **New areas of APFIC's work**

*“Implementation of the Code of Conduct for Responsible Fisheries through the ecosystem approach” – Derek Staples, APFIC Consultant*

*”Reducing vulnerability and improving fisheries livelihoods of coastal communities”  
– Rick Gregory, APFIC Consultant*

14.50 – 15.45 **Plenary Discussion and RCFM Recommendations**

*This will be a presentation and discussion of a combined set of conclusions from the RCFM for discussion and general consensus*

## DAY 4: SATURDAY 9 AUGUST 2008

09.00 – 16.00 **All day field trip to Bunaken island**

## Opening Remarks

by  
**Prof. Widi Agoes Pratikto, APFIC Chairman and Secretary General of the  
 Ministry of Marine Affairs and Fisheries of the Republic of Indonesia**

Excellencies, Distinguish Participants, Ladies and Gentlemen,

Welcome to the opening of the Asia-Pacific Fishery Commission 2<sup>nd</sup> Regional Consultative Forum Meeting or RCFM in Manado, Indonesia. As APFIC Chairman of the period of 2007-2009, I am very grateful that you are willing to cooperate and share your vision for the development of the marine and fishery sector in the region of Asia-Pacific. While as the Secretary General of the Ministry of Marine Affairs and Fisheries of the Republic of Indonesia, on the behalf of the Minister and all of our staff, I am deeply honored that we are trusted to host such an important meeting.

The RCFM is a regional forum created the secretariat of APFIC to facilitate the creation of marine and fishery policy which will be implemented in the region of Asia-Pacific. The 2<sup>nd</sup> RCFM is a regional forum for agreeing on actions needed to adapt to the merging challenges to fisheries and aquaculture in the Asia-Pacific region. The focus of this Manado meeting is to look at the promotion of effective arrangements for managing fisheries and aquaculture in the region. The participants of this meeting numbered approximately 140 participants, ranging from the representatives of the 25 APFIC member countries, non-governmental organizations and numerous marine and fishery experts including private sectors.

The agenda of this meeting includes the illegal, unreported and unregulated (IUU) fishing and the measures to combat it, capacity management, certification and responsible fisheries. We hope that this meeting provides precious and important recommendation for the policy-making session during the 30<sup>th</sup> APFIC Main Session based on the spirit of cooperation and togetherness to address the issues. The main session is the policy-making session in which the 25 member countries formulates, amend or change Asia-Pacific fishery related policies and implement them. APFIC was one of the earliest regional agreements, formed in 1949 and focused on cooperation for developing fisheries in the region of Asia-Pacific.

The ocean is shared by all of us. One of the oldest human livelihood activities is fishing and the ocean has since provides an abundance of natural resources to support this human activities. In order to ensure that we share the same norms of its sustainable utilization, the United Nation created a convention named the United Nation Convention of the Law of the Sea or UNCLOS. The UNCLOS defines territorial water, including the Economic Exclusive Zone (EEZ) of coastal states. Fishing activities in this territorial water now become the interest of the coastal nation. That is the main reason that Food and Agriculture Organization as the UN body which responsible for the availability food and nutrition created several agreement, for example, the United Nations Fish Stocks Agreement (UNFSA) in order to define the responsibilities of nations which shared fisheries resources to cooperate. This is simply because that the effort of managing the ocean natural resources needs to be done together, through bilateral, regional and global cooperation.

This raises the issue of Illegal, Unreported and Unregulated (IUU) fishing. Fish is undoubtedly a shared natural resources. Most fish in the ocean, especially species with high economic value is pelagic. They breed in one area and then spend the rest of its life reaching adulthood travelling the ocean following an instinct forged by million of years of evolution. Therefore, in order to use the ocean's natural resources sustainably and responsibly, fishing activities in an industrial scale need to be closely regulated. As we understand, the ocean's fish stock is steadily decline. This is certainly not a very good development in the

region of Asia-Pacific where fishing is one of the main livelihoods, even the only mean of living, of its inhabitants.

The International Plan of Action (IPOA) provides direction for a concerted effort and measures to implement the management of fishery resources globally. To show its commitments, Indonesia initiated the Regional Plan of Action for Responsible Fisheries including to Combat IUU Fishing or RPOA for short, together with Australia. The RPOA is the derivative of the IPOA and draws from other existing international agreements. The RPOA emphasizes on greater compliance amongst the 10 countries in the region of Asia-Pacific: Indonesia, Australia, Malaysia, Viet Nam, Filipina, Timor-Leste, Singapore, Thailand, Papua New Guinea, and Brunei Darussalam.

One of its most important measures is Port State Measures (PSM). PSM are requirements to established or interventions undertaken by port states which a foreign fishing vessel must comply with or is subjected to as a condition for use of ports within the port state, including requirements related to prior notification of port entry, use of designated ports, restrictions on port entry and landing/trans-shipment of fish, restrictions on supplies and services, documentation requirements and port inspections, as well as related measures, such as IUU vessel listing, trade-related measures and sanctions. If its implemented, it will severely impede the practice of IUU fishing.

Still in the subject of the management of fisheries, there are some organizations specifically created with stronger management functions, providing advice and managing scientific advice. These Regional Fisheries Management Organizations or RFMOs have dedicated and focused their functions, limiting their scope, and providing clear direction for their action, which includes drastic measures such embargo of a nation's fishery product to enter international market or the market in the member of the related RFMO's. The common feature of these RFMO's is the intent to promote responsible fisheries and encourage the development of norms of practice and behaviour within the sectoral focus of the body or arrangement.

However, still further harmonization and coordination of measures is needed. Communication and cooperation between this RFMO's should be encouraged along with knowledge sharing for the purpose of fisheries management and to implement the practice of responsible fisheries. Also we should not forget that standardize measure and measurement between these RFMO's is needed. This will allow coordinated the implementation and the enforcement of fishery management measures.

We have our differences, however we should not let it kept us to work together and discussing important regional issues in order to find the best way to address it. This democratic and open forum should be utilized to the maximum. That is why APFIC and the host government try to invite the marine and fisheries related stakeholders.

We believe that the results of this APFIC 2<sup>nd</sup> RCFM meeting are recommendations that scientifically proven and implementable. I wish you to have a good session which filled with a healthy discussion and enjoy your stay in Manado.

Thank you.

## **Opening Statement**

**by**

**Dr Simon Funge-Smith, Secretary of APFIC on behalf of the  
Assistant Director-General, FAO Fisheries and Aquaculture Department**

Dr S H Sarundajang, Governor of North Sulawesi;  
Prof. Widi Agoes Pratiko, APFIC Chairman and Secretary General, Ministry of Marine Affairs and Fisheries;  
APFIC Member Country Representatives;  
APFIC Partner organizations and NGOs;  
Observers and other participants;

Ladies and Gentlemen

On behalf of Mr Ichiro Nomura, Assistant Director-General of the Food and Agriculture Organization of the United Nations, and as the Secretary of the Asia-Pacific Fishery Commission, I welcome you all to the APFIC Second Regional Consultative Forum Meeting, to be held here in Manado, Indonesia, over the next three days.

APFIC is the oldest fisheries Commission in the World and over time it has undergone many changes. In its current role APFIC acts as a “consultative forum” to better inform Members of issues affecting the sustainable development of fisheries and aquaculture across the APFIC region and to bring the Members together to plan actions and strategies to address those issues.

The Regional Consultative Forum Meeting precedes the main APFIC Session and aims to provide Members with a neutral forum to discuss issues and develop recommendations for the Commission to consider and act on. This has involved forging better links with regional partner organizations and relevant non-governmental organizations across the region. It is very encouraging to see many of our partners participating here today. Thank you for your support.

The Consultative Forum Meeting is now held every two years and are based on number of inter-sessional workshops on selected issues that the Commission considered to be of major regional importance. Over the last biennium, the Commission has focused its attention on two important issues – “Managing fishing capacity and IUU fishing in the Asian region” and “Certification Schemes for Capture Fisheries and Aquaculture”. The Secretariat has now organised a number of regional workshops on each of these topics. Both these issues will have a major impact on the future supply and demand for seafood in the region and you will have the opportunity to hear about the outcomes of these during the forum meeting.

The theme of this Consultative Forum Meeting is “Adapting to emerging challenges: promoting effective arrangements for managing fisheries and aquaculture in the Asia-Pacific region”. This builds on the theme of the first Consultative Forum Meeting that was held in Kuala Lumpur in 2006 – “Reforming Fisheries and Aquaculture in the Asia-Pacific”, which recognised the need for improved management of the region’s natural resources and a move towards more sustainable development. In particular, the Commission recommended that co-management become mainstreamed much more into government fisheries and aquaculture activities and used to address key national policy objectives including reducing overcapacity and overexploitation of both marine and freshwater fisheries. It also recommended that the issue of increasing catches of low value/trash fish be tackled by (i) improved management of fisheries (ii) improved utilization for human consumption and (iii) improved feeds for aquaculture. We hope to review our progress on these two fronts during this forum meeting.

As part of your contribution to the Consultative Forum Meeting, you will also be asked to reflect on the recommendations and actions suggested by the two APFIC workshops held this biennium and hopefully,

formulate these into action plans that can be endorsed by the full Commission Session and implemented in your countries. We will also be looking at what new themes, APFIC should be considering over the next biennium. The APFIC Executive Committee has identified a range of topics including the ecosystem approach to fisheries and sustaining livelihoods and food security to be worthy of a much more concerted effort and we will be considering these on the last day of the forum.

I would like to stress that this is your forum. This forum meeting is not intended to be a seminar where participants take a passive role and simply listen to a number of speakers. Members will be encouraged to share their experiences throughout the forum meeting and in preparation have been asked to provide presentations and posters on the forum themes to facilitate the exchange of information and opportunity for discussion and comment. We are focusing on “success stories” – what has worked and why so that we can all share in these successes.

Members will also be asked to develop a set of recommendations that will be considered by the subsequent Commission Session. This is an opportunity to address many of the issues that have plagued fisheries and aquaculture development in the past.

Before I conclude my remarks, I would like to take this opportunity thank the Member countries, Regional Organization partners and everyone who has enthusiastically contributed this Regional Consultative Forum Meeting and the two inter-sessional workshops.

I would thank the Government of the Republic of Indonesia and the Governor and people of North Sulawesi for kindly hosting this meeting and making everyone feel welcome at the forum. Thanks are especially due to the Chair of APFIC and the staff of the Ministry of Marine Affairs and Fisheries, Indonesia, who have been responsible for much of the meeting organization. Lastly, but not least, I thank you, the participants, and urge you to focus your energy over the next three days to support the new course for fisheries and aquaculture in the Asia-Pacific region that is being charted by APFIC and its partners.

Thank you.

## Opening Speech

by

**Dr S H Sarundajang, Governor of North Sulawesi, Republic of Indonesia**

His Excellency, Assistant Director General of FAO, Mr Ichiro Nomura; the Honourable Secretary, General of the Ministry of Marine Affairs and Fisheries of the Republic of Indonesia, as Chairman of APFIC; the Regional leaders council of North Sulawesi; distinguished guest, ladies and gentlemen.

Greetings to all of you.

First of all, let us praise God almighty for his blessings and grace that we can gather here to attend the opening ceremony of the second RCFM that will take place from 6 to 9 August 2008, continued with the 30<sup>th</sup> Asia-Pacific Fishery Commission (APFIC) main Session from 11 to 13 August 2008 in Manado, North Sulawesi. In this opportunity, please allow me, on behalf of the government and people of the North Sulawesi province to extend my appreciation and gratitude for Manado to be chosen as the venue for this event and to express our warmest welcome to the “land of the waving coconut trees” North Sulawesi Province, with Manado City as the capital, is located in the Northern peninsula of Sulawesi island, bounded by Sulawesi sea, the Pacific Ocean and the Republic of Philippines on the North Side and by Maluku sea on the east side. To the South and West are bounded by Tomini Gulf and Gorontalo province. The total area of North Sulawesi is 15 376 square km comprising nine regencies and four cities. The total population of the province, according to the 2005 census is 2 121 234 people. This province is commonly known as the land of the waving coconut trees, the land of smiling people and the peaceful province.

North Sulawesi has much potential to be developed among others: plantation sectors for coconut, clove and nutmeg and agricultural sectors for crops such as rice and vegetables. In the fisheries sector, the province is surrounded by vast sea waters with potentials for tuna, cakalang, marlin and numerous other fish species. Many demersal, coral-dependent, and small pelagic fish are produced in North Sulawesi and exported to other countries. The fisheries economic gravity and contribution to the province continues to increase, which leads the provincial government to strategically put fisheries in the main development priority, as it generates significant income for the locals, both people and government. This province has a coastline of 1 837 kilometres, 286 small islands and 190 000 square kilometre of EEZ

In the tourism sector, there are numerous interesting and fascinating places to visit, among others, the Bunakan marine national park, surrounding Bunaken island, which a tourism resort that have captivated many foreign and local divers and tourists. There are wildlife reserve parks for you to enjoy indigenous flora and fauna, such as the Bogani Nani Wartabone and Tangkoko Batu Angus national parks, which is particularly famous for the *Tarsius spectrum*, the smallest monkey in the world that is only 10 cm in height.

In 1997, an ancient fish species was found in the waters of North Sulawesi, the coelacanth, belonging to the order of Coelacanthiformes. Based on fossil records, coelacanth first appeared on earth 360 million years ago during the “great fish age” in the paleozoic era, 100 million years before the birth of dinosaurs in the Jurassic period. This species is different from the one found in South Africa, with an estimated divergence time between the two of 30 to 40 million years, and named *Latimeria menadoensis*, which the locals call “*raja laut*” or king of the sea. In 1998 and 2007, two coelacanths were unintentionally caught alive by local fishermen in Manado bay.

Considering the potentials in marine resources and fisheries in North Sulawesi, it also reminds us of how important it is to maintain a sustainable ocean management, particularly in the effect of climate change, as it is a major source of income for the locals. That is why we are holding the world ocean conference 2009 on may 11 to 15, to discuss the impacts of climate change on oceans and the role of oceans on climate change among heads of states with ocean territories, experts, NGOs and private sectors from all over the

world. There is a national committee for this event, which is chaired by the Minister of Marine Affairs and Fisheries, Mr Freddy Numberi, and myself, as the vice chairman.

In its preparation, the local government is undertaking major steps in improving the infrastructures of the area. However, it is not only for this reason, but to prepare North Sulawesi to look forward into making this province an attractive tourist destination and for mice. In this regard, we are also ready to open up new opportunities for investments and welcome the investors who are interested in doing business in North Sulawesi, and moreover be more familiar with Indonesia as a whole.

I hope that the meeting that will take place within the next several days in Manado will be fruitful and especially give contribution to the development of fisheries and marine resources for the participants. I believe that the information shared in this meeting will bring mutual benefits for all of us, in hope that the marine resources we have may be properly and adequately utilized and maintained.

Finally, I would like to conclude by expressing my sincere thanks once again to the participants and organizers of this event, in particular, the Ministry of Marine Affairs and Fisheries of the Republic of Indonesia and APFIC. Hopefully this event will strengthen the cooperation relationship between the members of APFIC and especially with the government of North Sulawesi province.

Thank you. God bless us all.

## EXECUTIVE SUMMARIES

***COBSEA and fisheries – bridging the gap****Srisuda Jayaraband*

The Coordinating Body on the Seas of East Asia (COBSEA) was initiated as a United Nations Environment Programme (UNEP) Regional Seas Programme for the East Asian Seas region in 1981. COBSEA currently includes ten member countries; Australia, Cambodia, People's Republic of China, Indonesia, Republic of Korea, Malaysia, Philippines, Singapore, Thailand and Viet Nam. COBSEA was formed to strengthen regional cooperation for the management of coastal and marine resources in the East Asian Seas region. It is governed by its "Action Plan for the Protection and Sustainable Development of the Marine and Coastal Areas of the East Asian Seas region" and the recently adopted "New Strategic Direction for COBSEA (2008-2012)". As outlined in the New Strategic Direction for COBSEA, COBSEA will focus on three main thematic areas during the coming five years:

- Marine- and land-based pollution;
- Coastal and marine habitat protection; and
- Management and response to coastal disasters.

These areas will be addressed through strengthening information management, enhancing national capacities, addressing strategic and emerging issues and improving regional cooperation.

In order to effectively address these areas, cooperation with the fisheries sector will be required. Fisheries/aquaculture management and coastal and marine environmental management are closely linked. However, in this region, the mandate for coastal and environmental management primarily lies with Ministries of Environment at national level and organizations such as UNEP/COBSEA at the regional level. At the same time, fisheries and aquaculture issues are addressed by Ministries of Marine Affairs and Fisheries or similar at national level and organizations such as Food and Agriculture Organization (FAO) Regional Office for Asia Pacific (RAP)/Asia-Pacific Fisheries Commission (APFIC) at the regional level. This division of mandate and responsibility sometimes hinders the integration of coastal and marine environmental management with fisheries management. In most countries, and even at regional level, there are opportunities for improving coordination and collaboration between these entities to further advance the management of our coastal and marine resources.

***COBSEA and Fisheries***

Since the national focal points of COBSEA are primarily located within the Ministries of Environment among its member countries, COBSEA has had a very limited number of activities directly related to the fisheries and aquaculture sector in the past. However, the need to work more closely with the fisheries sector has been recognized, especially in the areas of information management and strategic and emerging issues regarding marine- and land-based pollution and coastal and marine habitat protection. In this regard, the COBSEA member countries have expressed the wish that COBSEA, when working on environmental matters related to fisheries, should approach regional fishery organizations for collaboration.

***The East Asian Seas Environment Outlook (EASEO)***

As part of its activities on information management, COBSEA has initiated the development of a state of marine environment report for the East Asian Seas region, entitled the "East Asian Seas Environment Outlook (EASEO)". The EASEO is intended to provide the latest scientifically credible information to raise awareness among policy-makers and general public regarding the state and trend of the environment in East Asian Seas region through presenting status and trend of the coastal and marine environment, analysing ongoing management initiatives and case studies.

With regard to fisheries and aquaculture, the EASEO will include information on the state and trend of fisheries resources, relevant legislative and technical management initiatives as well as the socio-economic development. In order to ensure relevant and up-to-date information on the fisheries sector, COBSEA has established close cooperation with the Southeast Asia Fisheries Development Center (SEAFDEC) and FAO/RAP for the development and review of this chapter.

### ***The East Asian Seas Knowledgebase***

As part of its activities on information management, COBSEA has initiated the development of a regional knowledgebase for collecting and synthesizing information from coastal and marine environment related activities in the East Asian Seas region entitled the “East Asian Seas Knowledgebase” together with the Tropical Marine Science Institute (TMSI), National University of Singapore.

With regard to fisheries and aquaculture, the East Asian Seas Knowledgebase intends to provide a quick overview of the fisheries sector in relation to other economic sectors relevant to the coastal and marine environment. The East Asian Seas Knowledgebase will also include information on fisheries-related organizations. There is an opportunity for closer cooperation between COBSEA, APFIC and FAO/RAP on the further development of the East Asian Seas Knowledgebase with regard to provision and/or verification of information on fisheries related activities and statistics.

### ***Marine litter – Lost and Abandoned Fishing Gear (LAFG)***

As part of its activities to address strategic and emerging issues regarding marine- and land-based pollution, COBSEA has initiated a regional activity on marine litter that led to the adoption of the “COBSEA Regional Action Plan on Marine Litter” in January 2008.

When it comes to the effective management of marine litter, the issue of Lost and Abandoned Fishing Gear (LAFG), including nets, lines, traps and floats that are either accidentally lost or intentionally abandoned by fishing vessels at sea is increasingly becoming a worldwide pollution concern. Some of the impacts of lost and abandoned fishing gear include navigational hazards when vessels entangle LAFG, ‘ghost-fishing’ when LAFG continues to catch target commercial species, the entanglement of non-target species, including sea-turtles, sea-birds etc., the spreading of invasive species to new areas; and beaching of LAFG, which can hamper the use of beaches for tourism and recreation.

There is an opportunity for closer cooperation between COBSEA, APFIC and FAO/RAP to mitigate LAFG, through the implementation of the FAO Code of Conduct for Responsible Fisheries and MARPOL Annex V concerning the discard of waste from ships.

### ***Conclusion***

Due to the lack of mandate in fisheries and aquaculture of COBSEA at both regional and national levels and the need to integrate fisheries management into coastal and marine environment management, COBSEA would like to invite APFIC to consider closer cooperation with COBSEA in the areas of: (i) Increased information sharing on activities, the state of fisheries and fisheries statistics in relation to the EASEO and East Asian Seas Knowledgebase development; and (ii) Collaboration on the mitigation of lost and abandoned fishing gear.

### ***Towards addressing fisheries concerns through implementation of integrated coastal management***

*Raphael Lotilla, Secretary General, PEMSEA*

The East Asian Seas region has a very diverse, multi-species fishery sector. It is also a multi-gear, labor intensive activity and largely composed of small-scale fishers (although the contributions to production from commercial operations are very significant). As such, the harvesting of fish resources supports both food security and livelihood, particularly of coastal communities.

The challenges in fisheries management have always been complex because of the multiplicity of issues that are inherently embedded in larger sociopolitical and economic contexts. As with most regions in the world, overfishing in East Asia has significantly depleted and altered fish stocks and ecosystems (and their capacity to provide food and services as well). Open access has contributed immensely to the problem in addition to increasing population, habitat destruction and land-based pollution. The recent widespread impacts of environmental changes caused by climate change compound this complexity.

To address the challenges, PEMSEA has developed and implemented a multi-faceted, comprehensive, ecosystem-based approach—the Sustainable Development of Coastal Areas (SDCA) Framework—to provide as comprehensive a platform as possible by which to achieve sustainable development goals in coastal areas. The SDCA Framework ensures more focus and accountability in coastal governance. It is a strategic attempt to streamline and fast track local government actions.

Embedded in the Framework is a call for action to create food security and sustainable livelihood programs to directly address the fisheries concerns vis-à-vis other programs which also support fisheries management: habitat protection, restoration and management; water use and supply management; pollution reduction and waste management; and natural and manmade hazard prevention and management. Thus, the Framework emphasizes the link which exists between fisheries and other coastal activities. Ideally, a harmonious, peaceful co-existence between these mutually linked (but competing) concerns can be established. But pragmatically—and given the increasing trend in coastal urbanization and the pressure coming from tremendous maritime and navigation use—tradeoffs need to be decided upon; local governments have to choose which coastal activity in which area can best achieve the goals of sustainable development.

The SDCA Framework utilizes the Integrated Coastal Management (ICM) cycle—comprising of mechanisms and processes that have matured in over four decades—as the driver to get it moving. On the one hand, the Framework has completed the conceptual and operational “loop” of ICM. On the other hand, and more importantly, ICM provides the Framework a stepwise, iterative approach and the necessary innovative tools that allow a systematic and integrated policy-making, planning and management approach; and confers the dynamism through which the SDCA Framework operates in; as such, the Framework adjusts as new challenges (and opportunities) arise.

The SDCA Framework is based on a platform of interdependence—among local political, economic and civil/social actors—which recognizes a need for communicating effective, nuanced local responses to fisheries problems. This is operationalized in ICM sites by way of the sustainable development council—an interagency, multi-sectoral coordinating mechanism.

From what is being practiced in all PEMSEA ICM sites, a Coastal Strategy (and its implementation plan) is developed and implemented. And because fishery-related issues are major areas of concern, specific interventions are thus instituted. A suite of management tools are available (gear restrictions, enforcement mechanisms, limited entry programs, MPA, etc.), which communities can adopt in consideration of the benefits and costs in setting them up.

Some of the specific interventions from PEMSEA’s sites are instructive:

Xiamen, in China implemented its marine zoning schemes, which stopped fishing in certain areas; transferred aquaculture operations to another area; compensated fishers displaced by this decision; and protected endangered species. User and permit fees govern this scheme while a strong enforcement team accompanies its implementation.

Bataan, in the Philippines instituted a coastal-use zoning scheme, after a wide stakeholder consultation. In it, a municipal fishing zone prohibits large-scale commercial operations. Bataan also instituted a text-a-crime campaign to strengthen enforcement of fisheries regulations, particularly in reporting illegal and

destructive fishing practices. Policies for supplemental livelihood were implemented (e.g., seaweed farming and mud crab fattening) as well as habitat protection for mangrove restoration and turtle protection.

Batangas, in the Philippines will refine its coastal-use zoning scheme. A network of 18 marine protected areas exists while a fisheries management plan has been integrated into the Batangas Province Strategic Environmental Management Plan (2005-2020). A strong voluntary enforcement squad (Bantay Dagat) is very active as reflected in the decline of fishery-related violations.

Sihanoukville, in Cambodia established a revolving fund to provide initial start-up capital to fishing families, particularly women members for funding supplementary livelihood. Here, 14 women's groups are able to access the revolving fund. Of the 142 individuals involved in the project, 102 are women.

Chonburi, in Thailand recommended limiting the number of vessels to allow recovery of resources while the Thailand Department of Fisheries implements a buy-back scheme to reduce the number of trawlers and push-netters in the Gulf of Thailand.

Recently, PEMSEA developed an enhanced, continuous monitoring and evaluation mechanism built through the State of the Coasts (SOC) reporting to keep tab on how local governments interventions are progressing and more importantly, to identify gaps in the programs of action.

### ***Overview of fisheries certification***

*Miao Weimin, FAO/APFIC Secretariat*

This paper has been prepared as a background paper for an APFIC workshop held in Viet Nam in September 2007. At the 29<sup>th</sup> APFIC Session from 21 to 24 August 2006 in Kuala Lumpur, member countries recommended that APFIC's work should focus on 'Certification in Fisheries' as one of the emerging issues for the fisheries sector in the region. In response to this recommendation, this paper assesses the potential costs and benefits of fisheries certification for countries in the Asia-Pacific region.

The presentation starts by providing a review of existing and recent environmental and social certification schemes in fisheries. It then goes on to consider the hypothetical and actual evidence for the demand for, and benefits of, such initiatives. Related costs are also discussed, before considering the net benefits of such initiatives i.e. benefits less costs. It is noted that there is a lack of studies and very little quantitative evidence published on the financial costs or the benefits of certification or branding schemes, but this lack of evidence is even more pronounced when it comes to an assessment of the *net* benefits. There is some evidence that the conditions attached to certified fisheries do encourage improved institutional structures and operational practices, but to date these are largely restricted to established, well managed fisheries.

The presentation summarized the available reports and papers by others which have highlighted the potential problems faced by developing country producers in engaging with certification before presenting some possible solutions. It was noted that there is no magic formula to determine whether for particular products or fisheries it is sensible to engage with certification initiatives. The net benefits are likely to be too specific to the particular country and product concerned, the end market, the characteristics of the supply chain and so on. Generalizing about the actual costs and benefits is, in almost all cases, neither possible nor advisable. Some suggestions about how to conduct cost benefit analyses, as well as the presentation of a simple decision-making tree was provided as practical tools. Some refinement will be needed for these tools for later use and it is suggested that a few cases are tried to conduct this refinement. This will also providing some practical assistance to the countries concerned in making decisions about the feasibility of certification or branding for particular products or fisheries.

The presentation concludes that certification is only aspects of product promotion, and that it is almost certainly more important to comply first with the basic mandatory requirements of food safety and

hygiene (i.e. in terms of HACCP compliance). There are also many other ways (e.g. quality improvements, pricing strategies, and improvements in logistics to meet client requirements) that may be at least as effective as certification or branding in helping producers and exporters to improve the net value-added of their business operations. Traceability is also expected to become increasingly important in this regard.

### ***Overview of aquaculture certification***

*Jesper Clausen, FAO/APFIC Secretariat*

The presentation briefly described the present status of aquaculture in Asia and how the sector is linked to certification. It was noted that there was an increasing demand for seafood due to population growth and focus on fish as healthy food. Given the projected population growth in the world, an additional 40 million tonnes of aquatic food will be required by 2030. And this is just to maintain the current consumption level per person. Aquaculture is expected to produce much of this increase in fishery products. This will of course be important for APFIC member countries as 90% by volume and 78% by value of the world's aquaculture production is now produced in Asia and the production is increasing in many countries. Aquaculture now accounts for almost 50% of the global food fish production. Fish is by far the most valuable (net) exported agricultural commodity from developing/less developed countries. Aquaculture in Asia is a very diverse sector which supplies both domestic needs as well as global needs. Traditional production methods side by side with newly developed methods are a common sight in the region. It is a very innovative sector that is constantly developing which both makes it a very flexible and adaptive sector but also makes it difficult to manage at times. The current trend and expectations are that aquaculture will play an even more important role in the future both in terms of an highly internationally traded and export friendly sector but also as an invaluable source of protein contributing to food security in the region.

The development of aquaculture is not without obstacles and particularly for some export oriented species some are questioning the sustainability of the production methods used, there are some social questions and issues as well as food safety concern and animal health and welfare concerns. All these concerns might be right in some cases and wrong in others. So for the producers to improve their sector standards and for consumers to have trust and confidence in the products it is important to be able to see the difference between those who produce in the better way. Certification is one tool that can be used to differentiate products.

At the 29<sup>th</sup> APFIC Session held in Malaysia in 2006, APFIC members raised the issue of certification as an emerging issue for the region. The members felt there was a need to review opportunities and challenges created by certification schemes in the APFIC region. It was felt that there is a strong need for harmonized guidelines to establish schemes and more guidance was needed for governments to make informed choices. Also at the COFI Sub-Committee on Aquaculture held in India 2006, FAO member countries were mindful that currently, many certification schemes have resulted in higher costs for producers without delivering significant price benefits to especially small-scale producers. APFIC members requested APFIC to look at the opportunities and challenges presented by labeling and certification to the Asia-Pacific region and an together with the Government of Viet Nam an Regional Consultative Workshop on “Certification of fisheries and aquaculture in the Asia-Pacific region held in Ho Chi Minh City, 18–20 September 2007. It was recommended that national and regional initiatives for certification of aquaculture will follow the forthcoming international FAO guidelines for aquaculture certification and other international guidelines as appropriate. Also inclusion of small-scale producers and recognition of traditional production methods in certification schemes should be encouraged. Investigate and facilitate access to development of market for certified fish products in developing countries. Certification schemes should be considered not only to promote South-North trade but also to support South-South trade and national market. Regional or national development of flexible labelling and certification schemes – social, environmental, ecological, or cultural – that are built upon the comparative

advantage of Asian aquaculture (e.g. traditional knowledge, sustainable fishing methods and unique fishery products.) Involvement of small-scale producers in the region is of crucial importance. Regional involvement in setting the certification standards should be continued and improved where possible and improve communication and information sharing between producers and consumers.

***Strategies and recommendations for certification in fisheries and aquaculture*** – Outcomes of the APFIC regional consultative workshop on certification scheme for capture fisheries and aquaculture.

*Pham Trong Yen, International Cooperation Department, Ministry of Agriculture and Rural Development, Viet Nam*

APFIC Regional Workshop on Certification schemes for capture fisheries and aquaculture was hold in Ho Chi Minh City, Viet Nam from 18-20 September 2007. The workshop was attended by 49 participants from 13 APFIC member countries.

#### *Goal and objectives of the Workshop*

This workshop builds on input to make a set of recommendations and follow-up actions in relation to certification schemes for Fisheries and Aquaculture in APFIC region.

1. Examine the options and opportunities related to involvement of fisheries and aquaculture in certification schemes.
2. Discuss potential costs and benefits from certification schemes in an Asia-Pacific context.
3. Develop an action plan for members to further address their activities relating to certification issues in fisheries and aquaculture.

#### *Discussion outcomes:*

The Workshop recognized that fisheries and aquaculture certification can offer tangible benefits to the APFIC Member Countries. It also recognized that a number of issues need to be taken into account and addressed for certification to effectively contribute to the sustainable development of fisheries and aquaculture in the region.

#### *The issues concerned may be:*

- *Regional involvement in certification*
- *Small-scale fisheries and farmers*
- *Harmonization and equivalence of certification schemes*
- *Costs and benefits of certification schemes*
- *Governance and stakeholder involvement*
- *Capacity building at both regional and national levels*

#### *Workshop Recommendations for Fisheries certification:*

- At national level, there is a need for APFIC members establish a strategy for rolling out certification as both a market development tool as well as one to use certification methodologies to target fisheries management interventions. The national strategy should clearly distinguish mandatory food safety issues from other desirable fisheries management objectives that may be voluntary in nature.
- As part of the above strategy, APFIC members should conduct a national ‘stock takes’ into the status of the management of their key fisheries. This should identify those fisheries with either good management, or those with weak management but with a potential to improve. These could be assessed either (i) as fisheries with potential for market-driven eco-labeling or, (ii) fisheries that might not require an eco-label but would benefit from a holistic assessment of its fisheries

management strengths and weaknesses to prioritize future management initiatives and work planning.

- Recognizing the general inadequate allocation of resources for fisheries management, it is recommended that there should be targeting of resources or incentives for sustainable practice, thus rewarding those with a will to move towards good management. The stock-taking of fisheries could be used to mobilize and direct resources towards those fisheries where there is the will to manage.
- It was noted that small-scale fisheries which had (i) existing sustainable management methods and (ii) a recognized and distinguishable product, may not be able to undergo full third party certification. In such cases, there may be opportunities for branding and/or labelling of their products. However, such approached may also drive unsustainable practices if there were no associated fisheries or environmental management objectives and associated monitoring.

#### *Recommendations for Aquaculture certification*

- The Workshop recommended that this capacity and experience be used by APFIC members to develop a regional certification scheme, which other schemes operating in the region should be harmonized to. The workshop emphasized that any schemes developed or operating in the region should be in compliance with the forthcoming FAO Guidelines for Aquaculture Certification.
- In view of the predominance of small-scale producers in the APFIC region and their constraints in complying with many certification schemes, the Workshop recommended that schemes operating in the region should be developed and/or revised to be beneficial to producers, allow for cluster certification and allow for incremental improvement against targets.
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#### ***Regional cooperation for fisheries trade***

*Sudari Pawiro, INFOFISH*

Global fishery production reached 145 million tonnes in 2007 (excl seaweeds) with around 37% of the total traded in international markets. As the supply and demand for fish and fishery products increased, global trade also grew consistently reaching US\$86 billion (export, FOB value) in 2006, with developing countries contributing around 50% of the total. Asia was an important seafood supplier exporting around US\$29.1 billion (33%) with China playing a major role in shaping the world seafood trade. Despite being the largest seafood producer and exporter, China is also increasingly becoming a major seafood market. Other Asian countries, particularly Southeast and Far East Asia, except Japan, are growing markets for fish and fishery products including high value imported seafood. The main factors behind the growth are: growing population; increase in consumers' income; better supplies; improvement in distribution channels; wider usage of seafood; increasing popularity of ethnic foods; growing health consciousness among consumers; growing tourism industry; and increasing trade barriers in developed markets.

Global seafood trade, however, has slowed down a little bit towards the end of 2007 and continues in to 2008, due to the rising fuel and food prices affecting consumers' confidence in many countries. Moreover, global seafood trade is currently facing tremendous challenges and issues that affect the competitiveness and export of fishery products from developing countries. Among the issues faced by the industry are: issues related to sustainability and the proliferation of private eco-labels; increasing trade disputes; growing number of certification schemes that lead to increasing production costs and also confusion; growing purchasing power of multinational chain retailers; failure in the WTO-Doha round negotiation that has resulted in the expansion of FTAs/RTAs; rising production costs; issues related to safety and traceability etc.

With the deadlock in the multilateral negotiations, particularly Doha Round, many countries are pursuing bilateral free trade agreements to improve their market access in the global market. In addition to the slow progress in the WTO negotiation, there are also other factors that contribute to the growing FTAs: bilateral negotiation is easier and faster; countries can foster strategic industry linkage; and there is also a domino effect whereby a country fears that it would be at a competitive disadvantage over its neighbour which has signed an FTA with another country. Generally, the benefits of FTAs are better market access for agricultural and industrial goods, service sector, concession in certain required standards and investment as well as technology transfer.

However, the proliferation of FTAs has heated debates; whether countries should pursue bilateral or multilateral agreements. Many officials from the WTO strongly defend the multilateral agreement as better option. They point out that FTAs offer much less than a multilateral pact and are not a substitute to it. The arguments are that the FTAs usually do not address systematic issues like farm and fishery subsidies, antidumping or trade facilitation procedures and do not remove trade barriers substantially among parties; thus, they do not create really true free trade; too many FTAs create a jungle of different rules and procedures; they create building block that undermines the principles of multilateral trading system; and the FTAs signed mainly between powerful economies and smaller states are considered to be unbalanced/biased.

Another subject of agreement often signed by developing countries is fishing access agreement often linked to market access agreement. Generally, there are two forms of access agreements: one is between neighbouring countries for sharing fish resources (sharing quota); and the other is between Distant Water Fishing Nations (DWFNs) and developing countries. The latter can be signed between government to government (e.g. the EU and ACP countries) and between private and governments (Japan, Republic of Korea, and Taiwan POC with countries in the Pacific). Many host countries, however, have suggested that an access agreement is an unfair deal because the access fee paid for their rich resources is too little. Thus, they seek better concessions and more development related aspects and some even trying to link the access agreement with domestic investment. Access agreements in the ACP countries are now a part of the wider package agreement of the Economic Partnership Agreement or Interim Economic Partnership Agreements (EPA/IEPAs).

Under this current global scenario INFOFISH can offer its services to both member and non-member countries, seafood exporters and other industry players to deal with the increasing challenges faced by the industry. INFOFISH could play an important role to facilitate the creation of transparent and fair seafood trade; bridge the gap and establish closer cooperation between governments, industry and NGOs; provide technical assistance; involve in capacity building through workshop, training; provide consultancy to industry players; products and market development; work closely with the industry, governments and regional/international organizations for sustainable fisheries development and trade; and promote trade and products from member countries.

## *Moving fisheries offshore, economic and policy implications*

*Gabriella Bianchi, FAO*

This presentation reported on a workshop held in Bangkok (Thailand) from 17 to 19 June 2008 on “Assessment and Management of the Offshore Resources in South and Southeast Asia”. The workshop was attended by 11 countries of the APFIC region, IGOs and NGOs including INFOFISH, the International Collective in Support of Fishworkers (ICSF), the Indian Ocean Tuna Commission (IOTC), SEAFDEC and FAO.

The workshop was motivated by the recognition that many countries in the region are moving towards exploiting offshore resources (both pelagic and demersal), with the expectation that there are substantial untapped resources. This usually happens without careful planning and assessment of the ecological, economic and technological implications of moving offshore.

The countries of South and Southeast Asia all have policies to promote and expand fishing further offshore from their coasts. The main policy drivers are (i) overfishing in inshore areas, (ii) attempting to realise the potential of offshore fishing (iii), building up catch history records for subsequent negotiations in RFMOs, and (iv) ensuring full utilization so that others cannot fish under the provisions of UNCLOS. In some cases, the policy explicitly states that the move offshore is to transfer fishing from overexploited inshore areas to underexploited areas. The push offshore will need a concerted effort and development of appropriate technologies and human capacity that make harvesting, processing and marketing these resources effective, efficient and environmentally responsible. Governments are providing a number of incentives to facilitate this move.

There is some concern that the policy to move offshore could backfire if not managed effectively and overall fishing capacity could increase even further. Attention will need to be given to what could happen if the incentives are removed, the potential has been overestimated, and the costs of fishing in the offshore are too high relative to the revenue gained.

The workshop provided an excellent overview of the many exploratory fishing/research cruises that have been carried out in the region and identified the main potential species that may support commercial fishing. The overall conclusion, however, was that these resources are rather limited, and in the case of oceanic tuna, already heavily exploited. There are also a large number of technological, social and ecological constraints that makes offshore fishing a high risk undertaking. Accordingly, the workshop recommended a precautionary approach to offshore fishing in Southeast and South Asia, starting with in-depth economic feasibility studies, risk assessments – especially with respect to impacts on existing fisheries and potential environmental concerns- and gradual development as more information and knowledge are accumulated. A need for better regional collaboration in carrying out and analyzing exploratory and research cruise data was noted.

In terms of future management, the role of the regional fisheries management organisations (RFMOs) for highly migratory species was acknowledged but the lack of regional arrangements for other shared fish stocks was highlighted. The workshop recommendations provide a number of important actions that need to be followed if South and Southeast Asia are to benefit from the sustainable development of its offshore resources.

A workshop report and other relevant documents will be available on the APFIC and FAO Web sites.

### ***MPA's and fisheries management – the human dimension***

*Ramya Rajagopalan, International Collective in Support of Fishworkers (ICSF)*

Marine protected areas (MPAs) are widely propagated in recent years as conservation of marine resources is becoming a growing global priority. MPAs are used as tools designed primarily for aquatic biodiversity conservation and habitat protection, protection of endangered species, multi-use management, sustainable extractive use, and as cultural-ecological/social protection reserves. MPAs, often identified as area-based management tools, are useful to implement ecosystem approaches as well as precautionary approaches to marine resource management. The design of MPAs often involves managing the pressures from human uses, by adopting a degree of protection that can range from strict protection with no activity allowed to multiple use areas where different activities are allowed and regulated.

The twenty sixth session of the Committee on Fisheries (COFI) in its background note on MPAs and fisheries management, noted that while there are reports of support from local communities for MPAs in some areas, there is strong resistance from fishing communities especially to MPAs that exclude fishing from traditional fishing grounds. While COFI agreed that MPAs could be used in combination with capacity control for effective fisheries management. Some members emphasized the importance of taking into account the socio-economic impacts, the need to involve stakeholders in the design and implementation and the requirement for a clear set of objectives. COFI concluded that there is need for more scientifically-based MPAs, backed by effective monitoring and enforcement, and an appropriate legal framework.

MPAs often seen as only sites copious in biodiversity, but they need to be viewed as regions historically rich in social and cultural interactions, which often have great importance for local livelihoods. MPAs are often “biological success” but “social failures”, as there is no effective participation of communities in the decision-making and management process. There are very few studies undertaken to look at the social implications of MPAs. To have a better understanding of the social dimensions of MPAs, the International Collective in Support of Fishworkers (ICSF) commissioned studies in six countries, *i.e.*, India, South Africa, Brazil, Tanzania, Thailand and Mexico, with the following specific objectives:

- provide an overview of the legal framework for, and design and implementation of, MPAs;
- document and analyse the experiences and views of local communities, particularly fishing communities, with respect to various aspects of MPA design and implementation; and
- suggest ways in which livelihood concerns can be integrated into the MPA programme of work, identifying, in particular, how local communities, particularly fishing communities, could engage as equal partners in the MPA process.□

The most positive example of livelihood-sensitive conservation is from Brazil, where communities are in the forefront in demanding, and setting up sustainable use Marine Extractive Reserves (MERs). Communities are using protected areas as a tool to protect their livelihoods, as, for example, against shrimp farms and tourism. The Brazil study also highlights the many challenges faced in this process, related, among other things, to need for capacity building of government functionaries and communities, funding, lack of strong community/fishworker organizations, adopting an interdisciplinary approach, and integration of scientific and traditional knowledge.

The studies from India, Indonesia, Mexico, South Africa, Tanzania and Thailand, and from a no-take MPA in Brazil, on the other hand, indicated that communities do not consider themselves equal partners in the MPA process. While in all cases there have been recent efforts to enhance community participation, in general, participation tends to be instrumental—where communities are expected to participate in implementation, and are not part of the process of designing and implementing management initiatives.

The studies also document clear costs to communities—in terms of livelihood options lost, expulsion from traditional fishing grounds and living spaces, and violation of human/community rights, with few perceived real benefits. Alternative livelihood options that have been put in place are perceived to have provided limited support to affected communities, and in several cases, as in Tanzania, South Africa and Thailand, communities do not perceive benefits from tourism initiatives associated with the protected areas. The economic and socio-cultural benefits do not go back to fishing communities. There tends to be a resistance to MPAs among local communities, a mistrust of government and NGOs that lead such processes, and violations of rules and regulations, undermining the effectiveness of the MPA itself. Institutional capacity and lack of coordination between different agencies is also highlighted as one of the major limitations in the implementation of effective decision-making process.

These studies show that there is a need to adopt a human rights approach to MPA management, that is democratic, transparent, bottom-up, and consultative process. It is important that fishing and other marine resources-dependent communities and their organizations should be the starting point for MPA management. These studies, and examples of conservation and management initiatives undertaken by fishing communities elsewhere, clearly indicate that community-led processes, which draw on community knowledge systems and social institutions, are most likely to contribute positively, both to biodiversity conservation and to improving community livelihoods. The need is to move towards effective coastal and marine resource conservation from a livelihood and poverty alleviation perspective.

***Promoting Long-term sustainable management of marine fisheries by addressing IUU fishing: Issues and challenges for the APFIC region***

*Ndiaga Gueye, FAO*

Focussing on the APFIC region, the presentation provided a summary of issues relating to the implementation of existing and potential measures to combat, unreported and unregulated (IUU) fishing. IUU fishing impacts the long-term sustainable management of marine capture fisheries in the Asia-Pacific Fishery Commission (APFIC) Convention area. Through national action and regional collaboration, Commission Members are addressing it in a range of different ways with a view to improving the manner in which the region's fish stocks are harvested and utilized.

Status of ratifications and acceptances of international fisheries instruments by APFIC Members was reviewed and revealed that the pattern of ratifications and acceptances of key international instruments points to the need for APFIC Members to review their commitment to national and regional fisheries management and to take appropriate action. This was followed by a discussion of key measures designed to combat IUU fishing: the international plan of action on IUU fishing, the binding instrument on port State measures, the development of the global register of fishing vessels, the development of criteria for flag State performance and strengthening fisheries monitoring, control and surveillance including vessels monitoring systems. The presentation addressed also capacity building and challenges for APFIC Members in implementing measures to combat IUU fishing. Finally, follow-up activities were discussed. The most significant challenge for APFIC Members with respect to the IPOA-IUU will be the implementation of their NPOAs-IUU and the RPOAs-IUU. APFIC Members were urged to undertake periodic assessments to determine the extent to which NPOAs-IUU and the RPOA-IUU are being implemented: i.e., whether the instruments are achieving their goals and the purpose for which they were concluded.

***Global drivers and their implications for the Southeast Asian fisheries***

*Steven Hall*

Fisheries serve many functions, from feeding the poor, sustaining local communities and providing employment to generating export earnings. Yet, despite their importance, most countries have largely failed to ensure sustainable fishery systems and livelihoods for the millions of people dependent on them. Management at inappropriate scales, inappropriate property rights, inability to control fishing capacity, poor governance and other causes have conspired to block fisheries from achieving their potential.

Classically, management has concentrated on the fishery itself. Yet many of the challenges fisheries face are shaped by complex combinations of bio-physical, social, political and economic forces. Many of these forces operate at scales beyond national level and outside the domain of fisheries. While there is usually limited scope for fisheries management to control these forces, policy makers and managers must understand them and plan for their impact. Some of these forces, such as climate change, or the globalization of markets, are beginning to enter the consciousness of fishery policy makers. Others, however, remain largely ignored. In this paper we briefly identify the drivers of change that are likely to affect Asia-Pacific fisheries over the next decade and examine several of them in some detail. A more complete analysis of global drivers in the contexts of developing country fisheries is in preparation.

Some of the drivers identified here have been considered by others in a fisheries context, but several have not. For the most part, our treatment is restricted to wild capture fisheries, with discussion of aquaculture restricted to those areas where the two are most intimately bound. Because neither available data, nor space allow a comprehensive analysis of the implications of these drivers for fisheries, our objective is to raise awareness of these emerging issues among researchers and policy-makers. We do this in the hope that others will be stimulated to undertake further analysis and identify policy alternatives for fisheries. Some readers may believe that expanding interests to consider a wider range of issues that impinge on fisheries simply adds to the list of problems to deal with. To some degree, this is of course true. We believe, however, that it might also help identify new arenas in which to also find solutions to more mainstream fisheries problems. Linking fisheries considerations into wider issues of migration, human rights or climate change, for example, might offer a more effective context for solving traditional fisheries management issues such as access rights, effort control or vessel decommissioning.

### ***Inland fisheries of the Lower Mekong Basin – importance, challenges and mechanisms to meet those challenges***

*Chris Barlow, Fisheries programme manager Mekong River Commission (MRC)*

The fisheries in the Mekong River are immense, even by world standards. Recent studies have shown that the yield from the fisheries and aquaculture (including aquatic animals other than fish) is between 2-3 million tonnes per annum. To put some perspective on that figure, the capture fishery yield from the Mekong is approximately 2% of the total world marine and freshwater capture fishery.

Extrapolation from average prices for capture and aquaculture product gives a first sale value for the fishery of at least US\$2000 million. This figure is very conservative and probably an underestimate, due to increasing price of fish and the rapid expansion of aquaculture in the Mekong delta in Viet Nam in the last few years. The multiplier effect of trade in fisheries products would increase the value of the fishery markedly.

There are about 10000 species of fish in the Mekong freshwater system, with many more marine vagrants occasionally entering freshwaters. In terms of fish biodiversity, the Amazon River contains the most fish species of any river in the world, but the Mekong probably ranks second along with the Zaire River. The Mekong has more families of fishes than any other river system. About 120 fish species are regularly traded.

**Table 1.** Fish consumption in the Mekong River areas of Cambodia, Lao PDR, Thailand and Viet Nam, based on populations in the year 2000. The total tonnage of fish consumed in the LMB is a surrogate measure of yield in the LMB. However, the consumption figures for each country are not indicative of the yields within the countries, as they do not account for the trade of fisheries products between countries. Details can be found in Hortle, K.G. 2007. Consumption and the yield of fish and other aquatic animals from the Lower Mekong Basin. MRC Technical Paper No. 16, Mekong River Commission, Vientiane, 87 pp.

	Cambodia	Lao PDR	Thailand	Viet Nam	Total
Estimated consumption (kg/capita/year as actual consumption) of inland fish and other aquatic animals in the LMB					
Inland fish	32.3	24.5	24.9	34.5	29.3
Other aquatic animals (OAAs)	4.5	4.1	4.2	4.5	4.3
<b>Total inland fish and OAAs</b>	<b>36.8</b>	<b>28.6</b>	<b>29.0</b>	<b>39.0</b>	<b>33.7</b>
Estimated consumption (tonnes/year as fresh whole animal equivalents) of inland fish and other aquatic animals					
Inland fish	481 537	167 922	720 501	692 118	2 062 077
Other aquatic animals (OAAs)	105 467	40 581	190 984	160 705	497 737
<b>Total inland fish and OAAs</b>	<b>587 004</b>	<b>208 503</b>	<b>911 485</b>	<b>852 823</b>	<b>2 559 815</b>

The fisheries are nutritionally important for the approximately 60 million people living in the LMB. Fish are the primary source of animal protein, and a major supplier of several micro-nutrients, notably calcium and vitamin A. Consumption of fishery products is about 46 kg/person/year as fresh-fish-equivalent, or 34 kg/person/year as actual consumption. There are no readily available foods to substitute for fish in the diets of people in the LMB. Hence, fisheries are extremely important for food security.

The bulk of the production comes from the river fishery, which is a renewable resource, available every year, unlike other natural resource industries like mining and petroleum. In addition, relatively little capital input is required in the river fishery to generate the product when compared to other natural resource or manufacturing industries.

The major threats to the fisheries of the Mekong are loss of habitat, reduction in the extent or changes to the timing of the annual flood, barriers blocking migration of fish, and overfishing. The first three of these arise from activities outside the fisheries sector, such as alienating wetlands for agricultural or industrial development, flood control schemes, and dams for irrigation and hydropower development. Building of dams for hydropower production is a high priority activity for governments in the region. These include dams on the mainstream of the Mekong, which will be very deleterious for the fisheries based on highly migratory species (the “white fishes”) in the Mekong. Management agencies face difficult decisions in balancing the needs for development (for instance hydropower dams, with their focused income streams and easily recognized benefits) with maintenance of fisheries (which are a form of traditional, communal wealth with generalized benefits which are not readily appreciated).

Mechanisms for managing the fisheries include traditional effort and gear restrictions as well as protected areas; but the most widely developed management approach is co-management, or communities and governments working together under various arrangements to jointly manage the fisheries. It is suggested that effectively communicating to governments the importance and value of fisheries in comparison with other water development activities is paramount if the resource is to maintain its current level of productivity. Within the Mekong, the governmental fisheries agencies and the MRC have also developed a regional fisheries management body (known as the Technical Advisory Body for Fisheries Management, or TAB). The TAB has brought the regional element of fisheries management into the realm of national agencies. However, it and other fisheries bodies still face considerable obstacles in communicating the importance of fisheries across all levels of government and into private commercial development initiatives.

### ***Aquaculture development in the Asia region and associated issues that need attention***

*Sena De Silva, Director General, NACA*

The growing importance of aquaculture as a global seafood resource and the contribution to this food source from Asia is highlighted. Some salient facts with regard to aquaculture production in Asia that often go relatively un-noticed is considered in the context of potential expansion of the sector in the region. It is demonstrated that the great bulk of aquaculture production is freshwater finfish, and the cultured commodities command a farm gate price of less than US\$2.00 per kg, a trend that has been persisting over the last two to three decades.

In spite of this low farm gate value commendable developments in the sector have occurred in the past decade, some very recent. Most notable amongst these is the catfish and rohu culture practices in Viet Nam and Myanmar. The developments of these two practices are traced and the need to explore fresh “niche market” opportunities for aquaculture produce in a globalized world trade scenario is stressed.

The expansion of inland aquaculture is becoming increasingly difficult due to land and water resources limitations in most countries. However, use of culture based fisheries, as a secondary and a non-consumptive use of existing water resources for aquaculture development is highlighted. The needs, such as legislative, technical, community organization etc., for ensuring expansion of these communally based activities, predominantly in rural areas, are discussed.

With regard to capture based aquaculture development the current status in the region is reviewed. It is shown that there is an increasing shift towards dependence on cultured high valued species by the up-market live fish restaurant trade, as well as on hatchery bred seed stocks in this sector. All these factors have indirectly contributed to a reduction in destructive fishing methods used for the capture of these high valued species, and thereby contributed to the conservation of critical habitats such as coral reefs and hence to preserving biodiversity. The culture of high valued marine species in the region, however, is very dependent on low-valued and or trash fish as feed for the cultured stocks. The pros and cons in relation to the use of the latter resources, both from a global and a regional view point, are dealt with briefly.

Climate change is a global issue and potential impacts of it on aquaculture are considered. But more importantly ways by which aquaculture would, compared to other forms of animal husbandry, particularly in the tropics, become an increasingly significant food production sector from a GHG emission perspective is presented.

### ***Reducing vulnerability and improving fisheries livelihoods of coastal communities***

*Richard Gregory, FAO/APFIC consultant*

Many Asian small-scale coastal fishing families are caught in a poverty trap. They depend on a declining resource base and must continuously intensify fishing efforts to maintain livelihoods, yet must pay more for fuel, food and services. These difficulties are compounded by static prices for their products and poor education, health & social services in the communities where they live. Improving coastal fisheries' livelihoods is required and must depend on; protecting the natural resource base; as well as promoting alternative sources of income and food generation.

An option promoted frequently is aquaculture but many forms, particularly intensive culture systems are 'extractive' from the resource base. Reducing post-harvest losses and creating links to new markets, can increase fisher incomes but can also increase fishing effort.

The development of tourism within protected areas, can capitalize upon the value of natural resources, without exploiting them through extraction. However, due to a range of factors, tourism opportunities are usually seized upon by 'outsiders', although some labour opportunities may be created for fisher families. Some may have the practical skills to manage small businesses but often lack the business skills required

to be successful. Handicraft and village industries are often promoted by development projects and can increase family incomes significantly but sustainability questions often exist.

Livelihood diversification may be limited by access to finance. Many are tied to informal sources of credit as most financial institutions are reluctant to lend to fisher families. This prompts development projects to establish revolving funds, micro-finance and saving schemes centred on community or peer groups.

It seems likely that a growing number of coastal fisher families are going to struggle to maintain their traditional ways of life in the future. Whilst livelihood diversification efforts may help maintain a status quo, they are unlikely to result in large numbers of people moving out of poverty. Longer term solutions are urgently required. It is the responsibility of governments to help fishers and their families, in unviable circumstances, move away from their dependency on small-scale coastal fishing. This can only be achieved through improved education & skills training so that they can become active in other economic areas.

### ***Aquaculture Certification – Common frameworks and small-scale producers in Asia***

*Sena De Silva (Network for Aquaculture Centers in Asia-Pacific, NACA)*

Due to NACA's member countries concern about the proliferation of aquaculture certification schemes, NACA entered into a process with FAO to develop "Guidelines for Aquaculture Certification". The main objectives of this work were to create a more level playing field and involve mainly the less vocal small-scale farmers in the Asian region. It was furthermore requested by NACA members to ensure recognition of Asia regional schemes and to promote improved harmonization and equivalence,,

NACA is particularly concerned about the impact of certification schemes, and trends in market and trade, on small-scale aquaculture farmers which form the mainstay of Asian aquaculture production. A typical small-scale farmer in the Asian Region is characterized by having a small land and water area (*e.g.* China has 240 million agriculture farmers, with <0.1 ha.), the operation is often family driven and is mostly using family labor. The group is of great importance to the socio economic landscape in many Asian countries. Small-scale farmers are more than 80% of an estimated 12 million aquaculture farmers in Asia. They are the major contributors to production in many countries and major contributors to global farmed fish supply. The sector is highly innovative and it is of crucial importance for rural development, communities, employment, poverty reduction and environmental sustainability.

Currently there are no certification scheme that specifically target the small-scale sector and build on their comparative advantages. There would for example be great potential for a Fair Trade scheme building on the nature of small-scale farmers but at present there are none. The certification schemes that are already operating in the region favors larger scale production units and have difficulties handling the small-scale farmers. Some of the issues are the small size and large numbers of farmers, that some farms are not being formally registered. The small volumes and value of product from individual farms may not cover the costs of certification and this will lower or completely remove the market incentives for the small-scale farmers. The marketing channel are often complex and trace-ability is difficult.

An important question that has to be asked is if there ways for small-scale aquaculture farmers to participate in modern market chains, trade and certification programs. Recent experiences show positive pro-small-scale farmer action can result in positive benefits. One way forward can be to organize farmers into producer groups/aqua clubs. This may allow certification of groups as opposed to individuals and allow economies of scale (*e.g.* bulk purchase and marketing) that would attract some larger retailers. The formation of aqua clubs would also facilitate communication, "better management" and organized marketing for the small-scale farmers. There is an increasing risk of smaller individual farmers facing increasing difficulties for market access. And the formation of farmer clubs can be one tools to mitigate this risk.