

Ensuring Sustainable Fisheries Management: The Regional Advisory Committee for Fisheries Management in Southeast Asia

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Having taken cognizance of the current declining status of the region's fishery resources due to unsustainable utilization, the SEAFDEC Council during its 40th Meeting in 2008 in Bali, Indonesia endorsed the establishment of the Regional Advisory Committee on Fisheries Management in Southeast Asia (RAC) to ensure the sustainable management of fisheries in the Southeast Asian region for the peoples' food security.

The depleting fisheries resources in coastal areas of the Southeast Asian region have contributed to the worsening poverty of the fishermen and in the deteriorating social economies of many countries in the region. Such scenario, which has greatly affected the outlook of national and regional food security, could be due to the general oversight on the part of many countries, of the need for appropriate fisheries management policy to promote sustainable fisheries. The present resources could no longer cope with fishing activities because fish demand is higher than whatever resources are available which have also been gradually decreasing. Although many countries started to introduce rehabilitation programs to protect and conserve their coastal resources (e.g. deployment of artificial reefs, imposing closed seasons, establishing marine protected areas and/or fishery refugias, etc.), there is a need to consolidate such efforts in order to sufficiently supply the fish demand of the region's growing population. Exploring potential fishery resources could be an option. Nonetheless, the fishing capacity in the coastal areas should be reduced in order to enhance stock recruitment. This could mean pushing off excess fishing capacity to the offshore waters. Although plausible, such effort should however be pursued in an appropriate and sustainable manner (Somboon, 2008).

During the past few years, the need to improve fisheries management have been discussed in many regional and international fora, as means of mitigating the declining state of the world's fishery resources. Along this vein, the Southeast Asian countries also discussed on various occasions ways and means to strengthen fisheries management in the region not only through individual country's efforts but also taking advantage of existing regional and sub-regional cooperation. More particularly, the discussions have focused on the need to improve fisheries management in the region by addressing issues related to over-fishing capacity and Illegal, Unreported and Unregulated (IUU) fishing.

While recognizing the importance of developing a regional mechanism, the countries in the region generally agreed to regulate fishing capacity at sub-regional level considering that the vast water resources of Southeast Asia could be divided into sub-regions, where more area-specific management issues could be addressed such as habitats, fish species and transboundary potential conflicts (Ekmaharaj *et al.*, 2009). The sub-regional fishing areas in Southeast Asia that cover two or more countries and deal with marine and inland fisheries could include: the Gulf of Thailand, Lower Mekong River Basin, Timor-Arafura Sea, Southern and South Eastern South China Sea and Sulu-Sulawesi Sea, Andaman Sea, and Northern South China Sea and the Gulf of Tonkin.

In this connection, the countries in the region requested SEAFDEC to investigate the possible establishment of a regional Scientific Advisory Committee that could facilitate and enhance the collection of information to be used by the countries in promoting sustainable fisheries management. Thus, during the 39th Meeting of SEAFDEC Council in Siem Reap, Cambodia in April 2007, the proposed establishment of such regional Scientific Advisory Committee within SEAFDEC was endorsed in principle. This signaled the seriousness and commitment of the Southeast Asian countries in improving their fisheries management which they also echoed during the Meeting of ASEAN Sectoral Working Group on Fisheries in Singapore in May 2007.

The Regional Advisory Committee for Fisheries Management

While revisiting the proposal to establish a regional Scientific Advisory Committee, the SEAFDEC Council during its 40th Meeting in Bali, Indonesia in April 2008, endorsed the establishment of the Committee which henceforth is known as the Regional Advisory Committee for Fisheries Management in Southeast Asia or RAC including its guiding principles and terms of reference (**Box 1**).

As a subsidiary body of the SEAFDEC Council of Directors, RAC is mandated to provide technical/scientific advice to the SEAFDEC Council for the improvement of fisheries management in Southeast Asia specifically on issues covering management of fisheries generally conducted in marine waters within the EEZs and inland waters in Southeast Asia including fisheries with particular attention to transboundary fish stocks. RAC is also tasked to assist

Box 1. Guiding Principles of the Regional Advisory Committee for Fisheries Management in Southeast Asia (RAC)

- RAC is mandated to review and assess the current status of the fishery resources in particular transboundary fish stocks, the status of fishing industries, and fisheries management measures and administrations in the region; provide advice on priority fisheries management issues including policy considerations, coordinated fisheries management actions, and human and institutional capacity building, and to formulate recommendations for improved fisheries management; facilitate in addressing the identified issues through assessment and in-depth studies possibly by ad-hoc technical working group(s); and collaborate with international/regional organizations, programs or projects concerned with fisheries management and sustainable use of fisheries resources in formulating the relevant and necessary advice.
- To be chaired by a representative of SEAFDEC Member Countries on an annual rotational basis, RAC shall comprise one standing member representing each SEAFDEC Member Country by nomination with two-year fixed tenure of members but with the option for reappointment.
- RAC could also invite experts from the Member Countries and other international/regional organizations to participate in an ad-hoc basis.
- SEAFDEC Secretariat in collaboration with relevant Departments shall serve as the RAC secretariat.
- RAC is expected to meet at least once a year, the timing of which should be set in accordance with the SEAFDEC annual programming cycle.

the SEAFDEC Member Countries in achieving sustainable utilization of fisheries resources through improved fisheries management for the socio-economic development and sustainable livelihoods of their populace.

Policy Recommendations to Improve Fisheries Management in Southeast Asia

During the First Meeting of RAC convened by SEAFDEC in Bangkok, Thailand in September 2008, issues and initiatives relevant to the improvement of fisheries management and practices in the Southeast Asian region were discussed and policy recommendations (**Box 2**) were formulated for the consideration of the SEAFDEC Council (SEAFDEC, 2008). Such emerging issues and initiatives that aimed to improve fisheries management, initially included: (1) Promotion of Innovative Fisheries Management; (2) Exploration and Sustainable Utilization of Potential Fisheries Resources; (3) Promotion of Aquaculture and Feed Management; (4) Enhancing the Exchange of Data and Information; and (5) Supporting the RPOA for Responsible Fishing Practices Including Combating Illegal, Unreported and Unregulated (IUU) Fishing in the Region.

Promotion of Innovative Fisheries Management

Although some management practices may have been successfully implemented in the temperate areas such

as stock assessment-based resources management, such practices could not be applicable for the tropical areas due to the differences in ecosystems, resources structure, fisheries structure, and other socio-economic conditions (Kato, 2008). Considering that many Southeast Asian countries have already established fisheries management policies under the responsibility of their respective central governments, there is a need to decentralize certain management authority at the local level in order to further enhance effective fisheries management.

The adoption of fisheries management approaches applicable for tropical fisheries should therefore be considered for the Southeast Asian countries, where and when appropriate, to enhance the effectiveness of fisheries management. While alternate fisheries management could be an option, the involvement of all stakeholders (e.g. fishermen and fishing communities) should be promoted as this could be the key to successful management of fisheries. More particularly, monitoring and assessment of the resources status using appropriate indicators (e.g. Catch per Unit Effort (CPUE), feedback from fishermen, etc.) as well as local/indigenous knowledge, should be used as basis for promoting such an alternate fisheries management approach.

In another development, while it is clear that fisheries in the Southeast Asian region is more socially and economically linked with the fishing communities where these are operated on a daily basis due to a relatively short range of operation and small sizes of fishing boats, in the temperate areas fishing boats are relatively large with multiple days of operation in contrast to the small-scale fishing boats in the region. The methodologies adopted by such large-scale operations focus on “resource management” system which excludes the social and economic considerations of fisheries. Due to the apparent difference of the characteristics between temperate and tropical fisheries, it is necessary to carefully evaluate the fisheries management theories and methodologies developed in the temperate areas should these be introduced and adapted in the region (Kato, 2008).

As Kato (2008a) has also aptly declared, fishing operations in the Southeast Asian region have always been promoted under two unique conditions based on the fact that fisheries depend on common natural resources compared with other industries. Firstly, the “unclear ownership for the resources” has aggravated the serious competition among fishers under the current understanding that ownership belongs to those who finally caught the fish. Secondly, the absence of a “government intervention for the management” of the resources has made the fishers not responsible for their operations and can do anything just to harvest the resource.

Box 2. Recommendations on regional fisheries management issues (SEAFDEC, 2008)

1. Promotion of Innovative Fisheries Management

- Southeast Asian Countries should consider applying management approaches applicable for tropical fisheries, e.g. rights-based fisheries (co-management using group user rights for small-scale fisheries exploiting local stocks, and fisheries licensing for commercial fisheries), delegation of management responsibility to local level and resource users, institutional building for fisheries management at local level, involvement of stakeholders, etc., where appropriate, to enhance the effectiveness of fisheries management.
- Regional Guidelines on Fisheries Licensing in the Southeast Asian Region should be further developed to support responsible fishing practices and reduction of fishing capacity. In this regard, a Technical Working Group should also be established to provide technical input to the Guidelines.

2. Exploration and Sustainable Utilization of Potential Fisheries Resources

- SEAFDEC should continue to collaborate with Member Countries in the exploration of potential fishery resources in the region, and investigate the appropriate fishing gears and techniques as well as the social-economic feasibility studies.
- In order to support the assessment of fisheries resources in sub-regional areas e.g. Sulu Sea, Celebes Sea, Andaman Sea and some part of the South China Sea, the M.V. SEAFDEC 2 could be utilized in conducting fishery resources survey.
- Technical Working Group(s) should be established to develop appropriate fisheries management for shared stocks and highly migratory species (e.g. tunas, neritic tuna and important small pelagic species) as well as under-utilized resources (e.g. oceanic squid, demersal fish resources in untrawlable and deep fishing grounds), taking into consideration the outcomes from research studies undertaken by SEAFDEC and information available from countries and other organizations (e.g. FAO, UNEP-GEF, etc.), to ensure sustainable exploitation of the resources for further consideration by RAC and SEAFDEC Council, respectively.
- Southeast Asian Countries should support the implementation of Regional Framework for Tuna Information Collection in the Southeast Asian Region, in order to enhance the collection of data and information on capture of tunas including neritic tuna species for future support on the management of tuna resources at national and sub-regional level. In addition, all countries should also develop appropriate national mechanism to collect information on tuna fisheries.
- SEAFDEC should develop the appropriate fishing gear and post-harvest technology for oceanic squid fisheries targeting purpleback flying squid which are identified as potential fisheries resources in the deep areas of the Southeast Asian waters.

3. Promotion of Aquaculture and Feed Management

- Southeast Asian countries should consider developing a balanced management policy in fisheries and aquaculture considering the impact of aquaculture to fisheries especially for securing the required feeds.
- Southeast Asian Countries should initiate national efforts to investigate such impact.
- SEAFDEC in collaboration with Member Countries should explore the possibility of conducting activities to study the impact of aquaculture on local food security especially on the use of low-value fish as feeds.
- The Technical Working Group could be established to specifically discuss and develop appropriate technical recommendations on the priority fisheries management issues relevant to aquaculture.

4. Enhancing the Exchange of Data and Information

- Southeast Asian Countries in collaboration with SEAFDEC should exchange data and information and maximize the use of data and information for supporting fisheries management actions including fisheries statistics, fisheries indicators, outcomes from ports monitoring and research studies/surveys, etc.
- SEAFDEC should provide regional framework/platform to facilitate information gathering, sharing and exchange on priority fisheries management issues of the region

5. Supporting the implementation of RPOA for Responsible Fishing Practices Including Combating Illegal, Unreported and Unregulated (IUU) Fishing in the Region

- SEAFDEC should continue to provide scientific and technical advice and assistance to the Member Countries particularly in supporting the implementation of responsible fishing practices in the region and the effort to increase the public's awareness regarding the laws and regulations to improve compliance.
- Southeast Asian Countries should strengthen their monitoring and control system, and further coordinate with neighboring countries in the region to implement the required activities/measures to combat IUU fishing, including coordinated surveillance activities.

These two unique problematic conditions should be modified in order that sustainable fisheries could be achieved. Thus, under the regional policy on fisheries management guided by the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region, all fishing operations in the region would be gradually modified based on the concept of rights-based fisheries. This approach could eventually modify the two aforementioned unique conditions of the region's fisheries development.

However, Kato (2008b) also cited that two important regulatory measures should also be considered under the rights-based fisheries approach. These are: (1) licensing

system, and (2) group user right system. While the former has not yet been developed, the latter concept has been included in the "Regional Guidelines for Co-Management Using Group User Rights for Small-Scale Fisheries in Southeast Asia" (SEAFDEC 2006). On the other hand, although many countries in the region have already established their fisheries licensing systems, Regional Guidelines on Fisheries Licensing for the Southeast Asian Region could be further developed to support responsible fishing practices and reduce fishing capacity as well as accelerate the promotion of sustainable fisheries management in the countries as well as in transboundary or sub-regional areas. In this regard, a Technical Working Group should also be

established to provide technical input to the Guidelines giving more focus on commercial fisheries. The Regional Guidelines could also take into consideration the fisheries management theories and methodologies that have been developed for fisheries in temperate areas that could be transformed into practical approaches by making these applicable to fisheries operating in a tropical ecosystem. The Regional Guidelines could be used as reference in the improvement of existing licensing systems already adopted in some countries in the region.

Exploration and Sustainable Utilization of Potential Fisheries Resources

In order to support the assessment of fisheries resources and explore potential fishery resources in the Southeast Asian region, SEAFDEC in collaboration with its Member Countries initiated efforts to investigate the fisheries resources and the appropriate fishing gears and techniques suitable for such fishery resources, and also conducted relevant social-economic feasibility studies. For such activities, the M.V. SEAFDEC 2 has been utilized in conducting the relevant fishery resources surveys. However, the arrangements on the utilization of the M.V. SEAFDEC 2 include a cost-sharing scheme between SEAFDEC and the Member Countries in order to defray the expenses during the vessel's operations. Since the Member Countries during the recent years had difficulty in sharing the operations' cost because of the increasing fuel prices, SEAFDEC therefore proposed that the M.V. SEAFDEC 2 should be utilized for conducting collaborative surveys in the sub-regional areas in collaboration with relevant countries on a multi-lateral basis. This could reduce the financial burden of the concerned countries in sharing the operations cost for the vessel during the resources surveys.

Furthermore, since results from single country's information collection and fishery resources survey in the sub-regional seas may not be sufficient enough for the analysis of the fishery resources in the Southeast Asian waters considering the highly migratory species or/and shared stocks of some pelagic fishes, and since using the M.V. SEAFDEC 2 by a single country could be costly even if the operation is conducted under the cost-sharing policy of SEAFDEC, therefore, collaborative arrangements between SEAFDEC and Member Countries concerned should be considered in conducting fisheries resources surveys in particular seas where the fish stocks are shared. SEAFDEC therefore is developing the appropriate proposal applicable for the sub-regional fisheries surveys under its programming exercises. The Member Countries for its part should investigate their respective needs and requirements relevant to the conduct of resources surveys utilizing the M.V. SEAFDEC 2 specifically in the assessment of the fisheries resources at the sub-regional level.

Moreover, in order to develop appropriate fisheries management for shared stocks and highly migratory species (e.g. tunas, neritic tuna and important small pelagic species) as well as under-utilized resources (e.g. oceanic squid, demersal fish resources in untrawlable and deep fishing grounds), the establishment of Technical Working Group(s) has been proposed to undertake such activity. The study could take into consideration the outcomes from various research studies undertaken by SEAFDEC and the information available from countries and other organizations (e.g. FAO, UNEP-GEF, etc.), to ensure the sustainable exploitation of the potential fisheries resources.

On the other hand, while the potential offshore fishery resources (in areas where the depth of water is over 100 meters) could be sustainably exploited, various types of the potential offshore fisheries should also be promoted in the Southeast Asian region (i.e. large pelagic and tuna fisheries, small pelagic fisheries associated with Fish Aggregating Devices (FADs), bottom longline in un-trawlable grounds, gillnet/drift gillnet targeting large pelagic fish, oceanic squid fisheries, and deep sea fisheries). Nevertheless, there is a need for the countries in the region to evaluate their respective policies in promoting offshore fisheries or transferring of fishing operations from coastal areas to offshore waters since under the limited access regime, there is the possibility that such policies could backfire. Thus, offshore or deep sea fisheries should therefore be promoted with caution, taking into account the experiences and lessons learned from coastal fisheries.

Promotion of Aquaculture and Feed Management

The aquaculture sector in the region, which has been contributing significantly to improvement of food security and economic growth, is growing and is predicted to meet the increasing demand for aquatic food in the years to come (FAO, 2006) and will continue to grow and contribute to national economies. However, despite the bright prospects, aquaculture development is confronted with many challenges which could impede the efforts in advancing towards sustainability. The expansion of the aquaculture industry could increase fishing pressure considering that low-value fish or trash fish are converted into aquaculture feeds while seedstocks of commercial aquatic species are harvested for aquaculture purposes. In order to mitigate the impacts of aquaculture to fish production, the aquaculture sector must adopt approaches that support responsible fisheries management within the context of social, economic, environmental, and political circumstances.

Many cultured fish species are carnivorous and require fish protein in their diets while some species would also require fish products in their diets. In the aquaculture industry,

such nutritional requirements are provided by feeding the cultured fish with low-value fish or trash fish or fish meal-based feeds. Now the aquaculture sector is at the stage where its further development would depend on the availability and supply of fishmeal and other fish-based products (Platon *et al.*, 2007). Considering that a large proportion of the total fishmeal supplies are also utilized to produce feeds for terrestrial animals, this would lead to further increased in the demand for fishery products resulting in increased pressure to the fishery resources as the same resources are mainly utilized for direct human consumption.

Platon *et al.* (2007) therefore suggested that for the sustained growth of the aquaculture sector, suitable and cost-effective substitutes for fish meal and fishery products in fish diets should be explored. This could include protein sources from vegetables and animals which could be incorporated in the diets of several fish species. In addition, the use of biotechnology and enzyme treatments could also improve the nutritive value of various plant and animal ingredients. Bioconversion of waste products can also be pursued as initiated by Indonesia using the larvae of an insect (Hem *et al.*, 2008). Moreover, the possible involvement and integration of the R & D efforts of the private sector with those of the governments and on the development of a policy and regulatory framework that addresses the issue of quality criteria and standards for manufactured feeds should also be explored. Furthermore, awareness building on the environmental impact of using inappropriate feeds, feeding practices and overfeeding should be made part of the promotion of sustainable aquaculture development.

Enhancing the Exchange of Data and Information

The importance of fishery statistics and information to support fisheries planning and management has been well recognized. Thus, the Southeast Asian countries in collaboration with SEAFDEC have been strengthening their data and information collection systems, particularly for shared stocks and small pelagic species. The information currently being collected include production, seasons, fishing area, size of fish, types of fishing gears, etc. In a related development, while the Regional Fisheries Management Organizations (RFMOs) have attempted to estimate the tuna stocks in the Indian Ocean Tuna Commission (IOTC) and the Western Central Pacific Fisheries Commission (WCPFC) areas, in response to the seemingly declining tuna stocks in the high seas, there is still no clear picture of the tuna capture information in the Southeast Asian region.

In order to support the RFMO information collection as well as to clarify the status of tuna capture production in the region, the development of the Regional Framework for Tuna Information Collection in the Southeast Asian Region

has been proposed. Under the Framework, information on capture of tunas including neritic tuna species could be collected either through the SEAFDEC fishery statistical system and/or from fishing vessel logbooks in collaboration with the countries' respective fishing licensing agencies.

Supporting the implementation of RPOA for Responsible Fishing Practices Including Combating Illegal, Unreported and Unregulated (IUU) Fishing in the Region

Fishing activity provides an important contribution to the food security and economic well-being of the peoples in the Southeast Asian region. However, overexploitation and illegal fishing practices have hastened the depletion of many fish stocks. Thus, the fishery resources must be managed sustainably while responsible fishing practices should be promoted. Although some of the major causes of the depletion of fisheries resources can be addressed at the national level, there are other issues that can only be successfully addressed through regional and sub-regional cooperation. In the long-term sustainable protection of the living marine resources and the marine environment, regional and sub-regional cooperation is necessary particularly in the areas with interdependent marine ecosystems, adjoining maritime boundaries and shared fish stocks.

IUU fishing has been a major problem that affects the sustainable development of fisheries in the Southeast Asian region, where it is not unusual for one single IUU fishing operation to be carried out in the waters of different countries or that the operators involved are of different nationalities. International cooperation is therefore essential to prevent, deter and eliminate such activities. In this regard, the Southeast Asian region has been encouraged to implement the RPOA IUU Regulation. The Regional Plan of Action (RPOA) for Responsible Fishing Practices Including Combating Illegal, Unreported and Unregulated (IUU) Fishing in the Region is a voluntary instrument and takes its core principles from already established international fisheries instruments for promoting responsible fishing practices, and is consistent with existing treaties, agreements and arrangements as well as other plans and programs relevant to the sustainable management of the region's living marine resources. The objective of the RPOA is to enhance and strengthen the overall level of fisheries management in the region, in order to sustain the fisheries resources and marine environments, and to optimize the benefits of adopting responsible fishing practices. Currently, the RPOA covers conservation of fisheries resources and their environment, managing fishing capacity, and combating illegal, unreported and unregulated (IUU) fishing in three sub-regional areas, namely: (1) Gulf of Thailand, (2) South and East of South China Sea and Sulu-Sulawesi Sea, and (3) Timor-Arafura Sea.

During the 40th Meeting SEAFDEC Council in 2008, the Council provided directives for SEAFDEC to provide technical support and advice as well as assist the Southeast Asian countries in the implementation of the RPOA. In line with such directives, RAC has been tasked to provide the technical advice and assistance to the SEAFDEC Member Countries particularly in supporting responsible fishing practices and in increasing awareness of the related laws and regulations in order to enhance compliance of the RPOA. In addition, RAC would also develop technical advice on specific issues under the RPOA. Specifically, the First Meeting of RAC in September 2008 offered some suggestions that are relevant to the promotion of responsible fishing practices and in combating IUU in Southeast Asia (Box 3).

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Box 3. Suggestions relevant to the promotion of responsible fishing practices and combating IUU in Southeast Asia

- As there is no high sea area in the Southeast Asian region and fishing practices have been operated mainly in the national waters of the respective countries, management of responsible fisheries should be implemented along line with the existing national laws and regulations.
- Since the countries in the region have implemented certain levels of MCS measures to combat IUU fishing, national agencies responsible for fisheries should further strengthen the monitoring and control systems for fisheries in their respective countries, and further coordinate with other countries in the region for the implementation of the required activities/measures to combat IUU fishing including coordinated surveillance activities.
- The concept of MCS should be separated into M, C, and S, where M and C could be promoted considering the competence of the current fisheries related agencies in the region. The importance of the roles and functions of M and C should also be promoted in order to improve fisheries management.
- RAC should focus on the improvement of fisheries management to avoid duplicating the functions of the RPOA which focus on IUU, and that the definition of IUU in the context of the national waters compared with that for the high seas should be carefully evaluated and when necessary should be revised where appropriate.
- RAC Secretariat (through SEAFDEC) should explore the possibility of collaborating with the information networks of the RFMOs specifically in exchanging information on IUU vessels.

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