

# Steering the Development of Southeast Asian Fisheries Towards Sustainability

Chumnarn Pongsri, Kenji Matsumoto and Virgilia T. Sulit

The Southeast Asian Fisheries Development Center (SEAFDEC) is a regional treaty organization established in 1967 and mandated to develop the fisheries potentials of the Southeast Asian region through rational utilization of the resources for food security in the region. SEAFDEC comprises 11 Member Countries, namely: Brunei Darussalam, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam. SEAFDEC operates through its Secretariat in Thailand and four technical Departments: the Training Department (TD) in Thailand, Marine Fisheries Research Department (MFRD) in Singapore, Aquaculture Department (AQD) in the Philippines, and Marine Fishery Resources Development and Management Department (MFRDMD) in Malaysia. SEAFDEC through the technical Departments conducts fishery R&D activities in the ASEAN countries under interdisciplinary approaches covering responsible fisheries and aquaculture technologies and practices, post-harvest technology and practices, fisheries management concepts and approaches, and policy and advisory services, among others. The Council of Directors representing the Member Countries is the policy-making body of SEAFDEC while the Secretary-General serves as the chief administrator of SEAFDEC.



since 1967, had proven to be practical and professional in many tangible aspects of fisheries technology including a wealth of information on national and regional fisheries development, and had gained familiarity with the issues and concerns confronting the fisheries sector in the countries of the Southeast Asian region, it had become necessary for SEAFDEC to set sights beyond its current horizon and to actively pursue an integrated approach to fisheries management in order that the Member Countries could achieve long-term and significant gains in food fish supply and economic growth. In this regard, SEAFDEC was mandated by the SEAFDEC Council starting in 1998 to play a more active role as the regional collaborating platform and formalize its cooperation with the ASEAN for the sustainable development of fisheries in the region in the midst of the fast evolving global fisheries situation. Given such scenario, the SEAFDEC Council adopted the strategies (**Box 1**) that would be used as guide for SEAFDEC to realize the goals set in its mandate while at the same time address the issues and concerns spelled out in the global fisheries arena.

In the mid 90s, various international fisheries instruments with analogous objective of promoting sustainable development of fisheries were adopted globally. The most relevant of the fisheries instruments included the latest United Nations Convention on the Law of the Sea (UNCLOS), the FAO Code of Conduct for Responsible Fisheries (CCRF), the Kyoto Declaration on the Sustainable Contribution of Fisheries to Food Security, and the Rome Declaration on World Food Security. Such instruments called for concerted efforts towards the conservation and sustainable management of the fishery resources, strengthening scientific research for sustainable development of fisheries and aquaculture, adjusting capacity to be commensurate with long-term stock productivity, increasing the availability of fish and fisheries products for human consumption, and eliminating the unsustainable patterns of fish consumption and production.

During that same period while SEAFDEC marked the 30<sup>th</sup> anniversary of its establishment, the SEAFDEC Council considered it an opportune time to review the policies and operations of SEAFDEC in the light of the evolving regional and international fisheries scenario. Although SEAFDEC after having existed for 30 years

## Box 1. Strategies to be used by SEAFDEC as guide in promoting sustainable development of fisheries

- Placing emphasis on regional issues and anticipated external problems
- Promoting efficient and sustainable uses of fisheries resources
- Facilitating intra-regional exchange of expertise and information
- Strengthening mechanisms for regional collaboration
- Avoiding duplication of efforts
- Increasing visibility of SEAFDEC activities

Source: SEAFDEC (1998)

Table 1. Total fish production of Southeast Asia: 1998-2008 (QTY in '000 metric tons; VAL in US\$ '000 000)

Fisheries Sub-sectors	1998		2000		2002		2004		2006		2008	
	Qty	Val	Qty	Val	Qty	Val	Qty	Val	Qty	Val	Qty	Val
Marine Capture	11,448.4	4,057.5	12,052.4	6,141.9	12,756.4	8,080.3	13,380.8	7,404.8	13,938.8	9,091.3	13,814.4	12,336.0
Inland Capture	947.8	242.6	1,330.1	391.4	1,516.7	569.2	1,429.2	541.9	2,107.1	596.9	2,381.7	2,215.4
Aquaculture	3,258.1	4,664.2	3,860.2	5,323.4	5,027.6	6,225.2	6,243.7	7,201.8	8,348.2	5,778.0	11,064.0	14,032.2
<b>TOTAL</b>	<b>15,654.3</b>	<b>8,944.3</b>	<b>17,242.7</b>	<b>11,765.7</b>	<b>19,300.7</b>	<b>14,874.7</b>	<b>21,053.7</b>	<b>15,148.5</b>	<b>24,394.1</b>	<b>15,466.2</b>	<b>27,260.1</b>	<b>28,583.6</b>

Source: SEAFDEC Fishery Statistical Bulletin for the South China Sea Area: 1998-2007, and SEAFDEC Fishery Statistical Bulletin of Southeast Asia 2008

## Contribution of the Region's Fisheries to Food Security

Fisheries in the Southeast Asian region had been playing very significant role in providing food security to the peoples at all levels. From the total fisheries production of 15,654.3 thousand metric tons in 1998 valued at US\$ 8,944.3 million, by 2008 the production quantity increased to 27,260.1 thousand metric tons valued at US\$ 28,583.6 million (Table 1), increasing at an annual rate of about 6% in terms of quantity and about 9% in terms of value. Although the ten-year production from marine capture fisheries had been slowly increasing, production from inland capture fisheries and from aquaculture during the same period showed significantly increasing trend.

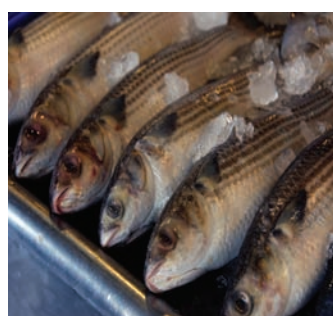
Specifically in 2008, the region's fisheries production accounted for about 19% of the world's total fisheries

production of about 142.3 million metric tons (FAO, 2010). In terms of exports, data in 2007 showed that the world's total export of fisheries commodities was 39,788,511 metric tons of which more than 15% was contributed by the Southeast Asian countries (6,061,416 mt). Thailand topped the region's exporting countries contributing about 41% of the region's export of fisheries commodities followed by Vietnam at 25% (FAO, 2010).

In order that such trend could be sustained and the contribution of fisheries to food security in the region is enhanced, SEAFDEC continues to strengthen its collaboration with the ASEAN countries through the ASEAN-SEAFDEC collaborative mechanism and gives due attention to addressing the problems and constraints in the fisheries management with an objective of reversing the current state of the region's fisheries resources which had been observed to be at the brink of serious deterioration. In such way, the gap between supply and demand for fish and fisheries products would be bridged while at the same time ensuring that the balance between conservation and exploitation of the fisheries resources is maintained.

## The ASEAN and SEAFDEC Collaborative Mechanism

While SEAFDEC had also been mandated to take a regional approach to program formulation in response to anticipated global threats, ways and means were explored by SEAFDEC for the establishment of a formal working mechanism with the ASEAN in the promotion of sustainable fisheries development in the Southeast Asian region. Considering the common mission of promoting sustainable fisheries development in Southeast Asia, the mechanism for an ASEAN-SEAFDEC collaboration was established in 1998, giving birth to the so-called ASEAN-SEAFDEC Fisheries Consultative Group (FCG) for Sustainable Development of Fisheries in Southeast Asia. Under the FCG collaborative mechanism, fisheries policies, programs and activities have been developed and implemented in the ASEAN countries





## Box 2. ASEAN-SEAFDEC FCG Programs

### Programs initiated in 1998

1. Upgrading the traditional fish processing industries in Southeast Asia (MFRD)
2. Promotion of mangrove-friendly aquaculture in Southeast Asia (AQD)
3. Conservation and management of sea turtles in Southeast Asian countries (MFRDMD)
4. Regionalization of the Code of Conduct for Responsible Fisheries (SEAFDEC Secretariat and all Departments)
5. Development of fish disease inspection methodologies for artificially-bred seeds (AQD)
6. Fish trade and environment (SEAFDEC Secretariat)
7. Coastal Resource Management (TD)

### Special Five-Year Program (2002-2005)

8. Fisheries Management (TD, MFRDMD, SEAFDEC Secretariat)
  - Towards decentralized management for sustainable fisheries in the ASEAN region
  - Improvement of fishery statistical systems and mechanisms
  - Responsible fishing gears and practices
  - Resource enhancement
  - Identification of indicators for sustainable development and management of capture fisheries in the ASEAN region
  - Information gathering for capture inland fisheries in ASEAN countries
  - Harvesting of under-exploited resources
9. Integrated Regional Aquaculture Project (AQD)
  - Aquaculture for rural development
  - Supply of good quality seeds
10. Utilization of Fish and Fishery Products (MFRD)
  - Maximizing the utilization of fish catch
  - Fish quality and safety management systems
11. Information collection for sustainable pelagic fisheries in the South China Sea (TD, MFRDMD, MFRD)
12. Digitized Atlas (All Departments)
13. Application of HACCP in the fish processing industry in Southeast Asia (MFRD)

### ASEAN-FCG Programs (initiated from 2003 and onwards)

14. Accelerating awareness and capacity-building in fish health management (AQD)
15. Activities related to climate change and adaptation in Southeast Asia with special focus on the Andaman Sea (SEAFDEC Secretariat)
16. Assistance of capacity building in the region to address international trade-related issues (SEAFDEC Secretariat)
17. Capacity improvement of fisheries community for fisheries management and alleviation of poverty
18. Chemical and drug residues in fish and fish products in Southeast Asia: Biotoxins monitoring (MFRD)
19. Chloramphenicol and nitrofurans residues in aquaculture fish and fish products (MFRD)
20. Deep sea fisheries resources exploration of the Southeast Asian waters (TD)
21. Development of fish disease surveillance system (AQD)
22. Development of integrated inland fisheries management in the ASEAN countries (MFRDMD)
23. Development of regional database for fisheries management (TD)
24. Development of technologies and human capacity building for sustainable aquaculture (AQD)
25. Environmental related tasks in Southeast Asia (SEAFDEC Secretariat)
26. Fisheries resources survey and operational plan of M.V. SEAFDEC 2 (TD)
27. Food safety of aquaculture products in Southeast Asia (AQD, MFRD)
28. Good laboratory quality management in ASEAN member countries (MFRD)
29. Human Resource Development (HRD) for poverty alleviation and food security by fisheries intervention for the fisheries communities in the ASEAN region (SEAFDEC Secretariat)
30. Improvement of fishery statistics and information for planning and management of fisheries in the ASEAN region (SEAFDEC Secretariat)
31. Information collection of highly migratory species in Southeast Asian waters (TD)
32. Management of fisheries and utilization of sharks in Southeast Asia (SEAFDEC Secretariat, MFRD, MFRDMD)
33. Promotion of "One Village, One Fisheries Products (FOVOP)" system to improve livelihood for the fisheries communities in the ASEAN region (SEAFDEC Secretariat)
34. Promotion of rights-based fisheries and co-management towards institutional building and participatory mechanism for coastal fisheries management (TD)
35. Promotion of sustainable and region-oriented aquaculture (AQD)
36. Quality assurance system for small- and medium-sized fish processing establishments in ASEAN member countries (MFRD)
37. Rehabilitation of fisheries resources and habitats/fishing grounds through resource enhancement (TD)
38. Research and analysis of chemical residues and contamination in fish, fish products and the environment such as fishing ground and aquaculture field (MFRD)
39. Research and development (R&D) of stock enhancement for species under international concerns (AQD, TD, MFRDMD)
40. Research and management of sea turtles in foraging habitats in the Southeast Asian waters (MFRDMD, TD)
41. Research for stock enhancement of sea turtles (MFRDMD)
42. Resource enhancement of international threatened and over-exploited species in Southeast Asia through stock release (AQD)
43. Responsible fishing technologies and practices: Fishing in harmony with nature (TD)
44. Seafood Safety Information Network (MFRD)
45. Strengthening small-scale fisheries management through the promotion of rights-based fisheries and co-management (TD)
46. Support to tsunami rehabilitation of affected countries (SEAFDEC Secretariat)
47. Sustainable utilization of potential fisheries resources and reduction of post-harvest losses (TD)
48. Tagging program of economically important pelagic species in the South China Sea and Andaman Sea (MFRDMD)
49. The use of indicators for sustainable development and management of capture fisheries in the ASEAN region (MFRDMD)
50. Traceability systems for aquaculture products in the ASEAN region (MFRD)
51. Utilization of freshwater fish in the ASEAN member countries for value-added products (MFRD)

allowing for the effective mobilization and utilization of the limited resources without unnecessarily duplicating efforts.

In order to assure that the efforts of the ASEAN and SEAFDEC are sustained especially in addressing the challenges that have possible impacts on the development and management of fisheries, and in support of the implementation of various activities that would benefit the countries in the region, the ASEAN-SEAFDEC Strategic Partnership (ASSP) was formalized in 2007. From such strengthened partnership, a number of programs and activities have been implemented by SEAFDEC in the ASEAN countries under the ASEAN-SEAFDEC FCG/ASSP framework. The ASEAN-SEAFDEC collaborative mechanism was envisaged to lead to the sustainable development of fisheries as well as to the upliftment of the economic well-being of the peoples in the Southeast Asian region. In addition to the technical programs, the areas of collaboration between the ASEAN and SEAFDEC also covered among others, cooperation in the implementation of the ASEAN Roadmap for the Integration of the Fisheries Sector, the establishment of the ASEAN Fisheries Consultative Forum (AFCF), and the ASEAN Shrimp Alliance (ASA).

Moreover, under the FCG collaborative framework, the ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security in the New Millennium: “Fish for the People” was organized in November 2001 in response to the widespread regional concern over the unsustainable fisheries practices, which had negatively affected the supply

of fish and fisheries products as well as the socio-economic well-being of the peoples in the region. The Resolution and Plan of Action adopted during the 2001 Millennium Conference (SEAFDEC, 2001) provided regional policy direction and guiding principle for the development of programs relevant to the sustainable development of fisheries in the ASEAN region, under the FCG framework.

Furthermore, in an effort to pursue the momentum that was initiated during the 2001 Conference, the Special Five-Year Follow-up Program on the Contribution of Sustainable Fisheries for Food Security in the ASEAN Region was formulated and implemented from 2002 to 2005. The Special Five-Year Program was aimed at assisting the ASEAN countries in the implementation of the 2001 Resolution and Plan of Action. In addition to the programs that had been implemented since 1998 under the ASEAN-SEAFDEC FCG collaborative mechanism, the Special Five-Year Program was implemented as part of such mechanism. Later on, more programs have been carried out under the FCG/ASSP framework (**Box 2**).

Meanwhile in the international arena, additional requirements have been developed and adopted to ensure the global sustainability of fisheries. With the continued deteriorating state of the fishery resources in the Southeast Asian region and the emerging fisheries related issues and initiatives during the past decade that need to be addressed, the ASEAN and SEAFDEC called for the organization of a sequel forum. The ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security





Towards 2020 “Fish for the People 2020: Adaptation to a Changing Environment” is therefore scheduled for 13-17 June 2011 in Bangkok, Thailand. The Fish for the People 2020 Conference is envisaged to address the priority issues that threaten and impede the sustainable contribution of fisheries to food security in the region.

The 2011 Conference would also come up with the regional policy framework and priority actions in enhancing the contribution of fisheries to food security and to the well-being of the peoples in the ASEAN region while also responding to the changing environment. Moreover, the recommendations from the technical preparatory process of the Conference would serve as inputs for the development of the new decade Resolution and Plan of Action, particularly in the formulation of follow-up activities taking into consideration the priority issues and challenges that continue to confront the fisheries sector in our region. As a follow-up to the outcomes of the 2011 Conference, consultations would be held to facilitate the planning and implementation of programs and activities in line with the new Resolution and Plan of Action, and taking into consideration the outcomes from the Technical Session. The themes for the Technical Session of the Conference are shown in **Box 3**. SEAFDEC would therefore sustain its programs and activities in line with the new Resolution and Plan of Action, and ensure that through sustainable development, fisheries could enhance its contribution to food security in the ASEAN region.



### Role of SEAFDEC in the Sustainable Development of Fisheries in the ASEAN Region

Since its establishment in 1967, SEAFDEC through its Secretariat and four technical Departments has been conducting R&D programs and activities in the ASEAN region covering the areas of responsible fishing technologies and practices, sustainable fisheries management, responsible aquaculture development, and fishery post-harvest technologies. In addition, SEAFDEC has also been supporting the ASEAN countries in the formulation of regional fisheries policies to safeguard the countries’ interests. With the formulation of the FCG collaborative mechanism and the establishment of the ASSP later, the FCG/ASSP collaborative framework has paved the way for SEAFDEC to work closely with the ASEAN countries in the implementation of programs and activities



### Box 3. Themes for the Technical Session of the 2011 Conference

<p><b>1. Enhancing governance in fishery management</b> Governance which encompasses the institutional arrangements for stakeholders in the society to extract fishery resources, will determine how well societal problems are resolved and opportunities are created for enhancing social welfare. This theme is envisaged to pave the way for enhancing the role of governance in managing fisheries in the ASEAN region, which could be implemented in the context of an ecosystem approach to fisheries as articulated in the global Code of Conduct for Responsible Fisheries.</p>
<p><b>2. Sustainable aquaculture development</b> It has been predicted that demand for food fish would increase by 2020, likewise for aquaculture which has been predicted to grow to meet the deficit in food fish needs. Therefore, challenges will have to be addressed in order that aquaculture could effectively contribute to the region's sustainable development. Thus, this theme is a step towards the final formulation of a roadmap for sustainable aquaculture development in the region for the next decade and beyond.</p>
<p><b>3. Ecosystem approach to fisheries</b> Ecosystem approach to fisheries is an important factor that could complement the existing fisheries management approaches. A comprehensive ecosystem approach to fisheries management would require fisheries managers to understand the complex ecological and socio-economic environments in which fish and fisheries exist, and should be able to anticipate the effects that fisheries management will have on the ecosystem and the effects that ecosystem change will have on fisheries.</p>
<p><b>4. Post-harvest and safety of fish and fisheries products</b> The post-harvest sector is important in fisheries as it deals with activities after capture from handling the catch on-board and on-shore, processing, distribution and marketing including the control systems for managing the safety and quality as well as traceability of such products. Although currently in the region, most fish is utilized, but much of the catch landed is of poor quality and utilized for non-human consumption. Therefore, methods of optimizing the utilization of fish catch should be established for the greater value of the fish and fisheries products, and to comply with the standards and requirements of the importing countries.</p>
<p><b>5. Emerging requirements for trade of fish and fisheries products</b> Recently, the fisheries sector has seen dramatic changes in terms of requirements to guarantee good quality, healthy products and other related aspects to ensure that fish and fisheries products are safe for human consumption. In addition, there are standards imposed by importing products on products being exported, which need to be complied with. Therefore, this theme would address the central aspects of trade in fish and fisheries products which is vital to the economies of the region considering the large quantity of fish and fisheries products traded in international market.</p>
<p><b>6. Climate change adaptation and mitigation towards food security</b> The Southeast Asian region is most vulnerable to climate change due to its long coastlines, high density of population and economic activities in coastal areas and heavy reliance on natural resources. Climate change has already affected the region, therefore the immediate need for improved fisheries management, restoration of important and protective habitats, and creation of alternative and diversified livelihoods should be addressed and considered high priority. This theme is envisaged to project on how to mitigate the impacts of climate change to fisheries and aquaculture in relation to aforementioned need.</p>
<p><b>7. Livelihood among fishing communities and prospects of employment in fisheries-related activities</b> The development of the ASEAN Community from the point of view of social aspects, labor requirements and the rights of coastal and inland communities to a decent livelihood would be the key issues to be considered under this theme. It is envisaged that sustainable fisheries management should ensure that in addition to the promotion of how to manage the fish, the well-being and the rights of all those involved in various aspects of fisheries should also be protected.</p>
<p><b>8. Sustaining food supply from inland fisheries</b> This theme would focus on the need to safeguard food security from inland fisheries from the context of fisheries providing direct and indirect employment opportunities, income and nutrition, among others. The sustainable development of inland fisheries towards sustainable community-based inland fisheries resource management would therefore be given focus. In addition, the integration of fisheries with multiple inland water resource use would also be emphasized considering that the competition for water and aquatic habitat is the most critical challenge in inland fisheries as well as the increasing competition for water from the other economic sectors.</p>

that support the sustainable development of fisheries in the respective countries in the region.

With funding support that mostly come from the Government of Japan through its Ministry of Foreign Affairs and later through the Japanese Trust Fund (JTF), significant achievements have been attained by SEAFDEC from the implementation of such activities while technologies have been developed, which in turn have been disseminated to the region through training, workshops, seminars and massive dissemination of information. Results from the various programs and activities have been compiled as proceedings, technical reports, scientific articles, annual reports, internal publications of the Departments as well as in the Special Publication Fish for the People and in the SEAFDEC Newsletter.

Thus, the achievements from the implementation of such programs as summarized in **Box 4**, have been recognized not only as results of technical initiatives but have been used as basis by the ASEAN countries for the formulation of their respective national fisheries policies. Furthermore, SEAFDEC has also been providing assistance to the ASEAN countries in collectively addressing international fisheries issues that could impede the sustainable development of fisheries in the region.

## References

FAO. 2010. Fishery and Aquaculture Statistics 2008. Food and Agriculture Organization of the United Nations, Rome, Italy; 72 p



#### Box 4. Summary of the contributions of SEAFDEC towards the sustainable development of fisheries in Southeast Asia

##### **Promotion of sustainable fisheries management**

The adoption of the CCRF in the region was enhanced through the Regionalization of the CCRF undertaken by SEAFDEC taking into consideration certain specificities in the region's fisheries structures as well as the unique cultural and socio-economic situations of the region. The resulting set of regional guidelines which have been disseminated to the region included those for Responsible Fishing Operations, Responsible Aquaculture, Responsible Fisheries Management, Responsible Post-harvest Practices and Trade, and the Supplementary Guidelines on Co-management using Group User Rights, Fishery Statistics, Indicators, and Fisheries *Refugia*. In sustaining its support to the ASEAN countries for the implementation of the CCRF through the Regional Guidelines, SEAFDEC has broadened its activities demonstrating in the process significant results that led to the further development of fisheries in the respective countries. The ASEAN countries then intensified the promotion of the Regional Guidelines by translating these into their respective national languages and conducting national activities in the aspects of the Regional Guidelines. As a result, the CCRF has contributed significantly to the development of responsible fisheries in the ASEAN countries and had been used as basis for the formulation of the relevant national policies and plans of the respective countries.

##### **Advocating responsible marine fishing technologies**

The coastal fisheries resources of Southeast Asia had been over-exploited because of increasing demand for fish and fisheries products as well as the modernization of fisheries technology. In view of the nature of the region's fisheries which is small-scale, the fishers are vulnerable to intense competition in limited fishing grounds and often encountering conflicts with their fishing operations over the decreasing resources. SEAFDEC therefore improved marine fishing technologies in order to address the critical problems of the small-scale fishers through the promotion of selective fishing gear and practices. Specifically, the use of Juvenile and Trash Fish Excluder Devices (JTEDs) was advocated in the ASEAN countries after which a number of fishing fleets in the Philippines have been installed with JTEDs while in other countries research on the use of JTEDs had been continuing. Moreover, the set-net technology was also improved for sustainable coastal fisheries in the region. In a few pilot sites in Southeast Asia, the results had demonstrated that the set-net is an environment-friendly fishing gear, and could promote cooperation among the local small-scale fisheries, and that the set-net can be used in coastal fishing grounds without disrupting the biodiversity of the coastal areas.

##### **Development of responsible and sustainable aquaculture**

Aquaculture in the region has developed so fast that in 2008, about 16% of the world's total production from aquaculture (68,327.4 mt) was contributed by the countries of Southeast Asia (11,064.0 thousand metric tons valued at US\$ 14,032.2 million), and in terms of value the region contributed about 13% to world's aquaculture production valued at US\$ 105,874.0 million (FAO, 2010). However, the rapid growth of the region's aquaculture was capped by concerns of food safety. SEAFDEC therefore addressed such concern through a long-term strategy by implementing projects which are dovetailed towards making the region's aquaculture development not only technically feasible and environment-friendly but also economically viable and socially equitable. In order to attain such objective, R&D as well as human capacity building had been intensified for the effective and efficient transfer of aquaculture technologies to the rural fishfarmers. Moreover, through the promotion of fish disease management, healthy and wholesome aquaculture had been attained by the countries in the region.

##### **Promotion of safe and wholesome fishery products**

SEAFDEC has been conducting projects that aim to advance the production of safe and wholesome products, and increase the availability of such products for human consumption, by maximizing the utilization of fish catch and minimizing wastage of the fish resource. The application of the Hazard Analysis and Critical Control Point (HACCP) was promoted to ensure food safety in fish processing of products for export while improvement of the traditional products was advocated for domestic consumption. Through the application of HACCP, the ASEAN countries ensure the safety of the region's fish and fisheries products. Moreover, the technology developed in chemical and drug residue testing has been transferred to the ASEAN countries allowing for the building up of science-based knowledge that enhances the capability of the countries to detect residues in fish and fisheries products, and manage the quality and safety of their products.

##### **Intensification of fishery resources research**

Many fishing grounds in the region should be conserved in order that fisheries could continue to play the role of contributing to the region's food security and economy. The very nature of the region's fisheries where ownership is not defined makes it difficult to manage the straddling stocks resulting in excess capacity and overfishing, and subsequently to the over-exploitation of the resources. In view of such situation, SEAFDEC has promoted the sustainable management of shared stocks while also managing fishing capacity, addressing the issues of illegal, unreported and unregulated (IUU) fishing, and assisting the countries in strengthening their monitoring, control and surveillance (MCS). Moreover, Through the assistance of SEAFDEC, surveys of the countries' fishing grounds and deep sea resources had been carried out for sustainable development of fisheries. During the surveys, the research vessels of SEAFDEC as well as those of the participating Member Countries had been used. The findings of the surveys provide better understanding of the status of the resources and serve as scientific evidence for management.

##### **Marine resources conservation, management and enhancement**

The efforts of SEAFDEC to advocate fisheries management mechanisms has led to the development by the countries of their own policies and frameworks to manage their respective fisheries. However, considering the deteriorating state of the region's fisheries resources due to human intervention, SEAFDEC has advanced the conservation and management of the resources as options to attain increased fish production and comply with regional and international conservation measures. Thus, the countries have rectified their management policies by gradually introducing decentralized rights-based fisheries and fisheries co-management systems, as well as the protection and rehabilitation of important aquatic resource habitats, and stock enhancement. Moreover, efforts in the conservation and management of sea turtles led to the establishment of a regional mechanism for research and conservation, and the use of selective fishing gear to reduce the incidental catch of sea turtles in fishing operations. Stock enhancement of sea turtles had also been promoted as well as for other threatened aquatic species.

##### **Improvement and harmonization of information for fisheries management**

SEAFDEC has been undertaking activities to strengthen the national fisheries statistical systems of the countries in the region to serve as basis for understanding the status and conditions of the fishery resources. The statistical systems in the region had also been harmonized with those of international standards in order to facilitate the reporting of fisheries statistics to FAO and SEAFDEC. The development of the Regional Framework for Fishery Statistics of Southeast Asia has paved the way for the improvement of the collection and compilation of fisheries statistics by the ASEAN countries as well for the better understanding of the role of fisheries statistics in the management of their respective fisheries resources. The fisheries data and information provided by the countries to SEAFDEC had been compiled into the Fishery Statistical Bulletin of the South China Sea Area which was renamed in 2010 as the Fisheries Statistical Bulletin of Southeast Asia.

**Box 4. Summary of the contributions of SEAFDEC towards the sustainable development of fisheries in Southeast Asia (Cont'd)**

**Facilitating discussions on international fisheries-related issues**

SEAFDEC has provided avenue for the ASEAN countries to discuss international fisheries-related issues through the regional technical consultations. Such consultations had enabled the countries to respond to international initiatives and to develop common positions and policy options reflecting ASEAN fisheries in international fora especially on the issues related to the proposed listings of aquatic species which are economically important for the Southeast Asian region in the CITES Appendices. Moreover, the study of SEAFDEC on the management of fisheries and utilization of sharks in Southeast Asia led to the development of National Plan of Action on Sharks by the respective countries in line with the International Plan of Action on Sharks, to ensure that conservation and management of sharks in the countries are in place.

**Enhancing visibility and public awareness of SEAFDEC initiatives and efforts**

While intensifying the promotion of its visibility, SEAFDEC through the Secretariat and four technical Departments has been implementing information programs and activities including the Center-wide Information Network, and in order to supplement such efforts the SEAFDEC Council adopted the SEAFDEC Information Policy and Plans including the SEAFDEC information strategy, which served as basis for the development of tools for the promotion of SEAFDEC activities and disseminating SEAFDEC information. The various publications of SEAFDEC that include proceedings, technical papers, scientific articles, as well as newsletters and the Special Publication Fish for the People, had been instrumental in providing the public with better understanding of the activities SEAFDEC especially its role in promoting the sustainable development of fisheries for food security of the peoples in the Southeast Asian region.

SEAFDEC. 1998. Report of the Thirtieth Meeting of the SEAFDEC Council, Brunei Darussalam, 17-21 March 1998; pp 81-83

SEAFDEC. 2001. Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 7 p

SEAFDEC. 2006. Fishery Statistical Bulletin for the South China Sea Area 2002-2003. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 173 p

SEAFDEC. 2010. Fishery Statistical Bulletin for the South China Sea Area 2007. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 165 p

SEAFDEC. 2010a. Fishery Statistical Bulletin of Southeast Asia 2008. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 135 p

**About the Authors**

Dr. Chumnarn Pongsri is the Secretary-General of SEAFDEC and concurrently Chief of the SEAFDEC Training Department. He is also the Editor-in-Chief of Fish for the People.

Mr. Kenji Matsumoto is the Deputy Secretary-General of SEAFDEC and concurrently the Deputy Chief of SEAFDEC Training Department. He is also the Manager of the Japanese Trust Fund at SEAFDEC.

Ms. Virgilia T. Sulit is Fisheries Technical Officer based at the SEAFDEC Secretariat in Bangkok, Thailand and is the Managing Editor of Fish for the People.

