



# Boosting the Contribution of Fisheries to ASEAN Food Security Towards 2020

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Fisheries in the ASEAN region is generally characterized as being small-scale and has been playing the major role of accelerating economic development and generating livelihood opportunities, in many ways, contributing to the region's food security. As defined, food security is attained when food is available for everybody's access, and when people do not go hungry or do not fear of possible starvation. FAO suggested that when all people have physical and economic access to sufficient and safe food at all times then food security is in place. Parallel with this, the US Department of Agriculture identified two main aspects of food security, *viz*: availability of nutritionally adequate and safe food; and assurance of daily accessibility to acceptable foods in a socially acceptable way.

## Current Fisheries Scenario in the ASEAN Region

Currently and after going through very rapid development during the past decades, it is feared that fisheries may no longer provide stable livelihood to the fishing communities in the ASEAN due to fishing overcapacity. Ironically, the

ever-increasing large number of small-scale fishers locks them within the vicious cycle of fisheries overcapacity (Kato, 2008). Being dependent on fishing for their livelihoods and with no other alternative sources of income because of limited know-how and insufficient financial resources, the fishers tend to saturate the absorbing capacity of the fisheries sector. Having no way out, the fishers therefore continue to race for the diminishing fisheries resources.

Meanwhile, outside the fishing communities and elsewhere around the globe, the demand for more food fish is on the rise. In an effort to supply the much needed demand for food fish, many fishers continue to maximize the exploitation of the remaining resources, to the extent of resorting to irresponsible means without looking ahead of the possible effects of their actions on the environment and the resources that have already been degraded. The continued practice of irresponsible fishing operations such as the use of dynamite and chemicals as well as over-fishing promotes food security crisis in areas where the degraded fishery resources are further squeezed to the last drop, trapping the fisheries sector in the vicious cycle on resource degradation (Kato, 2008). Thus, food security which seems easy to achieve, may not be possible in the ASEAN region if the resources continue to be heavily degraded and where people's access to food in a socially respectable way is difficult to fulfill.

Moreover, the attempts of many countries in the region to boost foreign exchange earnings and improve their economies, had diverted the low-value fish species that once was valuable source of cheap protein food for the fishing communities, to the fish meal industry. This makes the availability of foodfish for the people getting slimmer contributing to potential food insecurity especially in the fishing communities. Meanwhile, the expansion of the aquaculture sector to supply the foreign market with food fish leads to the drastic increasing demand for aquafeeds. Thus, the maximum exploitation of the low value fishes and even the juveniles of commercially important fishes for utilization as aquafeeds has added pressure to the already degraded fishery resources and exacerbated the conflict between the utilization of fish products for aquafeeds and the use of the same resources for human consumption.

## **The Impacts of the 2001 Resolution and Plan of Action**

SEAFDEC and ASEAN had been exerting efforts to address the issues and concerns in fisheries to enhance the role of fisheries as one of the main driving forces towards attaining food security. Recognizing the importance of sustainable fisheries for food security and livelihoods as well as for the well-being of the ASEAN people, concerned ministers from the ASEAN and SEAFDEC countries adopted the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region during the Fish for the People Millennium Conference in 2001 (SEAFDEC, 2001).

The 2001 Resolution and Plan of Action have since then served as policy framework that steered the ASEAN countries towards enhancing the sustainability of fisheries and its contribution to food security. Using the Resolution and Plan of Action as overall framework, the programs implemented by SEAFDEC in the ASEAN countries have paved the way for the formulation of policies and strategies for sustainable fisheries development with the aim of ensuring food security. Specifically, the programs implemented by SEAFDEC in the ASEAN region through its Training Department in Thailand, Marine Fisheries Research Department in Singapore, Aquaculture Department in the Philippines, Marine Fishery Resources Development and Management Department in Malaysia, included: (1) Sustainable fisheries management; (2) Responsible fishing technologies and practices; (3) Responsible and sustainable aquaculture; (4) Safety and wholesome fishery products; (5) Fishing resources exploration and research; and (6) Resources conservation, management and enhancement.

## **Sustainable fisheries management**

SEAFDEC has been implementing several regional projects and activities in the ASEAN region that include promoting the adoption of the global Code of Conduct for Responsible Fisheries (CCRF). This was achieved through the Regionalization of the CCRF to harmonize policies on sustainable fisheries in the region. The regionalization efforts were followed by the assessment of the implementation of the Regional Guidelines in the ASEAN to further enhance fisheries development and management.

## **Responsible fishing technologies and practices**

Projects on improved fishing technologies to address the critical problems in the region's coastal fisheries have also been carried out by SEAFDEC, taking into consideration the fact that most coastal fishery resources in the region could be over-exploited due to high demand for fishery products and the modernization of fishing technology. Since the region's coastal fisheries are often confronted with conflicts in fishing operations over the decreasing fishery resources, selective fishing gears and practices including the use of by-catch reduction devices (BRDs), *e.g.* juvenile and trash fish excluder devices (JTEDs) have been promoted by SEAFDEC in the region's coastal areas.

## **Responsible and sustainable aquaculture**

SEAFDEC also addresses the concerns brought about by the rapid growth of aquaculture in the region with the objective of making aquaculture a long-term strategy to the region's economic development considering that aquaculture has the great potentials to fill the gap between supply and demand for fish products. The aquaculture projects and activities have been dove-tailed to ensure that the region's aquaculture development should not only be technically feasible and economically viable but also environment-friendly and socially equitable.

## **Safety and wholesome fishery products**

With the view of ensuring that the region's fisheries continue to significantly contribute to food security, SEAFDEC makes sure that post-harvest technologies are improved and the people's needs for safe and nutritious fish products are supplied. SEAFDEC therefore advances the production of safe and wholesome fish and fishery products for human consumption, by way of maximizing the utilization of fish catch and at the same time minimizing wastage of the fishery resources.

## Fisheries resources exploration and research

SEAFDEC is always advocating for the fisheries sector in the region to continue playing the vital role of ensuring food security and improving economies, making it necessary to promote the conservation and rehabilitation of the region's fishing grounds and resources. The South China Sea for example, is one of the most important commercial fishery areas in the Southeast Asian region, and is abundant with commercially important pelagic fishes, which are straddling and shared by many countries in the region. This makes it difficult to manage the straddling stocks that led to overfishing and severe over-exploitation of the resources. SEAFDEC has therefore been promoting the sustainable management of the shared stocks at the sub-regional level, and at the same time exploring the offshore areas for commercial fisheries to expand their fishing grounds and developing the most appropriate fishing gears that could be effectively promoted in the offshore areas, taking into consideration the sustainability of the offshore resources.

## Resources conservation, management and enhancement

It has been established that the region's fishery resources have generally shown certain levels of degradation. SEAFDEC therefore has been promoting the conservation and management of the fishery resources as options to attain increased fish production and comply with regional and international conservation measures. This resulted in the rectification of fisheries practices and policies in the region towards improved fisheries management. The gradual introduction of decentralized rights-based fisheries and co-management systems, regulation and control of fishing activities, protection and rehabilitation of important aquatic resources and their habitats, and resource and stock

enhancement, have already started to take shape in many countries in Southeast Asia.

## Possible Scenario in 2020

The rapid growth of the world's population and the shifting paradigm in the world's food consumption pattern could lead to food insecurity in the future. The same situation could also add pressure to the natural resources and increase the dynamism and competitiveness of the multiple uses of water resources. In addition, the emerging issues such as climate change and the more stringent trade requirements by importing countries could result in the general livelihood crisis in fishing communities. Given the present state of the fishery resources, it might be difficult for fishers in the region to adapt and cope with such impending crisis. Therefore, it is only with improved governance that the fisheries sector in the region would be able to enhance its continued contribution to food security in the region.

## Food insecurity

Statistics have shown that the world's total population in mid-2008 was 6,705 million of which the total population of the Southeast Asian countries accounted for about 9% or about 586 million (**Table 1**). It has also been projected that by mid-2025 or after more than 15 years, the world's population could reach about 8,000 million and that of Southeast Asia would be about 709 million (World Population Data Sheet, 2008). The people in the ASEAN region are fish-eating with the average consumption of fish in 1997 reported to be about 23.0 kg/capita/year (Delgado *et al.*, 2003). With a projected annual growth of 1.3% (**Table 2**), the consumption of fish in the region in 2008 could be about 26.5 kg/capita/year. This means that the region's demand for fish in 2008 was about 15.5 million metric tons.

**Table 1.** Total population of the world and Southeast Asia (in millions)

|                   | Mid-2008 | Mid-2025 | Mid-2050 | Projected Population Change: 2008-2050 (%) |
|-------------------|----------|----------|----------|--|
| Southeast Asia    | 586.0    | 709.0    | 826.0    | 41   |
| Brunei Darussalam | 0.4      | 0.5      | 0.6      | 67   |
| Cambodia          | 14.7     | 20.6     | 30.5     | 108  |
| Indonesia         | 239.9    | 291.9    | 343.1    | 43   |
| Lao PDR           | 5.9      | 8.7      | 12.3     | 110  |
| Malaysia          | 27.7     | 34.6     | 40.4     | 46   |
| Myanmar           | 49.2     | 55.4     | 58.7     | 19   |
| Philippines       | 90.5     | 120.2    | 150.1    | 66   |
| Singapore         | 4.8      | 5.3      | 5.3      | 10   |
| Thailand          | 66.1     | 70.2     | 68.9     | 4  |
| Vietnam           | 86.2     | 100.1    | 112.8    | 31   |
| World             | 6,705.0  | 8,000.0  | 9,352.00 | 39   |

Source: 2008 World Population Data Sheet, Population Reference Bureau, Washington, DC, USA

**Table 2.** Fish production vs. fish consumption

| Production of wild fish for food (1973-1997* and 2008**), in million mt    |      |      |      |                                   |         |
|--|------|------|------|-----------------------------------|---------|
|  | 1973 | 1985 | 1997 | Annual Growth Rate, 1985-1997 (%) | 2008    |
| Southeast Asia   | 5.0  | 6.9  | 10.4 | 3.5                               |         |
| World  | 44.5 | 56.3 | 64.5 | 1.1                               |         |
| Production of fish from aquaculture (1973-1997* and 2008**), in million mt |      |      |      |                                   |         |
|  | 1973 | 1985 | 1997 | Annual Growth Rate, 1985-1997 (%) | 2008    |
| Southeast Asia   | 0.4  | 0.9  | 2.3  | 7.6                               |         |
| World  | 3.1  | 8.0  | 28.6 | 11.2                              |         |
| Total consumption of fish (kg/capita/year)                                 |      |      |      |                                   |         |
|  | 1973 | 1985 | 1997 | Annual Growth Rate, 1985-1997 (%) | 2008*** |
| Southeast Asia   | 17.6 | 19.8 | 23.0 | 1.3                               | 26.5    |
| World  | 11.6 | 12.8 | 15.7 | 1.7                               | 18.9    |

\* Source: Delgado et al. (2003)

\*\* Source: FAO FishStat Plus

\*\*\* Calculated

**Table 3.** Population, fish consumption, fish production and number of fishers: Southeast Asia

| Countries         | 2008 Population* (millions) | Per capita fish consumption** (kg/person/year) | 2008 Fish Production** (metric tons) | Estimated number of fishers** |
|-------------------|-----------------------------|--|--------------------------------------|-------------------------------|
| Southeast Asia    | 586.0                       |  | 26,817,145                           |                               |
| Brunei Darussalam | 0.4                         | 31.46  | 2,442                                | 5,229                         |
| Cambodia          | 14.7                        | 32.04  | 471,000                              | -                             |
| Indonesia         | 239.9                       | 37.70  | 9,052,127                            | 2,231,967                     |
| Lao PDR           | 5.9                         | 24.86  | 145,687                              | 99,617                        |
| Malaysia          | 27.7                        | 63.30  | 1,753,310                            | 140,358                       |
| Myanmar           | 49.2                        | 64.40  | 3,168,630                            | 3,201,923                     |
| Philippines       | 90.5                        | 54.88  | 4,966,890                            | 1,786,948                     |
| Singapore         | 4.8                         | -  | 5,141                                | 122                           |
| Thailand          | 66.1                        | 40.35  | 2,667,018                            | 168,140                       |
| Vietnam           | 86.2                        | 53.40  | 4,584,900                            |                               |
| World             | 6,705.0                     |  | 159,089,695***                       |                               |

\* Source: 2008 World Population Data Sheet, Population Reference Bureau, Washington, DC, USA

\*\* Source: Data collected from the ASEAN countries for the compilation of the Fishery Statistics of Southeast Asia by SEAFDEC

\*\*\* Source: FAO FishStat Plus

Considering the region's total fish production in 2008 which was about 26,817,145 metric tons (**Table 3**), only about 11.3 million metric tons would be bound for the international fish trade. In the ideal fish supply and demand situation, the world's consumption of fish in 2008 would be about 18.9 kg/capita/year, and the world's demand for fish in 2008 was about 126.7 million metric tons. This is notwithstanding the fact that since significant portion of the total fish catch goes into the fish meal industry, this is no longer available for human consumption. Specifically in the ASEAN region where aquaculture has developed so rapidly, the amount of fish catch transformed into aquafeeds could be significantly

enormous. Considering, therefore, the amount of fish catch being converted to fish meal and the fish food required for human consumption, at certain point in time, the fish supply may not be able to meet the demand, in which case food insecurity could occur.

### Paradigm shift in food consumption

Man's dietary pattern could be influenced by many factors, e.g. economic (income, prices of food), cultural (beliefs, customs and traditions), social (individual preferences and health concerns), environmental (food availability).

Recently, a shift in the worldwide consumption pattern has been widely noted. Economically, the developed countries are now consuming more high value fish products than the developing countries due to the increased incomes of the people in developed countries. Socially and due to health concerns, more people around the world are now consuming more fish protein than other animal protein in view of the omega-3 contents in food fish. Omega-3 found in fish oils is known to prevent heart disease and maintain optimum blood pressure and cholesterol levels, making fish products more attractive for people who are conscious of their health conditions. This paradigm shift in food consumption is therefore expected to continue, and this implies the need for more supply of fish to meet the increasing demand.

### **Increased pressure to natural resources**

The escalating demand for fish and the enhanced status of fish as high value food commodity for health reasons coupled with the persistent attitude of fishers to chase after the dwindling fishery resources would increase the pressure to the natural resources. In such situation, fishing operations would not only capture the commercial-sized fish but also the other small food fishes and juveniles of commercially important fishes that could be used as aquafeeds. Such irresponsible practices continue to deplete the natural resources up to the point of no recovery.

### **Complex dynamism and competitiveness of multiple water resource use**

Many water bodies in the region, *i.e.* the inland and near-shore water bodies are now being used for fisheries and aquaculture to sustain food fish supply for the increasing demand of the growing population. However, the same water bodies are also being used for other purposes such as power generation, tourism, irrigation, urban and industrial water supply, and waste disposal. The wastes discharged from increased urbanization and massive tourism development carried through the waterways had been found to pollute the coastal waters and contribute to the further degradation of the natural resources. The competition for the various uses of the water resource becomes so complex that it could affect the sustainability of fisheries and could contribute to food insecurity in the future.

### **Climate change**

Climate change has greatly affected the ASEAN region more than any other regions in the world. Increasing frequency and intensity of extreme weather occurrences with huge consequences has already been observed, *i.e.* flooding and seawater rises, change of water temperature and salinity,

change in aquatic species composition and distribution, coral bleaching, increasing occurrences of storms and cyclones. The region is one of the most vulnerable regions in the world, to climate change due to its long coastlines, high concentration of population and economic activity in coastal areas as well as the heavy reliance on fisheries. Climate change therefore affects the sustainability of fisheries and aquaculture in the ASEAN region.

### **More stringent trade requirements**

During the past decade, the fisheries sector has seen some dramatic changes in terms of requirements to guarantee good quality of fish and fish products that are healthy and safe for human consumption. Recently, there had been increasing demand from consumers with regards to production of fish and the methods used in the manufacture of fish products. Now, producers are required to certify that all steps in the production line comply with the acceptable environmental standards. Added to these are the calls for combating IUU fisheries, adoption of the legally binding Port State Measures and the EU requirements for catch documentation. Considering that the trends and emerging requirements are aimed not only at ensuring quality and environmental sustainability but also certifying fair trade standards as well as social and labor standards, compliance by the countries of such requirements should be promoted for the benefit of the region's fisheries industry.

### **Governance in fisheries**

There is a need to appropriately address the deteriorating state of the fishery resources and the emerging fisheries-related issues in order to achieve sustainable fisheries development and food security. The involvement of government agencies in solving such problems is very crucial. Considering that fishery resources are common resources that belong to nobody, government agencies must accept the custodianship authority over such resources including management responsibilities. This would imply improving governance in fisheries in order to aggressively address overfishing and resource degradation in the region. The participation of the communities in fisheries management should also be enhanced for the effective accountability of the resources by the users.

### **Way Forward**

The world's ever increasing population would need additional amounts of food fish for their nutritional requirements. Such recognized need could not be addressed if the fishery resources keep on declining. In consideration of such conditions, it would be necessary to maintain a

resources-based equilibrium with fish demand on one side and fish supply on the other. This means balancing conservation and exploitation of the resources, to satisfy the demand and at the same time sustain the supply.

As an unlimited gift of nature, fishery resources should be considered as food bank for the future generations. Since the fishery resources had been earning interests in terms of the harvestable aquatic species, it should be left to flourish and allowed to continue providing mankind with great benefits. While before, it has always been a common perception that fishery resources are renewable, such scenario had already changed. Now, the fishery resources have been viewed as no longer infinite. Thus, there is a need to properly manage the fishery resources as food bank in order to ensure their sustainable contribution to food security for the future generations. However, since fisheries continue to become a market-driven sector, it is feared that the resources could no longer sustain the rapid and uncontrolled exploitation unless proper management is put in place.

Additionally, for the promotion of sustainable fisheries management, the other aspect on the need to enhance the incomes of fishers should also be addressed to maintain the resources-based equilibrium. This could be achieved through the promotion of sustainable use of the fishery resources that the fishers always depended on for their subsistence. In this connection, SEAFDEC would advance the concept of “limited access regimes” through the promotion of rights-based fisheries to facilitate the management of fishing capacity as well as on the adoption of responsible fishing gear and practices. Implementation of resources-based activities, which deal greatly with the practice of responsible fisheries coupled with interventions such as enhancement of the habitats, would be intensified in order to improve fisheries production and food security. SEAFDEC would also continue to work towards striking the balance between improving the health of the ecosystems and satisfying the essentials for the existence of human beings. Projects relevant to alternative livelihood promotion as well as habitat rehabilitation and conservation through responsible fisheries operations had been pursued under the framework of the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region which was adopted in 2001. For the next decade, SEAFDEC would continue to strive for attaining food security in the region in the midst of the new and emerging concerns that threaten the sustainability of fisheries.

Moreover, various approaches have been fostered and adopted by the ASEAN countries to promote sustainable fisheries management for food security. As a matter of fact, measures have been advanced by the countries in the

region to enhance their fishery resources which include the deployment of artificial reefs, installation of fish aggregating devices as well as fish enhancing devices, promotion of stock enhancement, and development of fish refugias and marine protected areas. Specifically, the creation of fish refugias has been recognized as a strategy in areas where the natural refuges no longer exist.

In a broader sense, SEAFDEC would continue to intensify its activities in the ASEAN countries in order to maintain the resources-based equilibrium in the region. With much optimism that once the supply and demand for food fish is well-balanced, SEAFDEC strongly believes that fisheries would be one sector that could also take care of food security for the region’s future generations.

### **Fish for the People 2020 Conference**

After more than a decade of intensified collaboration between SEAFDEC and the ASEAN, significant progress has been attained by the ASEAN countries in promoting sustainable fisheries and in improving the people’s livelihood for food security. The existing fisheries collaborative mechanism is being advanced for long-term sustainability and food security. In order to sustain such momentum, the ASEAN and SEAFDEC planned to organize the ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security Towards 2020 in June 2011. Dubbed as Fish for the People 2020, the Conference is envisaged to pave the way for the development of ways and means of addressing the issues that would possibly impede the efforts of SEAFDEC and the ASEAN towards maximizing the contribution of responsible fisheries to food security.

The discussions during the Conference would aim to address the concerns that had emerged and could emerge during the next decade. As envisaged, such issues to could include: (1) Enhancing governance in fishery management; (2) Sustainable aquaculture development; (3) Ecosystem considerations: Managing the relationship between fisheries and the environment; (4) Post-harvest and safety of fish and fisheries products; (5) Emerging requirements for trade of fisheries products; (6) Climate change adaptation and mitigation towards food security; (7) Livelihood among fishing communities and prospects of employment in fisheries-related activities; and (8) Sustaining food supply from inland fisheries.

The changing global economic scenario and the deteriorating state of the region’s fishery resources during the past decade necessitated SEAFDEC and the ASEAN to assess the progress and achievements in the implementation of programs in the ASEAN region under the framework of the

2001 Resolution and Plan of Action as well as to develop the next decade regional direction. The Fish for the People 2020 Conference is therefore intended to come up with the new Decade “Resolution” and “Plan of Action” on Sustainable Fisheries for Food Security in the ASEAN Region (Towards 2020) to be used as renewed policy principles in achieving sustainable fisheries for food security in the coming decades.

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