

laws and regulations. The Governments should also promote or impose the adoption of best practices, e.g. Good Aquaculture Practice (GAP) in their respective countries' aquaculture industry. The private sector, on the other hand, should comply with regulatory provisions to support government initiatives and programs and ensure product traceability. It is also necessary for the private sector to make sure that proper information and records pertaining to the various stakeholders in the aquaculture supply chain, provided to the government are accurately documented and maintained throughout the supply chain.

5. FISHERIES MANAGEMENT

5.1 Management of Fishing Capacity and Combating IUU Fishing

The rapidly growing fisheries industry in Southeast Asia since late 1970s has led to increased fishing capacity, especially with the introduction of highly efficient fishing gears such as trawlers and later on the purse seiners, as well as to the increasing capacities of processing plants. Promotion of the surimi industry in the region is one of the examples that significantly increased the capacities of processing industries, while increasing amounts of fish as raw materials are required to supply these processing industries. The fishing areas since the 1970s have been largely expanded to cover international waters particularly the South China Sea and towards the offshore areas of the Southeast Asian countries. The Economic Exclusive Zones (EEZs), which used to be only 12 nautical miles from shore and increased to 200 nautical miles after the adoption of the United Nations Convention on the Law of the Sea (UNCLOS) in 1982, has created significant impacts in many Southeast Asian countries. The expansion of EEZs to 200 nautical miles without effective Monitoring, Control and Surveillance (MCS) and fisheries management schemes was considered as one of the primary reasons that drives the fishing industries to operate illegal fishing activities, later identified as Illegal, Unreported and Unregulated (IUU) fishing in the EEZs of neighboring countries. There could be many forms of IUU fishing activities but among the major forms are unlicensed fishing, landing of fish in neighboring states, using double flags, and use of illegal fishing and practices, among others.

In the practical implementation, many AMSs consider that the implementation of MCS scheme plays a key role in preventing IUU fishing activities, particularly illegal fishing, and in enforcing the necessary countermeasures. Recently, the various market-driven measures enforced by fish importing countries are among the important issues that AMSs have been concerned with, and thus are putting high attention to comply with such requirements otherwise, trading of their fish and fishery products to these importing countries would be hampered. As a result,

improvement of the effectiveness of fisheries management and combating IUU fishing are being promoted at national level. However, the measures or actions could not be implemented in an isolated manner by a single country. Thus, regional collaborative frameworks had been established and promoted through the RPOA-IUU and SEAFDEC. Specifically under the SEAFDEC frameworks, AMSs with support from SEAFDEC have developed several management tools, guidelines, and measures that aim to enhance cooperation among the AMSs in combating IUU fishing and improving the effectiveness of fisheries management. As one of key elements in fisheries management, promotion of effective fishing capacity is essential in making sure that fishing effort is matched with the available resources in order to protect important habitats as well as to enforce regulations that would safeguard the interest of specifically vulnerable groups of people and support the efforts to combat IUU fishing.

5.1.1 Management of Fishing Capacity

During the past three to four decades, Indonesia, Thailand, Philippines, Myanmar, Viet Nam, and Malaysia ranked among the top ten countries with the largest fishing industries in the world, which could be due to the introduction of new fishing gear technologies as well as post-harvest and processing facilities since 1960s leading to the rapid and intensive development of the fisheries industry in the region. The rising number of fishing fleet in the Southeast Asian region coupled with rapid increase in harvesting capacity has not been matched with the development of national capacities and regional or sub-regional cooperation to manage fishing effort with due consideration given to the sustainability of fishery resources. Limited management or regulation and control of active fishing capacity allow fisheries to operate in an “*open-access regime*” leading to continued increase in number of vessels and people engaged in fisheries. It has therefore become necessary to improve and implement licensing schemes and other capacity management measures that would effectively limit entry into the fisheries by replacing the present inadequately designed systems.

Recognizing the need to replace the “*open-access*” with the “*limited access*” regime to ensure sustainable utilization of the resources, several AMSs have been recently working towards improving the management of their respective countries' fishing capacity. These could be gleaned from the available legal institutional frameworks in relation to management of fishing capacity of the respective AMS that were compiled based on their inputs during the Regional Technical Consultation on Development of Regional Plan of Action for Managing of Fishing Capacity in December 2015, as described in **Box 8**.

Box 8. National policies and legal frameworks of ASEAN Member States on management of fishing capacity

Brunei Darussalam	<p>The country's policy on Sustainable Fisheries Management, Brunei Fisheries Limits Chapter 13, and Fisheries Order 2009 provide legislative infrastructure for the management of fisheries activities and fishing areas, as well as marine reserves and parks. This underlying policy has been translated into operational and field level management programs to ensure the:</p> <ul style="list-style-type: none"> • protection of resources from over-fishing and destructive fishing activities • protection of breeding grounds (coral reefs and mangroves) and promote recruitment and recovery • promotion of responsible fishing and environment-friendly technologies
Cambodia	<p>Legislative and institutional systems for fishing capacity management of the marine fisheries sub-sector in the country are included in the Law on Fisheries 2007:</p> <ul style="list-style-type: none"> • Article 45: All types of fishery exploitation in the marine fisheries domain, except subsistence fishing shall be allowed only if in possession of a license and exploitation shall follow the conditions and obligations in the fishing logbook. The model of fishing logbook is determined by the proclamation of the Ministry of Agriculture Forestry and Fisheries (MAFF) • Article 47: Fishermen shall transship fishery products at a fishing port determined by the Fisheries Administration (FiA), while foreign fishing vessels that are permitted to fish in the marine fisheries domain shall inform the FiA prior to landing their catch in port in marine fisheries domain of Cambodia. Other terms and conditions on transshipment of fishery products and anchoring of the foreign fishing vessels shall be determined by FiA • Article 48: Based on precise scientific information that the fishing practices have been or are the cause of serious damage to fish stocks, FiA has the right to immediately and temporarily suspend fishing activities and propose for reexamination of the fishing agreement and seek for the decision from the MAFF • Under the NPOA for management of fishing capacity, marine capture fisheries is classified into two levels, namely: 1) national fishing, which is managed by MAFF and FiA; and 2) international fishing, which is managed the Cabinet of the Prime Minister Office. The NPOA had been drafted and the Inter-Ministries Joint Working Group was formed to accelerate the approval and implementation of the NPOA.
Indonesia	<p>The legal frameworks governing the country's marine fisheries sub-sector include:</p> <ul style="list-style-type: none"> • Act No. 31/2004 as amended by No. 45/2009 on Fisheries • Act No. 27/2007 as amended by No. 1/2014 on Coastal and Small Islands Management • Regulation of Government No. 60/2007 on Fish Resources Conservation • Ministerial Decree No. 45/2011 on Estimation of Fish Resources Potential in Fisheries Management Area (FMA) <p>For fishing capacity management, Indonesia carried out data collection and reporting, moratorium to imported fishing vessels, prohibition of transshipment at sea, prohibition of catching lobster and crab, prohibition of trawls and seine nets, and establishment of closing area for fishing (conservation). The NPOA is still in the drafting stage and yet to be launched. The NPOA is referred to as technical guidance and the detailed action plan within the framework of the NPOA is in the process of development.</p>
Malaysia	<p>The country's Fisheries Act 1985 provides the legislative framework for the conservation, management, and development of its capture fisheries. The development of the country's fishing industry closely follows the National Agro-Food Policy 2011-2020 (NAP) which includes a provision that "Sustainable development of capture fisheries industry is important to ensure fisheries resources are preserved and could be sustained for the future." Phase 2 of NPOA-Capacity which focused on 12 identified issues and challenges and three strategies, was adopted. The strategies for the NPOA-Capacity are: 1) review and implement effective conservation and management measures; 2) strengthen capacity and capability for monitoring and surveillance programs; and 3) promote public awareness and education programs. The long-term objective of Phase 2 NPOA-Capacity is for the country to achieve an efficient, equitable, and transparent management of fishing capacity in marine capture fisheries by 2018.</p>
Myanmar	<p>The country's legal framework on management of fishing capacity is embedded in the Marine Fisheries Law (1990) and the law relating to fishing rights of foreign fishing vessels (1989). In addition, the country's regulations related to management of fishing capacity are in place. These include: 1) prohibition of building or importing new fishing vessels; 2) prohibition of fishing in high seas; 3) transforming of trawls into other fishing gears is allowed but other fishing gears cannot be transformed to trawls; 4) flag State and port State measures including the installation of VMS and implementation of Catch Certificate scheme. For the implementation for management of fishing capacity in Myanmar, the action plans include: 1) promotion of effective inspections for all fishing vessels at sea; 2) installation of VMS in all fishing vessels for effective MCS system; 3) use of TEDs and JTEDs in trawl fishing vessels; and 4) conduct of surveys on fishing capacity of each fishing gear group.</p>
Philippines	<p>The country's legal and institutional frameworks cover two classes of fishing vessels, namely: 1) commercial fishing - fishing with the use of fishing vessels 3.1 GT and above, and operating beyond 15 km from the shoreline; and 2) municipal fishing - fishing with the use of fishing vessels less than 3.1 GT and operating within the area of 15 km from the shoreline. Registration of commercial fishing vessels is under the mandate of the Maritime Industry Authority (MARINA) while registration of municipal fishing vessels is delegated to the Local Government Units (LGUs). Licensing of commercial fishing vessels is under the mandate of the Bureau of Fisheries and Aquatic Resources (BFAR) while licensing of municipal fishing vessels is the authority of the Local Government Units (LGUs). There is NPOA on Fishing Capacity Management as yet, however there are plans to develop the NPOA within the next five years. Nevertheless, a moratorium on the issuance of new licenses and other clearances had been established while building new boats and import of secondhand boats had been stopped. A joint mobile registration and licensing with MARINA have been promoted nationwide and an inventory of all commercial fishing boats had been carried out.</p>

Box 8. National policies and legal frameworks of ASEAN Member States on management of fishing capacity (Cont'd)	
Singapore	Based on the country's legislative and institutional systems, fishing capacity is monitored through catch declaration and reporting as part of the licensing requirements imposed by the Agri-Food & Veterinary Authority (AVA) of Singapore. Licenses are no longer issued for inshore fishing vessels. On NPOA-Capacity, inter-agency engagements had been initiated to conduct regular discussions and coordination towards the development of the NPOA against IUU fishing activities, including the implementation of relevant measures under the PSMA. In addition, a review of the country's policies is being planned in preparation to the amendment of its Fisheries Act to further strengthen the country's enforcement powers.
Thailand	The country's legal and institutional frameworks related to management of fishing capacity are incorporated in the new Fisheries Act 2015 composed of 11 Chapters and 104 sections, put into force since April 2015. The enactment of this Law was primarily aimed at conserving the fishery resources, particularly those in freshwater or inland habitats, coastal habitats, and marine habitats. The Act includes a provision for the adoption of a regulation (instrument that requires a Cabinet approval) and a notification (instrument that can be issued by responsible Ministries in pursuant to the Act). Thus, a number of regulations and notifications have been adopted and issued for the management of both freshwater and marine fisheries. These comprised those on Fisheries Management, Fishery Zone, Promotion of Aquaculture, Standard of Fish or Fish Products, Importation and Exportation of Fish and Fish Products, Overseas Marine Fishery, Fees on License or Permit and Substitutes, Transferability, Competent Official, Administrative Measure, and Penalties. The Department of Fisheries (DOF) serves as the principal agency dealing with fishing, marine resources, and the management of maritime habitats. Although the Department of Marine and Coastal Resources (DMCR) and the Office of Natural Resources and Environmental Policy and Planning (ONEP) under the Ministry of Natural Resources and Environment (MONRE), have legal mandates that seem to overlap with those of the DOF, particularly in the maritime and coastal areas, these agencies have been working closely with DOF in order to achieve the goal of attaining sustainability in fisheries.
Viet Nam	The country's NPOA-Capacity was developed and adopted in principle in accordance with its legal documents such as the Fisheries Law (2003); Viet Nam's Marine Strategy to 2020; Government's relevant decrees, resolutions and decisions, as well as international legal documents such as International Convention on the Law of the Sea (1982); Code of Conduct for Responsible Fisheries (FAO, 1995); and the FAO Technical Guidelines of IPOA for the Management of Fishing Capacity. The specific objectives of the country's NPOA-Capacity are: <ol style="list-style-type: none"> 1) To reduce total trawl fishing boats by 15% in 2014-2017, and 12% in 2018-2025 2) Fisheries co-management is applied for eight coastal provinces in 2014-2017, and 28 provinces in 2018-2025 3) Fishing boats are controllable in consistence with allowable resources of each particular area in 2018-2025

Recognizing the importance of promoting the sustainable management of fishing capacity, the AMSs requested SEAFDEC to develop the Regional Plan of Action for Management of Fishing Capacity (RPOA-Capacity) during the Fourth Meeting of the ASEAN Fisheries Consultative Forum (AFCF) in 2012. The RPOA-Capacity was therefore developed through series of experts and regional technical consultations among the ASEAN-SEAFDEC Member Countries, the final version of which was supported and adopted by the Member Countries during the Forty-eighth Meeting of the Council of SEAFDEC (SEAFDEC, 2016c), Twenty-fourth ASWGF and SOM-AMAF in 2016.

The RPOA-Capacity is meant not only to serve as guide for the management of fishing capacity in an ASEAN perspective but also to support the AMSs in the development and implementation of their respective NPOA-Capacity. The RPOA-Capacity is also intended to support efforts in enhancing regional cooperation on fisheries management and/or management of fishing capacity in the sub-regional areas, such as the Andaman Sea, Gulf of Thailand, South China Sea, and Sulu-Sulawesi Sea. The strengthened regional and sub-regional cooperation on the management and control of fishing capacity is expected to provide an effective platform for the AMSs to support the efforts in combat IUU fishing in the Southeast Asian region.

5.1.2 Fishing Vessel Registration and Fishing Licensing

The apparent severity of the fishery resources degradation in the Southeast Asian region brought about by uncontrolled practice of IUU fishing, prompted the AMSs to establish at the national level, systems and measures to combat IUU fishing in accordance with the Regional Guidelines for Responsible Fisheries in Southeast Asia: Responsible Fisheries Management, which provides that: “States should review the issues of excess fishing capacity at the national level and recommend where appropriate, measures to improve registration of fishing vessels, introduction of rights-based fisheries and reduction in the number of fishing boats and level of fishing effort using government incentives” (SEAFDEC, 2003). One such measure is the establishment of a system for fishing vessels registration and fishing licensing. The progress made by the AMSs in this effort is summarized in **Box 9**.

Box 9. Fishing vessels registration and licensing systems by some ASEAN Member States

Brunei Darussalam	<p>The country's fishing licensing system is under Section 13 of its Fisheries Order 2009, which provides that all gears must be licensed to be able to carry out fishing activities in the country's waters. Fishing license is of three types, namely: license for individual fishing, small-scale fishing fleet license, and commercial fishing license. However, there are cases of misusing fishing licenses as small-scale fishers go fishing without any license. The country is therefore addressing such concern by enhancing the awareness of fishers and fishing communities through dissemination of information on fishing license using the media and strengthening the relevant surveillance activities to mitigate the misuse of fishing licenses.</p>
Cambodia	<p>The country's procedure of issuing fishing license is divided into two categories depending on the engine capacity of fishing boats. Fishing vessels with engine under 33 Hp and over 33 Hp should be registered with authorized agencies such as the Marine Fisheries Administration Inspectorate and the Fisheries Administration, respectively. The major problems on issuance of fishing license include low number of vessels applying for fishing license, inadequate enforcement of fishing licenses, and lack of understanding of fishers on the rationale of getting a fishing license. The country has attempted to solve the problems by strengthening law enforcement and intensifying the dissemination of information on fisheries laws and legal documents to fishers. Moreover, capacity building of fishery staff and fishers on the relevant issues is also being promoted while the cooperation among related agencies and local authorities is strengthened.</p>
Indonesia	<p>The country's Fishing Vessels registration is being implemented by two ministries: the Ministry of Transportation, and the Ministry of Marine Affairs and Fisheries. The requirements for registration include: 1) measurement of vessel as tonnage certificate, 2) vessel registration, 3) nationality certificate, 4) fishing vessel registration such as fishing vessel book, fishing vessel marking, and 5) license (fishing vessel license). The authorities issuing the fishing license are the district or municipal government, provincial government, and central government for fishing business license, fishing license, and fish carrier license to persons and companies that operate fishing vessels between 5 to 10, 11 to 30 and over 30 GT, respectively. However, the country is confronted with several problems on fishing license, the most common of which include: double flagging where a fishing vessel could have license from Indonesian authorities as well as license from the country of origin. In an effort to mitigate the problem, foreign vessels are required to complete the certificates from responsible agencies in the country of origin while ex-IUU boats are no longer issued with fishing licenses.</p>
Malaysia	<p>The objectives of the country's Fisheries Licensing Policy are: 1) to maintain fishery resources to ascertain sustainable yield, 2) to ensure the maximization of catch and to increase the level of income of inshore fishers, 3) to eliminate the competition and inter-sectoral conflicts through allocation of resources, 4) to ensure more equitable distribution of catches between traditional and commercial fishers, and 5) to restructure the ownership pattern of fishing units among various ethnic groups in accordance with the country's New Economic Policy. The issues confronting the country's vessel registration and licensing systems are overcapacity of fishing effort, insufficient funds and manpower, insufficient coordination between implementing agencies, and inadequate deregistration documents among others.</p>
Myanmar	<p>The country's Vessels Registration system is categorized into two types: national fishing vessels registration (inshore and offshore fishing vessels) and foreign fishing vessels registration. The national offshore fishing boats are inspected by the Department of Marine Administration (DMA) while the General Administration Department is in-charge of inshore fishing vessels registration. After the fishing vessels have been inspected, the Department of Fisheries (DOF) issue the fishing and fish carrier license to inshore vessels based on the recommendation of the General Administration Department. The registration of fishing vessels operating in national offshore waters should be inspected by DMA in accordance with the inspection procedures and rules of the IMO for registration. The DOF would only issue the necessary fishing and fish carrier license to the vessels after recording the fishing vessels registration from the DMA.</p>
Philippines	<p>Registration and licensing are critical components of any fisheries management scheme as such systems could determine the delivery system and management of fishery resources and habitats, particularly in archipelagic countries like the Philippines. The Bureau of Fisheries and Aquatic Resources (BFAR) is the authorized agency to issue licenses for commercial fishing boats, gear, and fish workers. While the Local Government Units (LGUs) in municipalities or cities issue the licenses for municipal fishing operations in coordination with the Fisheries Aquatic Resource Management Councils (FARMCs) and enact appropriate ordinances for such purpose, management of contiguous fishery resources such as bays which straddle several municipalities, cities, or provinces is carried out in an integrated manner and not based on political subdivisions of municipal waters in order to facilitate their management as single resource systems. Meanwhile, commercial fishing vessels must be registered with the country's Maritime Industry Authority (MARINA), which is under the Department of Transportation and Communication (DOTC) pursuant to RA 9295 (2004 Domestic Shipping Development Act), and is primarily responsible for registration of merchant vessels (including passenger, cargo, and fishing vessels). Nonetheless, no domestic ship shall be registered under the Philippine flag and issued safety as well as other related certificates until a Tonnage Measurement Certificate has been issued by MARINA.</p>
Thailand	<p>Vessels registration is carried out by the Marine Department, while fishing license is issued by the Department of Fisheries (DOF). The problems in the country's vessels registration include inadequate collaboration between the authorized officers from the Marine Department and DOF in terms of fishing vessel registration, operation of mobile units, and data sharing as well as lack of incentive in vessel registration for small-scale fishers. On fishing license, concerns include the fact that some fishers continue to use controlled fishing gears without licenses or use other licenses instead, while most fishers renew their fishing licenses late. In order to solve these problems, inspections by the fishery patrol units should be enhanced while dissemination of information to related fishers on renewal of fishing licenses one month prior to expiry should be intensified.</p>

Box 9. Fishing vessels registration and licensing systems by some ASEAN Member States

Viet Nam	Problems in vessels registration focused mainly on obtaining the necessary legal documents and understanding the regulations, but insufficiency of staff and budget hinders the implementation of policies and regulations, as well as inadequacy of understanding on the part of fishers on the rationale of vessels registration. For the country's fishing license system, the problems include the fact that fishing gears used as well as the corresponding fishing areas exploited have not been placed under the control of any authorized agency while enforcement of fishing licenses issued is generally weak. In order to address the problems, amending the country's Fisheries Law and related legal documents had been carried out and submitted to the National Assembly for approval. The amendments include provisions to strengthen the capacity of authorized agencies in charge of vessel registration and fishing license at all levels and enhance investments in equipment for management agencies, conduct of training for staff to improve their quality and effectiveness in their areas of operation, promote advocacy for fishers to understand, and then self-consciously comply with the provisions in legal documents including boat registration and fishing license.
-----------------	---

At the regional level, initiatives had also been undertaken by regional and international organizations including SEAFDEC to support AMSs in the establishment and strengthening of vessel registration and fishing licensing systems, particularly through the development of Guidelines on Fishing Licensing and Boats Registration. Nevertheless, considering that IUU fishing is also a transboundary issue, sharing of information on fishing vessels among countries in the region has been promoted by SEAFDEC to enhance the effectiveness of measures in combating IUU fishing at the regional level. Toward this end, the Regional Fishing Vessels Record (RFVR) was established as a management tool to combat IUU fishing in the Southeast Asian region, particularly through enhanced cooperation among the AMSs in sharing their respective information on fishing vessels. The development of the RFVR is aimed at promoting the implementation of MCS system and ultimately, at preventing and eliminating IUU fishing activities in Southeast Asian waters. Through series of expert groups and regional technical consultations, the initial RFVR which starts with fishing vessels 24 meters in length and over (RFVR-24m) includes 28 elements of vessel information as shown in **Box 10**. The establishment of the RFVR-24m was also supported by the Special Senior Officials Meeting of the Thirty-Fourth Meeting of

the ASEAN Ministers on Agriculture and Forestry (Special SOM-34th AMAF) in 2013. Based on the data on fishing vessels provided by the AMSs, the Database System for RFVR-24m was launched during the Forty-seventh Meeting of the SEAFDEC Council in April 2015.

The purpose of the RFVR is to provide the AMSs with reliable and rapid means of sharing information on AMS vessels engaged in “international fishing operations,” *i.e.* fishing operations in foreign country's EEZ or in the high seas. However, the Database System for RFVR-24m is a closed system to be accessed only by the AMSs using the provided User's Account. It is envisioned that the RFVR would serve as practical ways and means of checking the behavior of fishing vessels by related authorities of AMSs, and of taking corrective actions against inappropriate operations of fishing vessels, thereby supporting the elimination of IUU fishing in the Southeast Asian region (Pongsri *et al.*, 2014). For example, the AMSs can take appropriate actions against “double-flagging vessels, IUU fishing vessels, vessels avoiding port State control and engaged in poaching” by sharing information and identifying problematic vessels through the information in the RFVR Database. Therefore, the RFVR can be described as a “Shared Tool for AMSs to Reduce IUU

Box 10. Information from the AMSs on fishing vessels 24 meters in length and over

1. Name of vessel	15. International Radio Call sign
2. Vessel Registration Number	16. Engine Brand
3. Owner Name	17. Serial number of engine
4. Type of fishing method/gear	18. Hull material
5. Fishing License number	19. Date of registration
6. Expiration date of fishing licenses	20. Area (country) of fishing operation
7. Port of registry	21. Nationality of vessel (flag)
8. Gross tonnage (GRT/GT)	22. Previous name (if any)
9. Length (L)	23. Previous flag (if any)
10. Breadth (B)	24. Name of captain/master
11. Depth (D)	25. Nationality of captain/master
12. Engine Power	26. Number of crew (maximum/minimum)
13. Shipyard/Ship Builder	27. Nationality of crew
14. Date of launching/Year of built	28. IMO Number (If available)

Fishing,” because RFVR could assist the AMSs in taking coordinated countermeasures against IUU fishing. Furthermore, it is also expected that if the AMSs could make full use of the RFVR Database then reduction of IUU fishing activities in the region would be successfully achieved. Although at this stage, the RFVR database system covers fishing vessels 24 meters in length and over, it is anticipated that the database system could be expanded to cover also the vessels less than 24 meters in length in the future.

5.1.3 Traceability of Capture Fisheries

From the global and regional points of view, IUU fishing still remains active around the world. Such situation led to the international community’s increasing recognition of the need to promote port State measures which was developed later to be a legally-binding instrument. Adoption by the European Union (EU) of a market-driven measure known as the “EC Regulation 1005/2008” to prevent, deter and eliminate illegal, unreported and unregulated (IUU) fishing implies that countries exporting their fish and fishery products to the EU must comply with the EC Regulation 1005/2008 which was made effective since January 2010. On the other hand, many Regional Fishery Management Organizations (RFMOs) have also initiated their respective Catch Documentation Schemes as means of discouraging IUU fishing in the RFMOs’ areas and/or high seas as well as tracking fish catch being traded in their management areas and minimizing opportunities for products taken by IUU fishing from reaching the markets. Therefore, countries party to the tuna RFMOs such as WCPFC and IOTC, for example, have to implement the RFMOs’ Catch Documentation Schemes to be able to import and export tuna and tuna products. Under such circumstance, the Member Countries asked SEAFDEC to take proactive role in facilitating the ways and means of sharing experiences and information, e.g. difficulties faced by the fisheries industry, areas of negotiations with EC Regulation, possible solutions and options, in order to enhance the capacity of Member Countries in complying with the requirements of the EC Regulation. Thus, the issues pertaining to EC Regulation 1005/2008 have been immensely discussed at the Thirteenth Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP). While expressing support on the development of common catch documentation system to facilitate intra-regional trade of fish and fishery products in the Southeast Asian region, the FCG/ASSP Meeting suggested that such catch documentation system should conform to and align with those of relevant RFMOs and the EU Catch Documentation, in order to comply with the requirements of the RFMOs and the EU.

Results of the in-depth study carried out by SEAFDEC on the flow of fish trade within the Southeast Asian region and country requirements for catch certification (Table 64) indicated that intra-regional trade of fish and fishery products among the AMSs are significantly important not only in terms of quantity but also in value. In 2007, the Ministry of Marine Affairs and Fisheries (MMAF) of Indonesia reported that about 216,300 metric tons of fisheries products from Indonesia valued at US\$ 180 million are exported to other AMSs such as Malaysia, Singapore, and Thailand. For the import and export of fish and fishery products within the region, trading countries would still require catch documentation in order that their fish and fishery products could be re-exported to other importing countries.

Table 64. Catch certification needs of the Southeast Asian countries

Certifications for fish trade from ASEAN MEMBER STATES	Implementation requirements for the countries		
	EC-Catch Certification	RFMOs-CDS	ASEAN CDS
1) Fish/fishery products for the EU	Y		
> Raw fish from commercial fisheries in EEZ	Y		
> Raw fish from small-scale fisheries in EEZ	Y		
2) Re-exporting fish products to EU	Y		
> Raw fish from other ASEAN countries	Y		
> Raw fish from foreign vessels	Y		
3) Importing raw tuna from RFMOs area		Y	
> by foreign fishing vessels		Y	
> by other ASEAN countries		Y	
4) Exporting of tuna products	Y	Y	
> To EU and other Regions	Y	Y	
5) Import-export fish among AMS			Y
6) Import fish from other AMS and Re-export to other region			Y
7) Export fish from AMS to other region (consideration for EU)			Y
8) Import from outside region and re-export within the AMS region			Y

There are also cases that small-scale fisheries are required to adopt the simplified catch documentation or certification in order to comply with the requirements of importing countries. Therefore, it would be of advantage to the ASEAN-SEAFDEC Member Countries if a regional catch documentation system is developed taking into consideration the format, standard, and information requirements of the existing schemes of importing countries, but simplified in order to enhance applicability for small-scale fisheries in the region. The development of such regional catch documentation known as the ASEAN Catch Documentation Scheme or ACDS, therefore took into consideration the requirements of the AMSs. Nonetheless, the development of the ACDS requires harmonization of all relevant schemes, including the EC Catch Certification, and the RFMOs Catch Documentation that are being adopted by their respective parties, as well as the existing schemes of the respective AMSs. Along this process, the AMSs worked together with importing countries in developing the ACDS that could facilitate not only intra-regional trade in fish and fishery products, but also enhance the cooperation among the AMSs for the realization of the ASEAN Economic Community (AEC) by 2015.

Box 11. Status of implementation of port State measures of some ASEAN Member States

Brunei Darussalam	<ul style="list-style-type: none"> • Not a signatory to the FAO-PSM agreement. However, regular coordination and collaboration with other national enforcement agencies through the Maritime Security Taskforce have been conducted • Laws and regulations support PSM implementation • Implementation of National Plan of Action (NPOA) to prevent, deter and eliminate IUU fishing was launched in 2011 • Two ports designated for local commercial fishing vessels and no designated port for foreign fishing vessels • Active collaboration with other countries in the region in assessing the status of fisheries resources, combating IUU fishing, developing appropriate regional and bilateral MCS measures, harmonized PSM and sharing fisheries-related information
Cambodia	<ul style="list-style-type: none"> • Laws and regulations support PSM implementation (not full support and need some changes) • Revision of legal framework to support PSM and combating IUU fishing such as: <ul style="list-style-type: none"> ◦ Conservation and management of living resources in high sea ◦ Registration of fishing vessels ◦ Sanction system ◦ Creation of a reliable inspection scheme, observer program and supervision of transshipment, and monitoring of catches ◦ Vessel monitoring system (VMS) obligation • In the process of developing NPOA-IUU which will also include PSM • PSM has not been applied since no foreign vessels unload fish catch in the country • No designated port for PSM
Indonesia	<ul style="list-style-type: none"> • Signed the PSMA and ratified the FAO PSMA in national law in 2016 • Followed the IOTC resolution on PSM to prevent, deter and eliminate IUU fishing • Five ports designated for PSM implementation (Bungus, Jakarta, Palabuhanratu, Bitung, Ambon) • At present, no foreign or joint venture fishing vessels operate in the EEZ • Requirement of foreign fishing vessels for information prior to entering into port • Implement the EC-Catch Certification, the CCSBT CDS, and IOTC resolution on CDS for big-eye tuna statistics • Decrees, laws and regulations support PSM implementation • NPOA-IUU linked to the implementation of PSM • Conduct some capacity buildings on PSM and relevant activities for staff concerned
Malaysia	<ul style="list-style-type: none"> • Designated port in Penang and Langkawi under IOTC requirement for foreign fishing vessels to enter • Domestic law supports the implementation of PSM • Foreign fishing vessel is required to get written approval prior to landing fish • Continuous capacity building on PSM for officials from relevant agencies • NPOA-IUU developed in 2013 • Appointment of first 16 port inspectors in June 2016
Myanmar	<ul style="list-style-type: none"> • Signed for accession the FAO PSMA in 2010 • Decree for laws and regulations to support PSM implementation • Local and foreign fishing vessels have to be inspected at check points before entering the landing site • Designated five ports for foreign fishing vessels which operate in Myanmar EEZ (Patheingyi, Yangon, Myeik, Kauthaung, Thandwe) • Implemented a check point as one stop service to inspect fishing vessels when they go to fishing ground and come back to port • Implementation of catch certification scheme based on EU regulation • Preparing NPOA-IUU to be linked to the PSMA
Philippines	<ul style="list-style-type: none"> • One designated port for foreign vessels in Davao and is planning to designate more ports in General Santos • Fishing vessels must submit prior notification information to the one-stop action center • Enacted law and regulation to support PSM implementation • Foreign fishing vessel is required to submit catch documentation in support of PSM implementation • Developed the NPOA-IUU in 2013 which include PSM • Signed the instrument of accession to the 2009 FAO PSMA in 2016 and the document was delivered to and received by the Senate of the Philippines on 25 January 2016 for concurrence or ratification • Conducted capacity building and training for PSM implementation for local inspectors and relevant staff • Coordinate with other countries for implementation of PSM
Singapore	<ul style="list-style-type: none"> • Three ports for import, export, and transshipment of fish: Jurong Fisheries Port, Jurong Port, and Senoko Fisheries Port • Advanced notification of arrival required for foreign fishing vessel • Compliance with CCAMLR's Catch Documentation • Collaborate with ICCAT in issuance of re-export certificates for Big-eye Tuna and Swordfish • Close inter-agency coordination between agencies

Box 11. Status of implementation of port State measures of some ASEAN Member States (Cont'd)	
Thailand	<ul style="list-style-type: none"> • Implemented pilot project on PSM in Phuket in 2012-2014 • Forty-six ports have been designated for PSM then reduced to 27 ports in the present and implementation activities on PSM • Accession to the 2009 FAO PSMA • Significant enforcement activities • Requirement prior to port entry • Relevant activities to PSM (Traceability System, MCS) • Decree law and regulation to support PSM implementation • Development of NPOA-IUU with support PSM implementation • Developing “Processing Statement and PSM Linked System” (PPS) • Updated inspection manual base on information provided by MoU and NPCI
Viet Nam	<ul style="list-style-type: none"> • No designated port for foreign fishing vessels • Requirement for information prior to port entry • Law, decree, and regulation to support PSM implementation • Development of NPOA-IUU with support of PSM implementation • Capacity building on vessel inspection to support PSM implementation for relevant staff

Source: SEAFDEC, 2016b

At the regional level, the importance of PSM in combating IUU fishing in the Southeast Asian region has been well recognized by the Senior Officials responsible for fisheries from the ASEAN-SEAFDEC Member Countries. Under such circumstance, the Senior Officials adopted the Plan of Operation on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2010 in June 2011, which includes a provision on the need to “*build up capacity among Member Countries, including functions for regional and sub-regional cooperation, to effectively meet the requirements of Port State measures and Flag State responsibilities.*” However, implementation of the PSMA requires thorough understanding on the required actions by concerned authorities, as well as cooperation at the national (inter-agency), regional and international levels, particularly on information exchange. To address such requirements, the “Concept Proposal on Regional Cooperation for Supporting the Implementation of Port State Measures in the ASEAN Region” was supported by the Forty-eighth Meeting of the SEAFDEC Council and the Twenty-fourth Meeting of the ASWGF to serve as a regional approach for implementation of the PSM Agreement. The Proposal focused on the harmonization and enhancement of database systems, development of SOPs for port inspections, capacity building, and sharing of information to support its effective implementation at the regional level. Nevertheless, in order for this approach to be effective, the full operation of PSM for all foreign-flagged vessels from the high seas or countries outside the region is necessary. In addition, regional cooperation of the AMSs is crucial to support the implementation of PSM for all foreign-flagged vessels of the AMSs. Moreover, implementation of PSM should be aligned with the international and regional agreement and measures, and should apply the existing ASEAN-SEAFDEC regional management measures such as the ACDS, the ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain, and RFVR.

In order to strengthen implementation on PSM Agreement in the region, capacity building by imparting knowledge and understanding on PSM is important for stakeholders concerned, e.g. general public, inspectors, fishery managers, and policy makers taking into consideration “Annex E” of the PSM Agreement (FAO, 2009b). Furthermore, awareness on the rationale to implement the PSM Agreement is also required for concerned stakeholders, such as fishing boat operators, boat owners, exporters, importers, and others, to enable them to understand the situation while supporting the port authorities to effectively implement the PSM Agreement.

5.1.5 MCS Systems and Networking

Fishery resources need to be properly managed to sustain their contributions to the nutritional, economic, and social well-being of the world’s growing population. Monitoring (M) – data collection and analysis, Control (C) – legislation and administrative ordinances, and Surveillance (S) – law enforcement are some of the basic elements in developing the MCS systems. MCS is one of the tools or mechanisms that could be used to keep track of the implementation of fisheries management plans aimed at maximizing the economic opportunities and benefits from State’s waters within sustainable harvesting limits. MCS systems encompass not only traditional monitoring and enforcement activities but also the development and establishment of modern data collection systems that incorporate information from traditional coastal fisherfolk. Under the MCS, enactment of legislative instruments and implementation of existing management plans through participatory techniques and strategies need to be strengthened. Regional cooperation among the ASEAN-SEAFDEC Member Countries can facilitate the exchange of fisheries related data for the purpose of enhancing cooperation on MCS networks and fisheries management.

Moving towards this direction, a common understanding of the scopes and provisions stipulated in legislations of the countries in the region is necessary. Furthermore, the extent of extradition agreements among countries, cost-saving schemes, and efforts to increase the negotiating power of concerned countries are also crucial. In the wake of the entry into force of the legally-binding Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unregulated and Unreported Fishing, implementation of coordinated flag and port State control combined measures to address IUU fishing activities is called upon. Various government agencies not directly concerned with fisheries (e.g. environment authorities, national defense, coast guard, customs, and immigration) should be involved in dialogues on matters such as determining priorities, allocating resources, and on sharing of information as MCS networks are developed. The need to move in this direction was also expressed during the 2008 RPOA Bali Workshop on the development of good MCS practices and MCS networks in the sub-regions. The detailed definitions on M, C, and S are shown in **Box 12**.

and marine ecosystems that otherwise might be inevitable. One of the key actions to combat illegal fishing in the region more effectively is to strengthen coordination on the development of MCS networks among relevant line agencies in each country as well as between the countries of the region. Efforts are increasingly being made by SEAFDEC and the AMSs to initiate the processes of improving coordination among responsible institutions and extend such ambitions to groups of countries in the region or sub-regions of Southeast Asia.

5.1.6 Strengthening Regional Cooperation for Combating IUU Fishing

5.1.6.1 Development of the ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain

Several national and regional initiatives have been undertaken by the AMSs in collaboration with regional and international organizations in combating IUU fishing for over a decade, thus, to further harmonize the countries' initiatives in combating IUU fishing, the "Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain" was developed (SEAFDEC/MFRDMD, 2015b) through series of experts meetings and regional technical consultations with the ASEAN-SEAFDEC Member Countries. The Guidelines, which also took into consideration the relevant international trade-related measures that prohibit the marketing of fish and fish products derived through unsustainable means and from unsustainable sources, was adopted by the Member Countries and subsequently supported by SOM-AMAF in 2015, which later was renamed as the ASEAN Guidelines. Based on the provisions of the said ASEAN Guidelines, the AMSs are encouraged to: 1) manage fishing activities within their respective jurisdictions; 2) regulate transshipment and landing of fish or catch across borders; 3) prevent poaching in the EEZs of other countries; 4) control illegal fishing and trading practices of live reef food fish (LRFF), reef-based ornamentals, and endangered aquatic species; and 5) strengthen the management of fishing in the high seas and RFMO areas. The ASEAN Guidelines is meant to serve as basis for the AMSs in formulating relevant policies and provide an enabling environment for a clear direction and understanding of the need to prevent the entry of IUU fish and fishery products into the supply chain.

In order to promote implementation of the ASEAN Guidelines in the AMSs, the strategies and recommended appropriate measures to prevent the entry of IUU fish and fishery products into the supply chain have been introduced. The situation surrounding fisheries and trading in the AMSs, which differs from country to country, was

Box 12. Definition of monitoring (M), Control (C), and Surveillance (S)

Monitoring (M) - include the collection, measurement, and analysis of fishing and related activities including - but not limited to catch, species composition, fishing effort, by-catch, discard, areas of operations, etc.; in which this information is primary data to use for decision making.

Control (C) - involves the specific terms and conditions under which resources can be harvested. These specifications are normally contained in national fisheries legislation and other arrangements that might be nationally, sub-regionally, or regionally agreed. The legislation provides the basis for which fisheries arrangements, via MCS, are implemented.

Surveillance (S) - involves the checking and supervision of fishing and related activities to ensure that national legislation and terms, conditions of access, and management measures are observed.

The increasing pressure from overfishing, degraded coasts and marine environment, increasing demand for land in coastal areas, and the need to assess the effects of climate change in the sub-regions of Southeast Asia require regional, sub-regional and/or bilateral dialogues on the measures to improve fisheries management, control and manage fishing capacity, build MCS networks, and safeguard important habitats. Specifically, sharing of information generated through the MCS networks is a fundamental operating principle for the development of MCS networks. It is also essential to create a network for sharing of information on the monitoring, control, and surveillance of fisheries and fisheries-related activities among the Southeast Asian countries. The development of MCS networks as a major tool to combat IUU fishing in the sub-regions and the region as a whole, could positively reduce the long-term damages on fish stocks

carefully taken into consideration during the development of the strategies. Thus, the countries' initiatives to develop their respective appropriate national implementation plans based on their own legal and governance frameworks had been esteemed in the Guidelines. For smooth and effective implementation of such plans, the active participation of all stakeholders in decision making processes should be made essential. In addition, sharing of information among countries had been promoted to facilitate discussion for the development of effective, practical, appropriate actions and protocols at national and domestic levels, as well as for the harmonization of commercial measures among the AMSs in combating IUU fishing by preventing the trade of fish and fishery products from IUU fishing activities.

5.1.6.2 *Strengthening of Regional Cooperation on Transboundary Issues*

Over the years, sub-regional approach that facilitates the conduct of bilateral dialogues to discuss and explore effective ways of improving management of fisheries in order to sustain the fishery resources in each of the sub-regions in Southeast Asia has been initiated and promoted. Aside from bilateral dialogues among neighboring countries to address emerging transboundary issues, a series of Sub-regional Technical Meetings on effective fisheries management was also facilitated by SEAFDEC since 2013 with focus on the important transboundary aquatic species and integration of fisheries and habitat managements, as well as in controlling IUU fishing and destructive fishing activities. Bilateral dialogues were facilitated, such as the Thailand-Cambodia and Cambodia-Viet Nam dialogues for the Gulf of Thailand sub-region; as well as Thailand-Malaysia dialogues for the Andaman Sea sub-region. These bilateral dialogues are meant to provide opportunities for transboundary countries to agree on relevant activities to be conducted by neighboring countries including those that aim to combat IUU fishing and strengthen bilateral cooperation on management for sustainable utilization of transboundary fishery resources.

5.1.6.3 *Development of the Joint ASEAN-SEAFDEC Declaration on Combating IUU Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products*

During the implementation of the 2011 ASEAN-SEAFDEC Resolution and Plan of Action on Sustainable Fisheries Development for Food Security Toward 2020, AMSs were confronted with emerging issues including market-driven measures on the need to address IUU fishing, food safety, traceability of fish and fishery products, and labor aspects in fisheries. The impacts of these emerging issues are experienced not only by the fisheries sector but also by the general economic sectors of the AMSs. Although the AMSs improved their respective fisheries management

to alleviate the pressure from such impacts by enhancing cooperation among relevant national agencies, cooperation among countries within the region is necessary in order to come up with practical and harmonized approaches to address issues including the need to combat IUU fishing and enhance the competitiveness of the region's fish and fishery products traded in intra-regional or international markets.

Box 13. Actions agreed by AMSs and adopted through the Joint ASEAN-SEAFDEC Declaration on Combating IUU Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products

1. Strengthening Monitoring, Control and Surveillance (MCS) programs under national laws and regulations for combating IUU fishing and enhancing cooperation among relevant national agencies within the country for effective implementation of laws and regulations for combating IUU fishing;
2. Intensifying capacity building and awareness-raising programs, including information, education, and communication campaigns;
3. Enhancing traceability of fish and fishery products from capture fisheries through the implementation of the "ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain," and "ASEAN Catch Documentation Scheme for Marine Capture Fisheries";
4. Enhancing traceability of aquaculture products, through the implementation of all ASEAN GAPs with certification scheme based on regulations of respective countries, and traceability systems that are harmonized with those of major importing countries;
5. Managing fishing capacity with a view to balance fishing efforts taking into account the declining status of the fishery resources in the Southeast Asian region, and establishing conservation measures based on scientific evidence;
6. Promoting the implementation of port State measures through enhanced inter-agencies and regional cooperation in preventing the landing of fish and fishery products from IUU fishing activities from all foreign fishing vessels, and encouraging the use of the "Regional Fishing Vessels Record (RFVR)";
7. Enhancing regional cooperation in managing transboundary fisheries resources through regional, sub-regional, and bilateral arrangements in combating IUU fishing, particularly poaching by fishing vessels, transshipment and transportation of fish and fishery products across borders of respective countries;
8. Regulating the quality and safety of ASEAN fish and fishery products all throughout the supply chain to meet standards and market requirements as well as acceptability by importing countries, and development and promotion of ASEAN seal of excellence or label;
9. Addressing issues on labor (safe, legal, and equitable practices) in the fisheries sector in the Southeast Asian region through strengthened cooperation among relevant national agencies within the country as well as establishing regional, sub-regional and bilateral cooperation, and collaboration via relevant ASEAN platforms, and helping to support the development and implementation of relevant labor guidelines for the fisheries sector;
10. Enhancing close collaboration between the AMSs and relevant RFMOs in combating IUU fishing; and
11. Undertaking collective efforts in developing preventive and supportive measures to strengthen rehabilitation of resources and recovery of fish stocks to mitigate the impacts of IUU fishing.

For this reason, the ASEAN-SEAFDEC Member Countries developed the “Joint ASEAN-SEAFDEC Declaration on Combating IUU Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products” with the main objective of enhancing regional cooperation in sustainable fisheries development in light of the unification of the ASEAN Economic Community. After obtaining support and agreement during the Special SOM-36th AMAF (August 2015), the Joint ASEAN-SEAFDEC Declaration on Regional Cooperation for Combating Illegal, Unreported and Unregulated (IUU) Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products was adopted during the “High-level Consultation on Regional Cooperation in Sustainable Fisheries Development Towards the ASEAN Economic Community” in Bangkok, Thailand in August 2016 (**Box 13**). The Joint Declaration is envisioned to encourage all AMSs to implement the regional initiatives towards managing fishing capacity and combating IUU fishing in the Southeast Asian waters.

5.2 Management of Inland Capture Fisheries

Fish resources are renewable natural resources that can be used sustainably through rational exploitation which could be maintained under appropriate fisheries management measures. There are many successful examples of sustainable fisheries management in marine fisheries but the much needed systematic management measures in inland fisheries are still limited.

Fisheries management is defined as the integrated process of information gathering, analysis, planning, consultation, decision-making, allocation of resources, and formulation and implementation, with enforcement as necessary, of regulations or rules which govern fisheries activities to ensure continued productivity of the resources and accomplishment of other fisheries objectives (FAO, 1997). There are many measures and methods used to regulate the fisheries activities, especially in marine fisheries, *e.g.* regulating the mesh size and types of fishing gears, regulating the maximum number of fishers entering the fishing grounds, introducing closed seasons and areas, establishing fish sanctuaries, promulgating fisheries decrees, and so on. For inland fisheries in the Southeast Asian region, which could be closely related to the fishers’ and fishing communities’ livelihoods, management measures should be considered not only on the resources but also on the socio-economic aspects of the relevant stakeholders.

In the Southeast Asian region, there are many types of fisheries management measures that could be applicable for inland fisheries, *e.g.* co-management, community-based fisheries management, adaptive co-management,

rights-based management, integrated management, government-based management, and Ecosystem Approach to Fisheries Management (EAFM). EAFM is one of the latest methods on managing fisheries activities with consideration given on the surrounding conditions around the fishery sector (Staples *et al.*, 2014). Successful cases of the introduction of EAFM concept in marine fisheries could be adapted as appropriate, in inland fisheries.

Nonetheless, there are a variety of challenges that confront the promotion of inland fisheries management in the Southeast Asian region. These include lack of data and information, environmental degradation, overexploitation of resources and habitats, rapidly increasing population, and increasing demands for fish and freshwater. These challenges should be addressed while awareness building on the value of inland fisheries and inland waters in this region should be intensified and continued.

5.3 Responsible Fishing Practices

5.3.1 Management and Reduction of By-catch from Trawl Fisheries

In the Southeast Asian region, there have been discussions and debates over the need to reduce by-catch from fishing activities, particularly in trawl fisheries where catch is multi-species, and the amount of by-catch could be as much as or even more than the target species. There are also evidences of decreasing average sizes of landed fish and declining Catch Per Unit Effort (CPUE) demonstrating that overfishing occurs in several trawl fishing grounds in the region. Moreover, conflicts between fleet segments also commonly occur when zoning regulations are not enforced, *e.g.* larger trawlers encroaching on waters reserved for small-scale fishers. In Southeast Asia, although catch from trawl fisheries tends to be fully utilized and the concept of by-catch may not be fully relevant, it could be observed that some parts of the catch may be considered undesirable due to the poor quality and inadequate management.

By definition, by-catch is the catch of fish or other aquatic animals and plants that a fisher does not intend or want to catch, does not use, or which should not have been caught in the first place. However, in most of the region’s fisheries, the latter part of the definition is more relevant than the former since it includes catch of juveniles of commercial species. A wide range of problems on by-catch have emerged in specific fisheries, including the capture of species that are protected, endangered or threatened, as well as juvenile fish. In some fisheries sectors, there is an increasing trend towards retention of by-catch consisting of juveniles and small-sized fish for human consumption or for utilization as aquafeed. Therefore, there is a need to address the by-catch and discard problems in the Southeast Asian region.