Safeguarding the Niche for Southeast Asian Fish and Fishery Products in the World Market

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As of 2016, the Southeast Asian countries have already secured a niche in the global market for their fish and fishery products, contributing about 13.8% to the world's total export of fish and fishery products in terms of value. In a summary provided by FAO (2016), Viet Nam and Thailand ranked as the world's third and fourth highest exporters, respectively, with Viet Nam contributing about 5.1% to the world's total export value and Thailand accounting for about 4.1%. The efforts made by the Southeast Asian countries to improve their respective fisheries management policies and regulations towards sustainability have greatly contributed to this success. Such initiatives also enabled the countries to comply with the requirements of importing countries. SEAFDEC will therefore continue to assist the Southeast Asian countries in these endeavors in order that the growth of the region's export of fish and fishery products would remain positive in the future. Considering that large volumes of the fishery production from several Southeast Asia countries are now targeted for the international as well intra-regional markets, several international fisheries-related issues are also being addressed by SEAFDEC and the Southeast Asian countries to minimize the possible impacts of such concerns on the competitiveness of the region's fish and fishery products in the international markets. Compliance with the international requirements for safety and quality of fish and fishery products *vis-à-vis* the sustainability of fisheries operations would safeguard the niche of the region's fish and fishery products which had already been secured since the mid of 2000s.

During the five-year period from 2012 to 2016, the worldwide trend of production from capture fisheries and aquaculture appeared to be increasing at a steady pace in terms of volume at an average rate of about 3% annually (SEAFDEC, 2018). In 2016, the Southeast Asian countries accounted for about 45.3% of the world's total fisheries production (**Table 1**).

Table 1. World's total production from capture fisheries and aquaculture (in million metric tons or mt)

Regions	2012	2013	2014	2015	2016
Africa	10.1	10.1	10.5	10.8	11.4
America	21.9	22.4	20.7	21.3	20.0
Asia*	91.6	98.4	101.7	104.2	106.9
Southeast Asia	**39.5**	**40.1**	**42.1**	**44.0**	**45.3**
Europe	16.1	16.5	16.9	17.3	16.9
Oceania	1.5	1.4	1.5	1.6	1.7
TOTAL	**180.7**	**188.9**	**193.4**	**199.2**	**202.2**

**Data do not include those of Southeast Asia*
Source (except for Southeast Asia): FAO FishStat Plus-Universal Software for Fishery Statistical Time Series
Source (for Southeast Asia): SEAFDEC (2018)

Fisheries production of the Southeast Asian region

For the Southeast Asian region, fisheries production during 2012-2016 exhibited a continuously increasing trend in volume as well as in value, with Indonesia reported to have obtained the highest fisheries production contributing about 51.1% to the region's total fisheries production in 2016 in terms of volume (SEAFDEC, 2018). This was followed by Viet Nam accounting for 15.0%, Myanmar at 12.3%, the Philippines at 9.6%, and the other Southeast Asian countries contributing the remaining 12.0% (**Table 2**).

As shown in **Table 2**, the trend of the total production from capture fisheries has been slowly increasing during the past five years but production from aquaculture has been increasing at a much faster rate. Among the Southeast Asian countries, Indonesia remains the highest producer not only from capture fisheries but also from aquaculture. Although Myanmar is the second largest producer from capture fisheries, mainly from its inland waters, the country ranked only fourth in terms of aquaculture production, while Viet Nam is the second largest producer from aquaculture. The Philippines ranked the third highest producer from capture fisheries as well as from aquaculture, followed by Thailand.

Utilization of fish and fishery products of the Southeast Asian region

In the Southeast Asian region, fisheries form an integral part of the people's livelihoods providing significant contribution to food security and economic stability (SEAFDEC, 2017). With the world's increasing population, fisheries will be confronted with the challenges in ensuring that nutritious food is available to all people not only from Southeast Asia but also all over the world. Specifically for Southeast Asia, the population is expected to rise exponentially, from 641.7 million in 2017 to 723.2 million in 2030 and by 2050 about 790.0 million (**Table 3**). Meanwhile, the region's fisheries production which has been increasing was recorded at 45.3 million mt as of 2016 (**Table 2**), and with an average annual fish consumption of 39.3 kg/capita/year (as of 2013), this means that peoples from the region consumed 25,218.81 thousand mt of fish. This could be translated to mean that about 56% of the region's total fish production is being consumed by its people, with the remaining 44% bound for non-food production or processed into various fishery products for export or traded in the export market live or frozen. The latter provides the much needed

Table 2. Total production of Southeast Asia from capture fisheries (CAP)* and aquaculture (AQUA), in '000 mt

Countries	2012		2013		2014		2015		2016	
	CAP	AQUA	CAP	AQUA	CAP	AQUA	CAP	AQUA	CAP	AQUA
Brunei Darussalam	4.52	0.56	2.89	0.61	3.19	0.76	3.38	0.97	13.29	0.83
Cambodia	638.00	90.00	638.00	90.00	625.76	120.55	588.89	143.00	636.53	172.02
Indonesia	5,794.53	12,969.36	6,098.34	13,147.29	6,413.65	14,167.12	6,520.33	15,634.09	6,497.85	16,675.02
Lao PDR	34.10	101.90	40.14	124.09	60.23	90.36	62.64	95.96	70.92	95.96
Malaysia	1,477.28	283.56	1,488.54	260.78	1,463.74	524.56	1,481.97	506.47	1,580.30	407.69
Myanmar	3,579.25	838.43	3,786.84	929.00	4,083.27	957.04	4,317.32	999.63	4,577.41	1,020.59
Philippines	2,341.04	2,524.64	2,321.98	2,373.39	2,343.81	2,337.61	2,297.71	2,348.16	2,149.85	2,200.91
Singapore	2.67	3.58	1.65	5.56	1.43	5.27	1.26	6.90	1.24	6.11
Thailand	1,719.62	1,272.00	1,824.83	997.26	1,670.04	897.76	1,501.22	928.64	1,463.30	962.60
Viet Nam	2,705.40	3,110.70	2,803.80	3,215.90	2,919.20	3,413.30	3,036.40	3,513.30	3,163.30	3,640.60
TOTAL	**18,296.41**	**21,194.73**	**19,007.01**	**21,143.89**	**19,584.32**	**22,514.33**	**19,811.12**	**24,177.12**	**20,153.99**	**25,182.33**
	39,491.14		**40,150.90**		**42,098.65**		**43,988.24**		**45,336.32**	

**includes marine capture and inland capture fisheries*
Source: SEAFDEC (2018)

Table 3. Population, fish production, per capita fish consumption, and GDP of the Southeast Asian countries

Countries	Population (million)			Fish production in 2016[c] (thousand metric tons)	2013[d] ave. per capita fish consumption (kg/person/year)	GDP in 2016[a] (billion US$)
	2017[a]	2030[b]	2050[b]			
Brunei Darussalam	0.4	0.5	0.6	14.12	47.0	11.4
Cambodia	15.4	18.9	22.5	808.55	41.4	20.04
Indonesia	261.9	295.5	322.2	23,172.87	31.8	932.45
Lao PDR	6.7	8.5	10.2	166.88	19.8	15.92
Malaysia	32.0	36.1	40.7	1,987.99	54.0	297.83
Myanmar	53.4	60.2	63.6	5,598.00	60.7	63.25
Philippines	104.9	123.6	148.3	4,350.76	30.2	304.89
Singapore	5.6	6.4	6.7	7.35	46.9	309.75
Thailand	67.7	68.3	62.4	2,425.90	26.1	411.84
Viet Nam	93.7	105.2	112.8	6,803.90	34.8	301.33
Southeast Asia	**641.7**	**732.2**	**790.0**	**45,336.32**	**39.3[e]**	**266.87**
World	**7,300.0[d]**	**8,084.0**	**9,587.0**	**202,200.00**	**19.7**	**77.61**

Source: SEAFDEC (2017)
[a] Statista – The Statistics Portal, accessed 1 March 2019
[b] World Population Prospects: The 2015 Revision, Key Findings and Advance Tables
[c] SEAFDEC (2018)
[d] FAO Yearbook 2014
[e] Average, based on per capita consumption in 2013

dollars that would fill the countries' coffers, which could be used to improve the socio-economic well-being of the peoples in the region.

Regional initiatives towards the sustainability of fisheries

To ensure that the development of fisheries and aquaculture in the Southeast Asian region is directed towards sustainability of the fishery resources, SEAFDEC has been promoting the implementation by the ASEAN Member States (AMSs), of the various tools and measures that had been developed and aimed for the sustainable utilization of the region's fishery resources (SEAFDEC, 2017). Guided by the FAO Code of Conduct for Responsible Fisheries, SEAFDEC developed regional guidelines for responsible fisheries, aquaculture, and post-harvest technology. Meanwhile, in the development of their respective fisheries, the AMSs also continued to adhere to such regional guidelines which had been strengthened through the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region, the first of which was adopted in 2001, and the subsequent revitalized Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2020 adopted in 2011 (SEAFDEC, 2017). These instruments had been used as basis for the formulation of the Strategic

Plan of Action on ASEAN Cooperation in Fisheries (2016-2020), which the AMSs use as guide for their activities that aim for the sustainable development of their respective fisheries. Specifically, SEAFDEC for its part is also being tasked to "promote and facilitate concerted actions among its Member Countries to ensure the sustainability of fisheries and aquaculture in Southeast Asia." Guided by the Resolution on the Future of SEAFDEC which was adopted by the SEAFDEC Council of Directors in November 2017, SEAFDEC has continued to implement programs and activities that are in line with the aforementioned regional fisheries frameworks and instruments to support the efforts of the AMSs that aim for the sustainability of their respective fisheries sector.

Sustainable fisheries development being promoted in the Southeast Asian region

With the collaboration of the SEAFDEC Member Countries, regional instruments, measures and tools had been developed and promoted in the Southeast Asian region. These were established through the implementation of programs and activities that have been financially supported by the Government of Japan through its Japanese Trust Fund (JTF) for SEAFDEC and also by the Government of Sweden through the SEAFDEC-Sweden Project.

- ***Development of measures and tools to combat illegal, unreported and unregulated fishing***

Illegal, unreported, and unregulated (IUU) fishing is one of the greatest threats to the marine ecosystems due to its potent ability to undermine not only the national and regional efforts to sustainably manage fisheries but also all endeavors to conserve the marine biodiversity. With the "International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU)" at the backdrop providing the principles and the implementation measures to prevent, deter and eliminate IUU fishing that focus on the State responsibilities, flag State responsibilities, coastal State measures, port State measures, internationally agreed market-related measures, and on the corresponding roles of research and regional fisheries management organizations, SEAFDEC developed the "ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain," which is also being promoted for adoption by the AMSs.

Parallel activities have also been undertaken by SEAFDEC to come up with supportive tools, such as the establishment of the "Database on Regional Fishing Vessels Record (RFVR Database)" starting with vessels 24 meters in length and over, which aims to facilitate the checking and tracking of fishing vessels registered under the AMSs. Development of the "ASEAN Catch Documentation Scheme (ACDS)" is another initiative that promotes the application of traceability system from catch to market or exportation. Regional cooperation and capacity building activities have also been strengthened by SEAFDEC to support the implementation of "Port State Measures," as well as the Port State Measures Agreement (PSMA). Establishment of MCS networks among countries had also been initiated and the Regional Plan of Action for Management of Fishing Capacity (RPOA-Capacity) was also developed.

The "ASEAN-SEAFDEC Joint Declaration on Combating IUU Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products" was adopted by the representatives from the ASEAN-SEAFDEC Member Countries during the "High-level Consultation on Regional Cooperation in Sustainable Fisheries Development Towards the ASEAN Economic Community: Combating IUU Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products." This instrument has been used by the AMSs in their efforts to combat IUU fishing in their respective waters and enhance the competitiveness of their fish and fishery products bound for the world market.

- ***Addressing transboundary issues and concerns related to IUU fishing***

For the effective management of fisheries in the Southeast Asian region, considering the specificity of the region's fisheries in terms of features and characteristics, SEAFDEC through the SEAFDEC-Sweden Project, has initiated some ways of promoting sustainable fisheries management and addressing transboundary fisheries issues through sub-regional approach. For management considerations, the waters of the Southeast Asian region had been divided into sub-regions (Wanchana *et al*., 2016), such as the Gulf of Thailand (GOT), the Andaman Sea (AS), Sulu-Sulawesi Seas (SSS), and the Lower Mekong River Basin (LMB). During the span of the SEAFDEC-Sweden Project, SEAFDEC initiated bilateral dialogues between and among the neighboring countries of two sub-regions, *i.e.* GOT and AS, with a view to facilitating discussions and seeking cooperation on fisheries-related issues including combating IUU fishing, and establishing the sub-regional network for monitoring, control and surveillance (MCS) with main emphasis on sharing of information on monitoring and control between and among the concerned countries. All of these are meant to support the national efforts to mitigate IUU fishing activities in the Southeast Asian region as well as respond to the concerns of importing countries in Europe and the U.S., and certify the legal status of fish and fisheries products traded by the AMSs.

- ***Other initiatives to address fisheries-related issues***

Aside from the promotion of regional instruments and frameworks to combat IUU fishing in the Southeast Asian region, SEAFDEC in collaboration with the AMSs also addresses the concerns on the listing of commercially exploited aquatic species into the CITES Appendices as this could also possibly impact on the sustainability of the region's fisheries. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) ensures that the international trade in specimens of wild animals and plants does not threaten their survival. A set of criteria and guidelines had been developed to assist the evaluation of whether or not a species should be listed under the different Appendices of CITES. Considering that discussions on the proposals to amend the lists of species in Appendices I and II will be carried out during the forthcoming CITES CoP18, SEAFDEC convened a forum to discuss the common positions of the Member Countries, and more particularly, that of the AMSs on the listing of economically important aquatic species into the CITES Appendices that would be used as basis for justifying the common positions of the AMSs on the respective proposals. Meanwhile, SEAFDEC has also been undertaking technical activities on the conservation and management as well as on the sustainable utilization of various aquatic species that could be proposed for listing in the Appendices, *e.g.* sharks and rays, seahorses, sea cucumbers, sea turtles, and catadromous eels. These activities aim to come up with data and information on the status and trends of the production and utilization of these species, as well as on the existing conservation and management measures undertaken by the AMSs. The information compiled would support the region's position on the proposed listing of aquatic species into the CITES Appendices.

Southeast Asia's niche in world market of fish and fishery products

FAO (2018) declared that currently, fish and fishery products are among the most-traded commodities in the world, and in fact, about 35% of the world's fish production has been traded in various forms, not only for human consumption but also for other non-food uses. FAO (2018) continued that during the past 40 years, the quantity of fish and fishery products traded for human consumption has increased from 11% in 1976 to 27% in 2016. In terms of value, the global trade in fish and fishery products also increased significantly from US$ 8.0 billion in 1976 to US$ 143.0 billion in 2016 or increasing at an average growth rate of 8% (FAO, 2018).

In the Southeast Asian scenario, the growth of exportation of fish and fishery products seemed to follow an up-down trend, *i.e.* increasing-decreasing every other year during the past six (6) years, especially in terms of quantity from 2011 to 2016 (**Table 4**). In terms of value, however, the trend had been slowly increasing from 2011 to 2014, but decreased in 2015 although the trend started to increase again in 2016 (**Table 5**).

Table 4. Quantity of fish and fishery products exported by the Southeast Asian countries (mt)

Countries	2011	2012	2013	2014	2015	2016
Brunei Darussalam	730	1,271	1,497	1,724	1,540	892
Cambodia	30,000	31,025	32,000	31,684	29,654	26,601
Indonesia	1,100,842	1,216,617	1,225,233	1,249,873	1,049,222	1,040,997
Lao PDR	0	119	43	130	52	16
Malaysia	295,022	266,469	246,024	239,451	252,718	296,626
Myanmar	373,898	387,371	376,848	345,247	338,284	368,970
Philippines	231,711	253,838	317,973	276,455	225,190	234,418
Singapore	57,218	52,786	47,906	35,392	44,032	43,449
Thailand	1,762,955	1,762,131	1,604,445	1,664,372	1,545,968	1,515,437
Viet Nam	1,373,363	1,418,313	1,528,848	1,714,803	1,591,002	1,666,142
Total	**5,225,739**	**5,389,940**	**5,380,817**	**5,559,131**	**5,077,662**	**5,193,548**

Source: FAO Fisheries Global Information System (FIGIS)

Table 5. Value of fish and fishery products exported by the Southeast Asian countries (US$ 1,000)

Countries	2011	2012	2013	2014	2015	2016
Brunei Darussalam	1,701	2,435	4,311	4,146	3,342	3,057
Cambodia	60,000	61,020	62,500	63,900	60,666	54,442
Indonesia	3,360,852	3,752,132	4,024,926	4,499,959	3,788,848	4,009,232
Lao PDR	0	247	107	355	138	73
Malaysia	916,456	846,169	800,030	866,051	688,272	712,732
Myanmar	555,515	654,129	652,840	536,255	482,237	502,630
Philippines	711,155	850,344	1,185,788	1,054,005	804,825	735,786
Singapore	416,096	366,907	338,942	322,822	376,438	363,933
Thailand	8,159,613	8,144,920	7,067,700	6,657,459	5,701,788	5,914,988
Viet Nam	6,259,788	6,291,141	6,900,612	8,046,560	6,774,148	7,344,133
Total	**20,441,176**	**20,969,444**	**21,037,756**	**22,052,307**	**18,680,163**	**19,641,006**

Source: FAO Fisheries Global Information System (FIGIS)

Table 6. Fisheries trade of the Southeast Asian countries in 2016

Countries	Fish Production*		Export of Fish and Fishery Products**		Importation of Fish and Fishery Products**		Trade balance (Export-Import)	
	Qty ('000 mt)	Value (US$ 1,000)	Qty ('000 mt)	Value (US$ 1,000)	Qty ('000 mt)	Value (US$ 1,000)	Qty ('000 mt)	Value (US$ 1,000)
Brunei Darussalam	14.12	50,353	0.89	3,057	10.46	39,783	-9.57	-36,726
Cambodia	808.55	-	26.60	54,442	18.36	14,285	8.24	40,157
Indonesia	23,172.87	19,429,135	1,041.00	4,009,232	205.85	364,353	835.15	3,644,879
Lao PDR	166.88	-	0.02	73	0.57	2,042	-0.55	-1,969
Malaysia	1,987.99	3,181,205	296.63	712,732	408.25	954,079	-111.62	-241.347
Myanmar	5,598.00	9,352,420	368.97	502,630	20.82	38,596	348.15	464,034
Philippines	4,350.76	4,527,093	234.42	735,786	417.02	398,264	-182.60	337,522
Singapore	7.35	64,402	43.45	363,933	206.49	1,126,962	-163.04	-763,029
Thailand	2,425.90	4,368,492	1,515.44	5,914,988	1,808.69	3,179,238	-293.25	2,735,750
Viet Nam	6,803.90	-	1,666.14	7,344,133	478.82	1,366,351	1,187.32	5,977,782
Total	**45,336.32**	**40,973,100**	**5,193.56**	**19,641,006**	**3,575.33**	**7,483,953**	**1,618.23**	**12,157,053**

** Source: SEAFDEC (2018)*
*** Source: FAO Fisheries Global Information System (FIGIS)*

In terms of value of the trade of fish and fishery products of the Southeast Asian countries in 2016, the data indicated that Viet Nam, Thailand, and Indonesia were the top exporting countries while Thailand, Viet Nam, Singapore, and Malaysia were the top importing countries (**Table 6**). The data also indicates that Thailand, Philippines, Singapore, Malaysia, Brunei Darussalam, and Lao PDR experienced some degrees of deficits in the trade volume of their fish and fishery products, while Singapore, Malaysia, Brunei Darussalam, and Lao PDR experienced some degrees of deficits in the trade value of their fish and fishery products. This implies that their respective exports are not sufficient enough to pay for their imports of fish and fishery products.

In the international arena of trading fish and fishery products, FAO (2018) reported that Viet Nam and Thailand are among the top ten exporters of fish and fishery products. Thailand, which was the third largest exporter in 2006, was overtaken by Viet Nam in 2016 as the world's third biggest exporter, and landed fourth as the biggest exporter of fish and fishery products in 2016 (**Table 7**).

A Glimpse of the Fisheries Trade Profile of Selected Southeast Asian Countries

Brief information with respect to trading of fish and fishery products by the Southeast Asian countries, compiled by the Members of the Regional Fisheries Policy Network (RFPN) assigned at the SEAFDEC Secretariat in Bangkok, Thailand in 2018, is shown below:

- ***Cambodia***

Cambodia lies at the heart of the Southeast Asian region (**Figure 1**), and has good road connections with Thailand,

Table 7. Top ten exporters of fish and fishery products (FAO, 2018)

Countries	2006		2016		APR* (%)
	Value (US$ million)	Share (%)	Value (US$ million)	Share (%)	
China	8,968	10.4	20,131	14.1	8.4
Norway	5,503	6.4	10,770	7.6	6.9
Viet Nam	3,372	3.9	7,320	5.1	8.1
Thailand	5,267	6.1	5,893	4.1	1.1
United States of America	4,143	4.8	5,812	4.1	3.4
India	1,763	2.0	5,546	3.9	12.1
Chile	3,557	4.1	5,143	3.6	3.8
Canada	3,669	4.2	5,004	3.5	3.2
Denmark	3,987	4.6	4,696	3.3	1.7
Sweden	1,551	1.8	4,418	3.1	11.0
Top ten sub-total	**41,771**	**48.4**	**74,734**	**52.4**	**6.0**
Rest of the world total	**44,523**	**51.6**	**67,796**	**47.6**	**4.3**
World total	**86,293**	**100.0**	**142,530**	**100.0**	**5.1**

Figure 1. Map of Cambodia
(Source: Google map)

Viet Nam, and Lao PDR, all of which have rapidly growing economies and growing domestic markets, providing Cambodia with significant regional trade opportunities. The country's trade relations with Viet Nam are particularly strong due to its close proximity to Ho Chi Minh City, which is accessible through rivers, roads, and air transportation. The increasing tourist traffic in Siem Reap and northern part of the country, especially from Bangkok, Thailand, is also underpinning the improved connections and trade potentials.

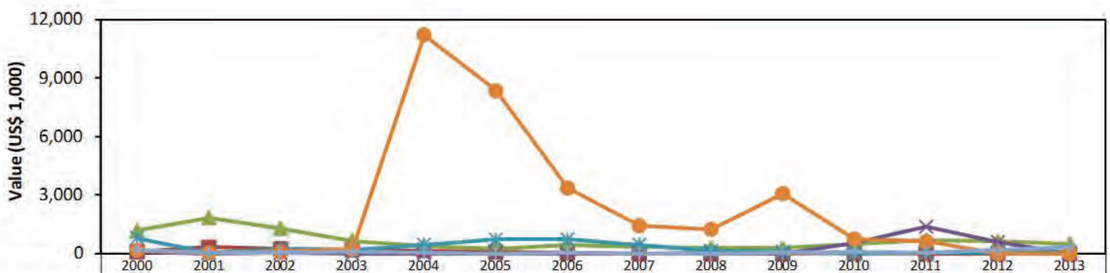
Moreover, entrepreneurs from Myanmar, Thailand, and Viet Nam are now investing in aquaculture in Cambodia, especially in the southern part of the country, bringing in skills and creating trading networks that facilitate the development of its fisheries industry. Nevertheless, the data on the amount and value of exported and imported fish and fishery products from and to Cambodia is limited. The activities of fishers crossing the borders to sell fish and fishery products to Thailand are unrecorded. Furthermore, the country imports relatively cheap feed and seeds when domestic supplies become costly or inadequate. Cambodia supplies a large quantity of freshwater fish species to markets in Thailand and Viet Nam for value-adding and processing for re-export to major importing countries (Rab *et al*., 2006). During the last few years however, the country's export of frozen products has declined due to lack of raw materials for processing. Nonetheless, the decreasing trend of the value of exported fish and fishery products in 2010-2017 (**Figure 2**) could have been caused by changes in the government policies of diverting fish and fishery products to domestic markets to meet the rising local demand (The Phnom Penh Post, 2012). Also, the Kampuchea Fish Import and Export Company, a state enterprise that has the sole distribution rights for all fish and fishery products traded into and out of Cambodia, was immobilized and this could have contributed to the declined value of exports.

As shown in **Figure 2**, the main countries of destination of exported fish and fishery products from Cambodia are Thailand and Viet Nam, and a smaller volume is traded to Singapore, Malaysia, Hong Kong, China, Taiwan, Japan, USA, and Australia (FAO, 2005).

- ***Indonesia***

The international fish trade in Indonesia has been increasing faster during the last decade, as stimulated by the growing demands from global consumers and their increasing awareness on the health benefits of seafood. The country contributes significant volume and value of fish and fishery products in the international fish trade, and thus, is gaining foreign currencies as well as providing employment and income to its fisherfolk. In 2015, Indonesia ranked 11th in the world's top exporting countries of fish and fishery products valued at US$ 2.7 million (ISW Group, 2017). It is predicted that Indonesia would still be able to export fish and fishery products until 2030 including re-exporting of imported products after processing (Chan *et al*., 2017).

Figure 3 shows the dynamics of Indonesia's export and import of fish and fishery products from 2012 to 2017. In terms of quantity and value, the country's exportation was much greater than its importation, and the decrease in the volume and value of exported fishery products could be attributed to the moratorium of the issuance of fishing licenses particularly to foreign fishing vessels in 2015, thus the supply of raw materials to the country's processing plants had decreased

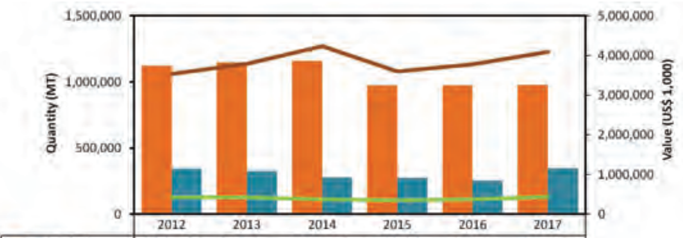


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Australia	89.89	322.82	242.39	188.24	160.06	82.03	40.32	-	-	8.35	17.88	10.48	-	-
China	1,161.18	1,839.07	1,299.12	658.67	393.78	265.02	428.82	351.59	314.87	280.67	510.35	692.51	619.87	507.10
Japan	81.09	13.34	18.29	0.49	0.53	0.02	-	10.90	30.08	-	541.12	1,375.77	593.32	-
Thailand	807.33	44.07	246.40	201.86	460.04	717.41	733.42	462.63	136.97	102.49	-	20.62	51.28	106.48
USA	166.15	36.78	71.12	222.23	11,214.5	8,343.79	3,360.28	1,425.32	1,242.37	3,075.27	745.36	624.51	0.55	-
Viet Nam	211.74	26.64	54.31	116.68	53.63	3.36	41.60	-	-	43.06	81.32	64.92	177.93	359.47

Figure 2. Destination and value of fish and fishery products exported by Cambodia (in US$ 1,000)
Source: UN Comtrade (2018)

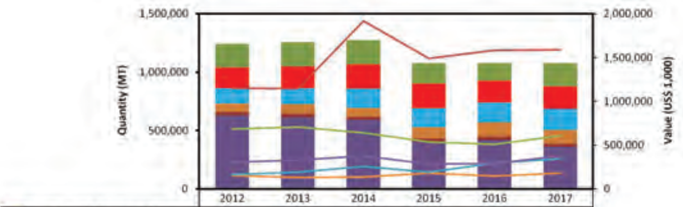
(Idris, 2015). The major exported fisheries commodities of Indonesia include shrimps, tunas, crabs, seaweeds, and others (**Figure 4**). The "others" category comprises low value fishes, pearls, freshwater fishes (eels, *Pangasius*, tilapia), and live fish (ornamental fishes and high value live marine fishes). The major destination of the exported fisheries commodities from Indonesia are USA, Japan, ASEAN, China, and EU (**Figure 5**).

The control and import tariff applied by the U.S. to the fish and fishery products exported from Indonesia is the Generalized



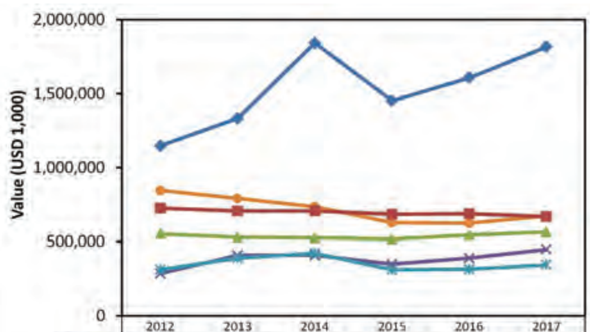
	2012	2013	2014	2015	2016	2017
Export (MT)	1,122,779	1,148,586	1,160,291	973,597	976,140	979,910
Import (MT)	344,037	326,179	278,129	275,543	252,024	346,350
Export (US$ 1,000)	3,541,792	3,788,085	4,231,359	3,603,229	3,781,820	4,088,858
Import (US$ 1,000)	420,663	424,443	380,624	356,541	378,730	433,380

Figure 3. Quantity (mt) and value (US$ 1,000) of fishery products exported and imported by Indonesia in 2012-2017
(Source: KKP, 2018a)



	2012	2013	2014	2015	2016	2017
Tuna, skipjack, longtail (MT)	201,160	209,070	206,560	172,290	145,900	198,130
Seaweeds (MT)	174,010	181,930	206,450	211,870	188,300	192,080
Shrimp (MT)	133,000	138,290	164,210	162,290	171,930	180,300
Squid, octopus (MT)	73,260	79,700	77,710	99,000	122,300	120,360
Crab, swimming crab (MT)	28,210	34,170	28,090	23,750	29,040	27,370
Others (MT)	630,440	612,260	590,210	407,010	417,890	359,760
Tuna, skipjack, longtail (US$ 1,000)	682,290	708,220	638,780	537,120	512,150	607,260
Seaweeds (US$ 1,000)	155,640	131,160	135,090	181,980	146,960	181,280
Shrimp (US$ 1,000)	1,152,270	1,146,280	1,916,530	1,491,890	1,582,240	1,590,600
Squid, octopus (US$ 1,000)	162,560	192,380	256,190	191,700	294,140	342,790
Crab, swimming crab (US$ 1,000)	305,320	331,460	375,950	287,470	292,430	378,580

Figure 4. Major fish and fishery products exported by Indonesia in 2012-2017 by quantity (mt) and value (US$ 1,000)
Source: KKP, 2018a



	2012	2013	2014	2015	2016	2017
USA	1,148,000	1,333,000	1,844,000	1,454,000	1,609,000	1,817,000
Japan	845,000	792,000	733,000	626,000	624,000	672,000
ASEAN	553,000	530,000	525,000	517,000	546,000	564,000
China	288,000	410,000	411,000	351,000	392,000	449,000
EU	313,000	390,000	424,000	313,000	315,000	345,000
Others	725,000	706,000	705,000	683,000	687,000	667,000

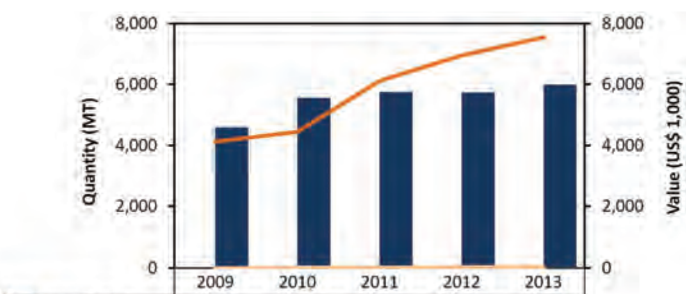
Figure 5. Major destination countries of fishery products exported by Indonesia in 2012-2017 by value (US$ 1,000)
Source: KKP, 2018b

System of Preference (GSP) which provides preferential duty-free entry of its export equivalent to about 11% of the total value. For EU countries, the MoU between Indonesia and EU bound the 117 exporters by the Approval Number issued by the EU Authority, after having been verified and enrolled by Indonesia's Competence Authority, which is the Board of Fish Quarantine and Quality Control under the MMAF. For non-food commodities, pearls (*Pinctada maxima* and *Pinctada margaritifera*) contributed a significant amount of export value to the country's coffers. In 2013-2014, the country's production was about 5,400 kg which was almost one-half of the estimated world production of 12,700 kg. Since 2015, pearls from Indonesia shared 43% of the world market with trade value of US$ 29.43 million, putting the country at the 9th place in world ranking (Ditjen, 2016).

On the other hand, the major fish and fishery products imported by Indonesia include fish meal (for aquaculture and poultry feeds), mackerel and sardine (for processing), fish oil (for pharmaceutical industries), and salmon and trout (for modern market). The dominant sources of imported mackerels in Indonesia are China, Japan, Norway, and Malaysia. Some of the imported mackerels are meant to augment for domestic supply of fish. The species of imported mackerels include *Scomber japonicas*, *S. scombrus*, and *S. australasicus*. Indonesia produces and exports crabs that include the swimming crabs, but the country still imports these commodities to increase its supply and fulfill the domestic demand as well as sufficiently supply the fish processing industry.

- ***Lao PDR***

The information on export and import of fish and fishery products of Lao PDR from 2009 to 2013 shown in **Figure 6** and **Figure 7**, indicates that the price of fish species vary during peak season (rainy season, August-November) and off-peak season (dry season, December-July). Considerable trading of the fish and fishery products of Lao PDR (**Figure 8**) takes place within the Mekong River Basin and its neighboring catchments. A lively trade takes place between Thailand and



	2009	2010	2011	2012	2013
Export (MT)	2	6	9	7	9
Import (MT)	4,591	5,561	5,747	5,731	5,995
Export (US$ 1,000)	7	12	17	33	28
Import (US$ 1,000)	4,120	4,449	6,126	6,952	7,554

Figure 6. Quantity (MT) and value (US$ 1,000) of fish and fishery products exported and imported by Lao PDR in 2009-2013
Source: SEAFDEC, 2017

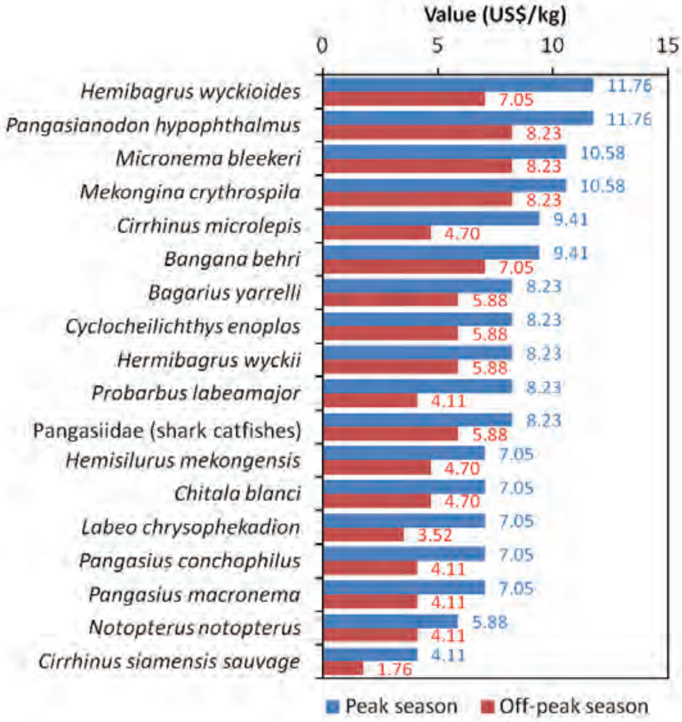


Figure 7. Price (US$/kg) of fish species during peak season and off-peak season in Lao PDR in 2017 *(Source: LFS-DAF, 2018)*

Figure 8. Map of Lao PDR showing the Mekong River *(Source: Google map)*

Lao PDR, with Lao traders sending high-value species to Thailand through the Mekong River, receiving in exchange seeds of tilapia and other species. Cultured fish from Thailand are also found in most markets along the Mekong River.

- ***Myanmar***

Myanmar's trade with other countries began in the 1990s when it adopted the open-door policy and welcomed foreign direct investment, particularly in its oil and gas sectors. Private sector entrepreneurs in the country have already been allowed to engage in external trade and to retain export earnings, when the government started to formalize border trade with neighboring countries. Foreign investment was permitted through the enactment of the Foreign Investment Law. The country's fish and fishery products have been categorized as fish, prawn, and others as shown in **Figure 9**. In 2017-2018, the amount of fish and fishery products exported by Myanmar was around 0.57 million mt valued at about US$ 712 million. The top 10 species and top 10 destinations of the exported fish and fishery products are illustrated in **Figure 10** and **Figure 11**, respectively.

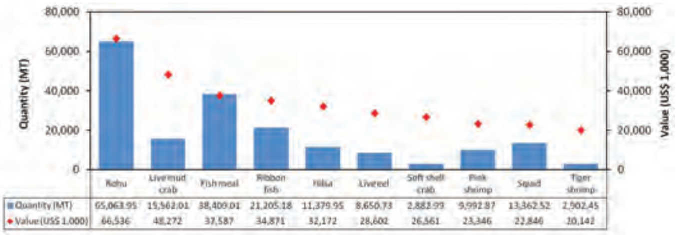


Figure 10. Top 10 species of fish and fishery products exported by Myanmar in 2017-2018 by quantity (mt) and value in US$ 1,000 *(Source: DOF, 2018)*

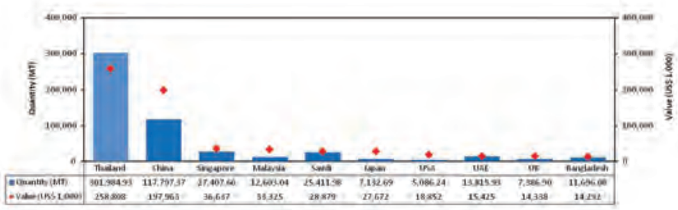
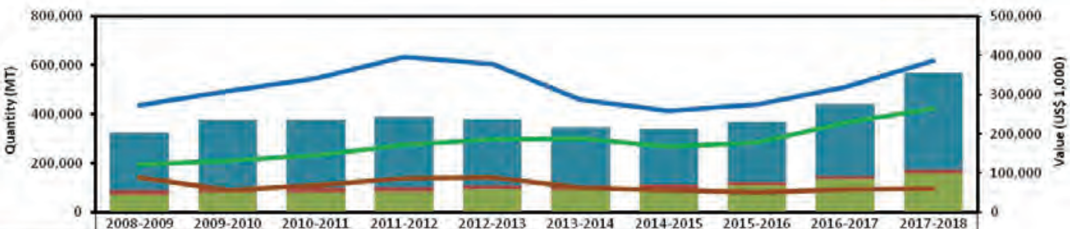


Figure 11. Top 10 destination countries of fish and fishery products exported by Myanmar in 2017-2018 by quantity (mt) and value in US$ 1,000 *(Source: DOF, 2018)*



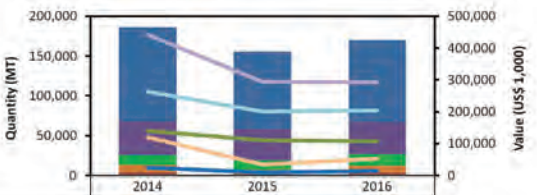
	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Fish	234,060.74	277,823.74	273,043.74	283,688.76	266,464.97	237,142.31	225,974.93	246,970.93	290,580.04	394,135.80
Prawn	18,382.10	17,439.31	19,142.91	17,995.03	17,267.93	16,508.97	17,527.33	13,673.49	13,082.46	15,905.44
Others	72,267.70	79,829.38	81,706.06	85,297.53	93,112.79	91,616.08	94,788.33	108,326.47	135,044.01	158,186.09
Total (MT)	324,710.54	375,092.43	373,892.71	386,981.32	376,845.69	345,267.36	338,290.59	368,970.89	438,706.51	568,227.33
Fish	273,270	309,860	342,440	396,270	378,050	286,930	258,610	274,250	319,040	385,810
Prawn	88,850	56,330	68,660	86,190	89,290	61,980	56,890	49,640	58,210	60,780
Others	121,110	130,400	144,410	171,390	185,500	187,360	166,750	178,740	228,570	265,130
Total (US$ 1,000)	483,230	496,590	555,510	653,850	652,840	536,270	482,250	502,630	605,820	711,720

Figure 9. Fish and fishery products exported by Myanmar from 2008-2009 to 2017-2018 by quantity (mt) and value in US$ 1,000 *(Source: DOF, 2018)*

In terms of import, the country imported around 815.87 mt of fish and fishery products valued at US$ 1.26 million in 2016-2017, which increased to 1,804.24 mt valued at USD 2.22 million in 2017-2018. There are 50 kinds of fishery products imported by Myanmar and among them are saba, salmon, ocean trout, octopus, prawn eggs, mollusks, and shishamo fish. The main countries of origin of imported fish and fishery products into Myanmar are Japan, France, Norway, Russia, Canada, Indonesia, Thailand, New Zealand, Chile, Viet Nam, China, Taiwan, Greenland, UAE, and USA (DOF, 2018).

- ***Philippines***

The major fish and fishery products exported by the Philippines in 2014-2016 (**Figure 12**) indicated that in terms of quantity and value, tuna was the top exported commodity dispensed as fresh/chilled/frozen, smoked/dried, and canned. The major markets for tuna include the USA, Japan, and the UK. Seaweeds ranked second and its major markets are the USA, China, and France. Third in rank were crabs (live, frozen, fresh/chilled) and its fat and meat (prepared/preserved). Shrimp/prawn ranked fourth with Japan, USA, and France as the major destinations. Fifth is the octopus exported as live, fresh/chilled, frozen, and dried/salted or in brine.



	2014	2015	2016
Tuna	117,909	97,815	103,543
Seaweeds	42,469	38,968	39,874
Crabs	12,581	11,464	14,160
Shrimps, prawns	8,917	5,475	8,968
Octopus	4,132	2,041	3,442
Total of major products (MT)	186,008.00	155,763.00	169,987.00
Total of all products (MT)	316,863.00	226,821.00	257,219.00
Tuna	441,991.02	294,896.97	292,100.28
Seaweeds	263,597.20	201,640.81	203,508.10
Crabs	140,423.48	110,596.34	107,559.19
Shrimps, prawns	119,843.19	35,027.50	52,522.37
Octopus	25,352.05	8,956.47	13,753.50
Total of major products (US$ 1,000)	991,206.95	651,118.08	669,443.44
Total of all products (US$ 1,000)	1,270,845.15	909,512.78	977,672.59

Figure 12. Major fish and fishery products exported by the Philippines in 2014-2016 by quantity (mt) and value in US$ 1,000

(Source: BFAR, 2018)

The total quantity of the country's imported fish and fishery products in 2014 was more than 300,000 mt valued at about US$ 300 million, comprising fish (chilled/frozen), prawn feeds, flour, meals and pellets made of fish, crustaceans, and mollusks. The imported chilled/frozen fish consists of tuna, mackerel, and sardines, and tuna was the highest in terms of quantity and value, where tuna is supplied mainly by Papua New Guinea, Taiwan, China, South Korea, and Japan.

- ***Thailand***

During the past decades, the export of fish and fishery products of Thailand had expanded making the country one of the world's top exporters of fish and fishery products. The country is also one of the global top importers of fish and fishery products which are mostly used as raw materials for re-exported processed products (FAO, 2018). The total quantity and value of fishery products exported and imported by Thailand in 2014-2017 are shown in **Figure 13**. For imported fishery products, fish was the major commodity in 2017 and the AMSs were the major suppliers of fishery products to Thailand in terms of quantity and value in 2017.

	2014	2015	2016	2017
Export (MT)	1,793,277.61	1,683,566.81	1,666,248.89	1,521,189.91
Import (MT)	1,628,237.48	1,626,642.45	1,895,436.83	1,939,170.45
Export (US$ 1,000)	7,015,409.13	6,077,330.96	6,247,784.22	6,498,657.12
Import (US$ 1,000)	2,853,291.71	2,635,033.74	3,226,423.41	3,715,517.96

Figure 13. Export and import of fish and fishery products of Thailand in 2014-2017 by quantity (mt) and value in US$ 1,000

(Source: DOF, 2017)

Way Forward

In order to safeguard the niche of the region's fish and fishery products in the world market, it has become necessary that issues and concerns on fish safety and quality are properly addressed. While there are several emerging standards and requirements imposed by importing countries to ensure the safety of the consuming public, the Southeast Asian countries have also their respective national systems of tracing the origin of fish and fishery products being traded. Moreover, at the regional level, SEAFDEC with the cooperation of the Member Countries came up with a traceability system for ASEAN aquaculture products, which is being used in the aquaculture supply chain for checking the safety and quality of aquatic organisms and verifying that such organisms are farmed in compliance with national and international management requirements (Yeap, 2016). Moreover, the ASEAN Catch Documentation System (ACDS) was also developed for marine capture fisheries as a unified framework for ensuring the traceability of fish and fishery products in the supply chain and enhancing the credibility of fish and fishery products for intra-regional and international trade (Siriraksophon *et al.*, 2016). The electronic format of the ACDS, known as the eACDS, has also been developed to promote web-based application of the system. SEAFDEC has been initiating capacity building of the AMSs on the application of the ACDS to enable them to monitor and control the trade of fish and fishery products, and help them in complying with the IUU-related trade measures, since the ACDS was developed taking into consideration the standards and information requirements of importing countries although the ACDS has been simplified to facilitate its applicability by the fisheries sector of the region (Siriraksophon *et al*., 2017).

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