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ASIA-PACIFIC FISHERY COMMISSION

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Regional overview of the status and trends of fisheries and aquaculture in the Asia-Pacific Region 2016

1. Regional overview of status and trend of fisheries and aquaculture in the Asia-Pacific is an effort by the Secretariat to analyze the short-term performance of the fisheries and aquaculture sector in the region every two year. Due to some reason, the last regional overview only covered aquaculture sector. The draft Regional overview of the status and trends of fisheries and aquaculture in the Asia-Pacific Region 2016 is provided as APFIC/18/INFO XX

GEOGRAPHICAL SCOPE AND SOURCE OF DATA

2. This review covers the states, entities and areas of Asia and the Pacific region that report fisheries and aquaculture statistics to FAO, and which are within the area of competence of the Asia-Pacific Fishery Commission. The review covers capture production from marine and inland waters. The FAO Global Fishery and Aquaculture Statistics (FAO_FI_GLOBALS Version 2016.1.2) of the Food and Agriculture Organization of the United Nations (FAO) is the main source of data. The time series data are generated using FAO FishStat software. Other sources of data are Globefish and the Fishery Commodities Global Production and Trade database.

GENERAL CONTEXT

Contribution to national economies

3. Fisheries continue to make a significant contribution to national economies in the region including to gross domestic product (GDP), trade, employment and nutrition, especially those in the Pacific and least-developed countries. Fisheries accounts for more than one percent of GDP in many of the Pacific island countries and as high as 43 percent in the Marshall Islands. The economic contribution of capture fisheries production is relatively smaller in Southeast and South Asian states.

Trade

4. Fisheries and aquaculture commodities remain among the most traded worldwide, providing benefits such as employment along the value chain and contribute to the economic growth of the countries. Seven states of Asia and the Pacific ranked in the top ten importing and exporting countries in the world, with overall China remaining as the biggest global exporter of fisheries commodities. Thailand is the second largest exporter, followed closely

by Viet Nam. In terms of import value, Japan is the highest value importer in the region followed by China, Hong Kong SAR, Republic of Korea and Thailand.

Employment

5. There are limited up-to-date figures on employment in the capture fisheries and aquaculture sectors in Asia and the Pacific region, but some analysis is possible with existing data from 2011-2012. Countries do not report standardized data on employment (and use different criteria for aggregating). For APFIC countries, those reported as employed in the fisheries and aquaculture sectors are around 48 million people. China, the country with the highest number of fishers, had an estimated 9.9 million engaged in capture fisheries in 2014, accounting for 24 percent of the world's total and 38 percent of the total number of fishers in selected Asia and Pacific countries. This is followed by India with a total number of fishers recorded in 2013 of 8.4 million people, of which 3.3 million people were engaged in full-time fishing. In Myanmar, almost 3 million people were engaged in capture fisheries, of which 24 percent of total number are full-time fishers and the rest are engaged seasonally or as a supplemental part of their diverse livelihood. Although the number of people employed in fisheries has increased in several countries in the region, the number in some countries has declined (e.g. Australia, Japan, and New Zealand).

6. Gender-disaggregated employment data are not available in many countries in the region but are important, because women are actively engaged in the post-harvest and service sectors and many of them are also engaged in capture fishing itself. Improving statistical data collection in the fisheries sector would address actual engagement of women and improve their access to necessary resources and decision-making processes. The limited availability and incomparability of available data on employment is a significant obstacle in the formulation of fisheries-related employment policies in the region.

Importance of fish in human nutrition

7. Fish and fish products are one of the most important sources of animal protein, accounting for about 17 percent at the global level, but exceeding 50 percent in many countries. They also provide other valuable nutrients such as the long-chain omega-3 fatty acids. Fish and fish products play a very important role in the food and nutritional security of rural, urban and coastal populations throughout Asia and the Pacific. FAO statistics used to estimate per capita consumption show widely varying rates with Maldives at 185 kg/per capita per year, followed by China, Hong Kong SAR, Myanmar and Malaysia. Many countries in the region consume less than 10 kg per capita per year including Timor Leste, Bhutan, India, Nepal and Pakistan.

8. The 32nd Session of the Committee on Fisheries (COFI) in 2016 recommended developing policies and field programmes that allow countries to invest in nutrition-focused fish and aquaculture value-chain development, giving particular attention to the role of small- and medium-scale enterprises. The Committee further pointed out the need for adequate consideration to policies and interventions that make the nutritional benefits of increased fish consumption available to all.

CAPTURE FISHERIES

Issues of "nei" reporting and species composition in national statistics

9. As in previous years, a significant proportion of the region's capture production reported to FAO is not identified to species level, but grouped as "nei" (not elsewhere included). For example, as marine/freshwater fish nei, marine/freshwater nei. In 2004 the amount of capture production that was reported in Asia and the Pacific region and not identified at species, genus, or family level was approximately 13 197 million tonnes (29.5 percent); this has risen to 32 percent of the regional total production by 2014 (17 122 million tonnes). The consistently high reporting of nei marine fish makes management decision-making difficult

and may have a number of causes such as the capture of juvenile, smaller, lower-value species that are harder to identify.

Fisheries production

10. Overall, global marine capture fisheries production remained relatively stable in comparison to previous years but with a small growth of 2.3 percent since 2012 (which amounted to 94.6 million tonnes in 2014). Marine capture yield dominated production with 82.7 million tonnes. Asia and the Pacific region continue to be the world's largest producer of fish and represents 61 percent of the global marine capture production.

11. Inland fisheries production in the APFIC region continued to increase and reached 11.9 million tonnes in 2014. At the same time, the Asia-Pacific Region accounted for 66 percent of global inland fisheries production.

12. In 2014, the overall marine capture fisheries production in Asia and the Pacific outside of China continued growing and reported its highest catch ever at 50 million tonnes (and 29 million tonnes without China). This was largely due to the growth of the Southeast Asian production in recent years.

13. The total inland capture production without China was highest recorded volume ever, indicating a remarkable growth of the sector with 44 percent increase from 3.2 million tonnes in 2004, to 5.7 million in 2014, mostly due to the increase of production in the Southeast Asian subregion.

Fishing fleet

14. Approximately 3.5 million fishing vessels were in Asia and 8 600 vessels in the Pacific and Oceania, accounting for 75 and 0.2 percent of the global fleet respectively.1 China has the largest fishing fleet with 1 million vessels in 2014. This was followed by Indonesia (810 000 vessels), Philippines (470 000 vessels), and Australia (320 000 vessels). The number of registered fishing vessels increased from 3.3 million in 2010 to 3.5 million in 2014. Some countries have reported increases in the number of vessels. Indonesia, for example, reported numbers of un-motorized vessels increasing 10-fold from 31 000 vessels in 2010 to 321 000 vessels in 2014, and number of motorized vessels increased from 400 000 to 480 000 in the same period.

15. In the region, around 70 percent of registered fishing vessels (excluding Australia) were engine-powered in 2014. The proportion of motorized vessels ranged from 39 to 98 percent across the region. The figures for non-powered vessels were most likely underestimated and do not reflect the accurate vessel composition and their fishing capacity.

Species composition

16. In 2014, pelagic marine fish dominated the region's catch composition, which accounted for 32 percent of the total catch (12.6 million tonnes). They were followed by demersal marine fish (19 percent, 7.7 million tonnes), marine fish nei (18 percent, 7.0 million tonnes), freshwater and diadromous (16 percent, 6.2 million tonnes), crustaceans (6 percent, 2.5 million tonnes), cephalopods (4 percent, 1.6 million tonnes), molluscs excluding cephalopods (4 percent, 1.5 million tonnes), and aquatic plants (1 percent, 0.2 million tonnes).

17. 16. The catch of pelagic marine fish in Asia and the Pacific region peaked at 13.7 million tonnes in 1988 and declined to around 11 million tonnes; it has been relatively stable between late 1990s and early 2000. Production has been slightly but continuously increasing since 2009. Freshwater and diadromous species recorded the most prominent increase

[1] FAO. 2016. *The State of World Fisheries and Aquaculture 2016. Contributing to food security and nutrition for all.* Rome. 200 pp.

during the past decade (+34 percent), whereas molluscs excluding cephalopods was the most reduced species group (-5 percent).

18. 17. In 2014, skipjack tuna had the largest production at just over 2 million tonnes followed by Japanese anchovy, scads nei, large hairtail, chub mackerel and yellow fin tuna compared to 2004 when Japanese anchovy had the greatest production.

Production in temperate seas

19. To provide analysis of some of the key species groups caught in temperate waters, the data were consolidated according to catch area and species group (this followed the methodologies used in the 2008 APFIC review of Status and Trends). The FAO reporting areas 61 and 81 being temperate and the others being predominantly tropical (FAO areas 51, 57, 71 and 77). Species targeted were also aggregated into functional groups to illustrate better the effect of targeted fishing for larger or more valuable species.

20. Anchovy/herring have risen very slightly but significantly lower than the peaks of the 1980s, and collapse during the mid-2000s. Small pelagic species have risen slightly in the last 2 years and large pelagics have declined very slightly in the last few years. High value demersal species continue to decline to 4.9 million tonnes while low value demersal species had a slight decline to 1.7 million tonnes in 2014. High value shrimp continue to increase to 1.5 million tonnes. Low value shrimp and squid continue to decline over the last 3 years.

Tuna

21. Tuna species in the APFIC region have distinctive and different historical catch trends between tropical and temperate seas. Overall, the fishery yields from tropical waters have been rapidly increasing during the past decades, whereas that from temperate areas has stagnated if not decreased. The trend is observed for many tuna species except bluefin tuna where both tropical and temperate catches are decreasing with some yearly variations.

22. Skipjack tuna from tropical seas reached an all-time high of 2 504 741 tonnes in 2014 continuing the year-on-year growth. By contrast skipjack from temperate seas continued to decline to 92 445 tonnes. Yellow fin tuna production from tropical seas has risen to 1 255 270 tonnes in 2014 and is now back to the level reported in 2004, following a decline during 2004-2007. Yellow fin tuna from temperate seas has continued to decline. Bigeye tuna from both temperate and tropical seas have remained relatively stable in recent years, at 15 773 tonnes and 280 338 tonnes, respectively. Longtail tuna catches in Asia-Pacific tropical seas have continued their decline to 204 209 tonnes in 2014. There were no catches reported from temperate seas in 2014. Bluefin tuna catches from tropical and temperate seas in the APFIC region have followed a general pattern of decline for the last 40 years. Catches from both areas did increase slightly on the previous year to around 12 803 and 12 415 tonnes respectively. Albacore tuna catches from tropical seas fell slightly in 2014 to 112 725 tonnes, although the longer-term trend for increasing catches over the last 30 years continued. Catches from temperate seas declined in 2014 to 56 971 tonnes.

Subregional trends

South Asia

23. The total capture production from both marine and inland waters has continued to increase in the last ten years. Since 2004, South Asia subregion has the second largest share of inland capture production in Asia and the Pacific after Southeast Asia subregion. Inland capture

production has increased from 1.8 million tonnes in 2005 to 2.5 million tonnes in 2014 (+ 27.7 percent), of which India, Bangladesh, and Sri Lanka were the main contributors (accounting for 45.7, 8.0, and 6.2 percent of total marine production respectively). Marine capture production has increased from 4 million tonnes in 2005 to nearly 5 million tonnes in 2014 (+ 18 .5 percent), of which India, Bangladesh and Pakistan are the main contributors (accounted for 17.4, 13.3, and 1.7 percent of total marine production respectively).

24. South Asia's catch was dominated by freshwater fish (36 percent of the total catch), marine pelagic species (24 percent) and demersal species (19 percent). Between 2005 and 2014, the following three species groups showed outstanding growth: cephalopods (40.6 percent), pelagic marine fish (31.5 percent), and crustaceans (28.4 percent).

Southeast Asia

25. Catches from Southeast Asia marine and inland fisheries continue to rise. Marine waters capture reached 16 792 389 tonnes in 2014, up from 16 088 960 in 2013 while inland waters capture reached 2 985 806 tonnes, up from 2 898 195 tonnes in 2013. The dominant capture fishery for Southeast Asia was skipjack tuna at 713 000 tonnes in 2014. Pelagic marine (6 152 180 tonnes) and marine fish nei (5 908 621 tonnes) were the dominant groups.

26. China

27. China capture fisheries production is dominated by fish from marine areas, which has continued to rise over the last 10 years. Production from marine areas rose to 16 283 555 in 2014 from 15 345 372 tonnes in 2013. Production from inland waters rose from 2 297 751 to 2 309 909 tonnes in the same period. All of the main FAO marine fisheries groups reported in China increased in a similar way. The leading groups reported were marine fish nei, demersal fish nei, followed by pelagic marine fish nei, crustaceans, freshwater and diadromous fish and then mollusks excluding cephalopods.

28. Inland fisheries groups reported have generally not increased or slightly decreased in production during recent years. The main groups reported are freshwater fish nei, freshwater mollusks nei, Oriental river prawns, Chinese mitten crab and aquatic invertebrates nei.

Other Asia

29. Capture fisheries production from the "Other Asia" region is largely dominated by production of Japan and Korea DPR. The region shows quite different trends to the other APFIC subregions. The historical production peaked in the 1980s and has been in decline since. Production is dominated by that from marine waters. However, production slightly increased in the last 2 years rising from 5 885 151 tonnes to 6 105 000 tonnes for marine capture, and from 183 485 tonnes to 197 107 tonnes for inland waters. Chub mackerel is the dominant species caught at 631 000 tonnes, followed by skipjack tuna (502 000 tonnes). It should be noted, however, that the catch of chub mackerel fluctuates from year to year (17 percent reduction from 2012 to 2013, followed by 23 percent increase between 2013 to 2014).

Oceania

30. Fisheries production from Oceania is dominated by marine catch, which increased slightly in recent years but is still below the highs recorded in 2005. Total marine production rose from 1 031 352 to 1 158 988 tonnes between 2013 and 2014. Catch from inland fisheries is small by comparison and dropped from 17 514 to 17 076 tonnes between 2013 and 2014. The main species caught was skipjack tuna, followed by blue grenadier, yellow fin tuna and marine fishes nei. In terms of trends, all FAO categories in Oceania increased with pelagic marine fish nei forming the largest group, followed by demersal fish nei and marine fish nei.

Current and emerging issues in fisheries

31. Marine and inland capture fisheries sectors continue to make an important contribution to the livelihoods of millions of people in the Asia-Pacific region. Marine capture fisheries production in APFIC countries has continued to report slight increases in recent years. However, this has to be seen in the context of a global stagnation of growth for the last 20 years (revealed in the longer-term trends). For the most part production has not returned to the high levels reported 20-30 years ago. The reasons for this levelling off of production are complex, but include for example, overexploitation of resources, pollution and habitat modification. The increasing pressures from human activities are being further compounded by the effects of climate change. The historical expansion of capture fisheries in the region with a lack of effective regulatory and management system has been a key contributor to declining production and ensuing social and economic problems and the increase in illegal, unreported and unregulated (IUU) fishing. The following paragraphs briefly describe the current and emerging issues in fisheries.

32. Strengthening fisheries management and implementation of ecosystem approaches to fisheries management (EAF): In the APFIC region, effective fisheries management has always been a challenge, especially in complex multi-species, multi-gear fisheries. Traditional stock-based approaches have largely been ineffective, with management measures often not taking other important aspects of the fisheries into account. The adoption of ecosystem approaches to fisheries management can strengthen resilience, livelihoods, food and nutrition security, and reduce economic losses and the impacts of illegal, unreported and unregulated (IUU) fishing. The ecosystem approach offers a practical and effective means to manage fisheries more holistically and a move away from fisheries management that focuses on target species, towards systems and decision-making processes that balance environmental, human and social well-being.

33. The challenge of addressing illegal, unreported and unregulated (IUU) fishing: Illegal, unreported and unregulated (IUU) fishing remains a key issue for the fisheries sector in the Asia-Pacific region, where estimates of the illegal fish catch by foreign vessels in the region are US$ 3.7 - 5.2 billion per year (8 -16% of the total reported catch). IUU fishing hinders economic growth opportunities and deprives the poorest, food-insecure people who depend on fisheries for a critical source of income and livelihood. For counties affected, IUU fishing constitutes an impediment as well as a deterrent to private sector development and undermines fisheries and oceans' governance efforts. IUU fishing is increasingly being associated with organized criminal behavior. Countries unable to fulfil international obligations for fisheries management and governance also risk incurring trade sanctions on their fisheries exports.

34. Small-scale fisheries and the implementation of the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines): Small-scale fisheries (inland and marine) (SSF) continue to make up the greatest proportion of the sector in the APFIC region. Small-scale fishers rely on the fishery for a large proportion of their diversified livelihoods as well as their food and nutrition, and contribute the greatest proportion of production and the sector workforce (81-90 percent) (whether directly in fisheries, post-harvest or other associated activities). It is therefore vital that SSF remain economically viable and socially vibrant throughout the region. Implementation of the SSF Guidelines provides a comprehensive framework for States and other stakeholders to support this important part of the sector. In ensuring the participation, visibility, recognition and enhancement of the already important role of small-scale fisheries, they will be able to continue to contribute to global and national efforts in the eradication of hunger and poverty.

35. Climate change and resilience: In the APFIC region fishers and the communities they belong to are particularly vulnerable to the impacts of disasters and climate change. The location and characteristics of their livelihood activities add to their high level of exposure. The economic and social impact of disasters has been increasing with disproportionate effects

on developing countries and the poor. Climate change will impact oceans, coasts and freshwater ecosystems compromising the fisheries and aquaculture sector's ability to deliver food for current and future generations. Resilience of the sector can be built through systematic implementation of the Sendai Framework for Disaster Risk Reduction and fulfilling commitments to the Paris Agreement on Climate Change.

36. Inclusive and gender-sensitive value chains: Processing and trade in seafood and aquatic animal and plant products within and outside of the APFIC region are important and remain strong. However, post-harvest losses are high and need to be addressed, including fish losses at the capture stage of the fish supply chain. Reducing fish losses will increase the quantity of fish and fish products available for human consumption, without increasing fishing effort. Women are engaged in post-harvest processing and marketing, therefore their participation in any fish loss-reduction intervention is key. A focus on strengthening gender sensitive values chains through improving access to productive resources, services and decision-making processes would be required.

AQUACULTURE

Overall performance of the sector

37. The aquaculture production in the Asia-Pacific Region during the two-year period (2012-2014) is reviewed to see how the aquaculture sector in the region performed during these 2 years. This will allow for the determination of the driving factors that are responsible for the over-all performance of the aquaculture sector. Country production data from the FAO database is the main source of the production statistics used.

38. The over-all performance of the aquaculture sector in the Asia-Pacific region remained healthy and strong. The total aquaculture production in 2014 reached 92.3 million tonnes and is 12.6 percent higher than the production in 2012. The region remains the largest contributor to the global supply of fishery products from aquaculture supplying 91.3 percent of the total global supply of aquaculture products in 2014.

Countries maintained growth trend of production

39. As in the previous years, China remained the largest producing country of aquaculture products contributing 63.7 percent of the total production in the Asia-Pacific region, and 58 percent to the global supply. China's aquaculture production growth maintained at a moderate level of 4.45 percent annually largely due to the more attention to products quality and efficiency rather than production in the government policy. Indonesia is fast catching up with its 2014 production up by almost 50 percent compared to 2012. Other countries that posted modest increase in their aquaculture production between 2012 and 2014 include India (15.9 percent), Bangladesh (13.4 percent), Viet Nam (10.2 percent), New Zealand (9.7 percent) and Myanmar (8.5 percent). Although the volume of the production is not much and the production data are all FAO estimates, it is noteworthy to mention that the aquaculture production of Cambodia increased by 62 percent during the 2-year period due to substantial increase in freshwater fishes production. Similarly, Sri Lanka and Bhutan posted significant increase in its aquaculture production by 287 and 71 percent, respectively, largely due to almost 11 times increase in the production of Tilapias nei in Sri Lanka, and carps in Bhutan. The productions in central Asian countries of Uzbekistan and Tajikistan have also increased by 67 and 61 percent, respectively.

Countries experiences production decrease

40. While many countries maintained the growth trend of aquaculture production, some countries experienced production decrease between 2012 and 2014. Among the major aquaculture producing countries in the region, Thailand posted the largest decline (26.5 percent) in its production between 2012 and 2014 largely due to more than 50 percent decrease in the production of the white leg shrimp as it is affected by a major disease

specifically the Acute Hepatopancreatic Necrosis Disease (AHPND or popularly called Early Mortality Syndrome or EMS). The aquaculture productions in Malaysia, the Philippines and Australia have decreased as well by 17.9, 8.7 and 8.4 percent, respectively. A number of countries in the region with minimal volume of aquaculture production that posted substantial reduction in its production include Kazakhstan (-44 percent) and the small Pacific islands of Kiribati (-56 percent), Nauru (-70 percent), Palau (-77 percent) and Tonga (-99 percent).

Aquaculture production by environment

41. Freshwater aquaculture production totaled 43.8 million tonnes in 2014 in the Asia-Pacific Region, which represented an increase of 11.4 percent compared with 2012. The contribution from freshwater aquaculture to the total aquaculture production was 47.0 percent in 2014, which was slightly lower than the contribution in 2012 (47.5 percent).

42. Marine aquaculture production totaled 42.3 million tonnes in 2014 in the Asia-Pacific Region, which represented an increase of 12.8 percent compared with 2012. The contribution from marine aquaculture to the total aquaculture production was 46.2 percent in 2014, which remained almost the same as in 2012 (46.1 percent).

43. Brackish aquaculture production totaled 6.2 million tonnes in 2014 in the Asia-Pacific Region, which represented an increase of 20.4 percent compared with 2012. The contribution from brackish aquaculture to the total aquaculture production was 6.8 percent in 2014, which increased significantly compared with the contribution in 2012 (6.3 percent).

44. In value term, the contribution from different aquaculture environment shows a different picture from the quantity contribution. In 2014, freshwater aquaculture value reached 79.5 billion US dollars, which contributed 62.2 percent of the total aquaculture value of the region. In the same year, marine aquaculture value reached 27.7 billion US dollars, which contributed 21.7 percent of the total aquaculture value of the region. The contribution of marine aquaculture in value term is far smaller than its contribution in quantity. Brackish aquaculture value reached 20.7 billion US dollars, which contributed 16.2 percent of the total aquaculture value of the region.

45. In 2014, aquaculture value for freshwater, marine and brackish water increased 9.7 percent, 3.09 percent and 27.2 percent respectively. Apparently, the production value increase of marine aquaculture is far lower than the production value increase during 2012-2014 because the increase was mainly from seaweed, which is a low in value compared with other aquaculture commodities.

Production by species groups

46. The herbivorous and omnivorous freshwater fishes like the carps remained the top cultured commodities in the region with production volume in 2014 equivalent to 41.6 percent of the total fish production in the region. This has increased by 10.7 percent over the 2012 volume. Aside from the carps, other freshwater fishes like the tilapias, catfishes and the freshwater fishes nei also posted significant increase in production.

47. In addition, the seaweeds particularly *Eucheuma* in Indonesia and Japanese kelp and *Gracilaria* in the China sub-region showed more than 30 percent increase in production between 2012 and 2014.

48. On the other hand, the production of white leg shrimp in Thailand and giant tiger prawn in Indonesia suffered significant decline of more than 30 percent during the 2-year period. On the other hand, it should be noted that white leg shrimp production in other Asia-Pacific countries like in India and Indonesia remained strong with increase in annual production of more than 50 percent.

Sub-regional Trend

South Asia Sub-region

49. The total aquaculture production in SA sub-region in 2014 reached 7.06 million tonnes. This represents an increase of 13.3 percent from the 2012 production (6.13 million tonnes). The sub-region's production in 2014 is 7.6 percent of the total aquaculture production in the Asia-Pacific region, similar to the previous years of 2012 (7.5 percent), 2010 (7.4 percent) and 2004 (7.7 percent). The contribution of the sub-region to the regional aquaculture production remain more or less the same (between 7.4-7.7 percent) in the past 10 year.

Southeast Asia Sub-region

50. The sub-region contributed a total of 22.8 million tonnes to the entire aquaculture production in the Asia-Pacific region in 2014. The contribution of the sub-region to the total aquaculture production in the Asia-Pacific region reached 24.7 percent in 2014. The contribution has increased steadily over the last decade compared with 12.9 percent in 2004, 20.2 percent in 2010, 22.2 percent in 2012 and 24.7 percent in 2014. The contribution of the sub-region to the regional aquaculture production nearly doubled during 2004-2014. Noteworthy of mentioning is the significantly increased contribution of the sub-region has been mainly resulted from rapid projection increase of seaweed and significant increase of some freshwater fish such as tilapia and catfish.

The Rest of Asia (ROA) Sub-Region

51. The countries in this sub-region include Japan, North and South Korea, Kazakhstan, Tajikistan and Uzbekistan. The aquaculture production of this sub-region in 2014 totaled 3.12 million tonnes. The production remained similar to the production in 2012 (3.11 million tonnes) with a minimal increase of only 0.5 percent higher. However, the sub-region's aquaculture production increased by 14.5 from 2004 to 2014 (2.72 million tonnes in 2004). In 2014, the sub-region contributed 3.4 percent to the total production in the Asia-Pacific region.

The Oceania Sub-Region

52. Countries in this sub-region are Australia, New Zealand and the small island nations in the Central Pacific. In 2014, this sub-region contributed 216 297 tonnes to the total production in the Asia-Pacific region, which represent a 2.0 percent increase over 2012 (212 006 tonnes). The contribution of this sub-region to the total aquaculture production in the whole Asia-Pacific region is small, 0.23 percent in 2014, which was slightly lower than 2012 (0.26 percent). Anyhow, in value term, the contrition of the sub-region to the entire region is much higher, 1.2 percent in 2014.

Major issues with aquaculture development

53. Aquaculture sector in Asia-Pacific performed well in general. The sector also faces a number of major issues in achieving sustainable growth.

54. Intensification and associated increasing transboundary movement and degrading aquaculture environment have jointly resulted in increasing outbreaks of diseases in aquaculture culture operation in the region. Disease problem has been causing great economic loss to the farmer and significant setback of culture of some important species. An typical example is the outbreak of early mortality syndrome (EMS) disease of shrimp, which was later identified as Acute Hepatopancreatic Necrosis Syndrome (AHPNS). Disease problem will remain as a major threat to sustainable production of the aquaculture in the foreseeable future.

55. There has been increasing extreme weather events largely associated with climate change, such as altered rainfall patterns, abnormal temperature changes, cyclones, severe flood and drought, which have cause heavy loss of cultured stock and aquaculture facility and infrastructure in the region. Long-term climate change impacts such as warming and saline

intrusion and short term weather related disasters will affect the short term performance and resilience of the aquaculture more strongly in the coming years.

56. The rapid expansion of aquaculture, particularly culture of species relying on compound feed has resulted heavy pressure on supply of important feed ingredients, such as fishmeal. The heavy dependence of external source of important feed ingredients implies great uncertainty to the sustainable growth of aquaculture in the region.

57. Despite rapid growth of aquaculture production in the region, well-structured and inclusive value chain is yet to be developed in many countries in the region. How to ensure the equitability and gender-sensitivity in the development of aquaculture value chain is big challenge to many countries in ensuring the interest of small farm holders and the resilience of the entire industry.

58. Antimicrobial Resistance (AMR) is attracting increasing concern globally. How to control the use of antimicrobial in aquaculture production effectively to minimize the risk of AMR while maintaining the normal production is a great challenge to the sector.

SUGGESTED ACTIONS BY THE COMMISSION:

59. The commission is invited to review and comment on the Regional overview of the status and trends of fisheries and aquaculture in the Asia-Pacific Region 2016;

60. The commission is requested to identify other key current and emerging challenges that need to be addressed by aquaculture sector in the region;

61. The commission is requested to put forward recommended strategy for effectively tackling the challenges to aquaculture sector in the region.