SPECIAL MEETING ON IMPROVEMENT OF TUNA INFORMATION AND DATA COLLECTION IN SOUTHEAST ASIA

7 - 9 September 2011,

Songkhla Province, Thailand

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CONTENTS

		Pages
I.	Introduction	1
II.	Updating the information on tuna fisheries through initiatives related to tuna information providers	2
III.	Stock assessment of tuna resources	8
IV.	Ongoing tuna information collection in Southeast Asia	12
V.	Other matters	15
VI.	Follow-up activities and future possible pilot program/activity to support Improvement of tuna information collection in respective countries	15
VII.	Summary and conclusion	16
VIII.	Study trip to fishing ports in Songhkla province	16
IX.	Closing of the meeting	19

List of Annexes

Annex 1: List of participants
Annex 2[1]: Opening remarks
Annex 3: Summary of the status of world tuna production
Annex 4: Summary on the status of tuna fisheries in the Western Central Pacific Ocean
Annex 5: Compilation of regional tuna statistics in Southeast Asia: status, issues, and the way forward
Annex 6: Update information on ASEAN tuna working group
Annex 7: Introduction of Japanese tuna fishery and data collecting system
Annex 8: National initiatives concerning tuna information collection/reporting - Indonesia
Annex 9: National initiatives concerning tuna information collection/reporting - Malaysia
Annex 10: National initiatives concerning tuna information collection/reporting - Myanmar
Annex 11: National initiatives concerning tuna information collection/reporting - Philippine
Annex 12: National initiatives concerning tuna information collection/reporting - Thailand
Annex 13: National initiatives concerning tuna information collection/reporting - Vietnam
Annex 14: Stock assessment methodology of WCPFC

[1] Annexes 2 to 32 are provided in separate CD attached to this report

CONTENTS (con'd)

Annex 15: Update information on tuna fisheries of IOTC

Annex 16: Coastal tuna stock assessment methodology - Indonesia

Annex 17: Coastal tuna stock assessment methodology - Malaysia

Annex 18: National stock assessment program (NSAP) - Philippine

Annex 19: Coastal tuna stock assessment methodology - Thailand

Annex 20: EU regulation related to tuna production

Annex 21: Sustainability assessment for Tonggol/longtail tuna (*Thunnus tonggol*) taken in the Gulf of Thailand and Andaman Sea

Annex 22: Current situation of tuna business from the view of tuna processing company

Annex 23: " Highly Migratory Species Information Collection project" the ongoing activity of SEAFDEC/TD

Annex 24: Lesson learned in implementing fishing logbook and/or observer program of Indonesia

Annex 25: Lesson learned in implementing fishing logbook and/or observer program of Malaysia

Annex 26: Lesson learned in implementing fishing logbook and/or observer program of Philippine

Annex 27: The status of the Philippines fisheries observer programme

Annex 28: Lesson learned in implementing fishing logbook and/or observer program of Thailand

Annex 29: Current situation of tuna in CITES

Annex 30: Study tour to the fish landing port of Fish Market Organization

Annex 31: Study tour to Songkhla deep sea port

Annex 32: Closing remarks

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REPORT OF SPECIAL MEETING ON IMPROVEMENT OF TUNA INFORMATION AND DATA COLLECTION IN SOUTHEAST ASIA

7 – 9 September 2011, Songkhla Province, Thailand

I. Introduction

1. The Special Meeting on Improvement of Tuna Information and Data Collection in Southeast Asia was convened in Thailand's Songkhla Province from 7 to 9 September 2011 to gather ideas on how to deal with tuna statistics: gaps and constraints in collecting tuna information/statistics can be identified, future data collection and information gathering can be improved, and regional plan for supporting tuna statistics can be developed. Representatives from Japan, the Philippines, Thailand, and SEAFDEC's MFRDMD, Thailand's Fish Marketing Organization, the Thai Union Group served as resource persons to the Meeting. And members of the Regional Fisheries Policy Network, based at the SEAFDEC Secretariat also attended the Meeting. Representatives of the Marine Fisheries Research and Development Center in Songkhla attended as observers. The list of participants appears as **Annex 1.**

1.1 Opening of the Meeting

2. In his opening remarks, the SEAFDEC Secretary-General, Dr. Chumnarn Pongsri, highlighted the economic importance of tuna fisheries in many Southeast Asian countries, citing the 2008 Southeast Asian tuna landing at 38% of the world tuna production. As a number of technical aspects of the statistical collection need to be improved, he pinned the hope on the experts who attended this Meeting to help the concerned countries to improve their tuna statistics. His opening statement appears as **Annex 2.**

1.2 Background and Agenda of the Meeting

3. The Head of the Capture Fishery Technology Division of SEAFDEC's Training Department, Dr. Worawit Wanchana, acknowledged the financial support of the Japanese Trust Fund at aims to promote the sustainable use of shared fish stocks in Southeast Asia, the program that aims to improve the information gathering system for IUU fishing countermeasures. He informed the Meeting that this program has been implemented from 2011 to support relevant SEAFDEC Member Countries to combat IUU fishing in their tuna fisheries. Owing to the importance of tuna fisheries, this Special Meeting was set to improve the tuna statistics at the national level and to identify measures to support a long term plan for the sustainable management and development of tuna fisheries. In a concrete term, he urged the Meeting to prepare an overview of Southeast Asian tuna fisheries as the reference information for the Regional Technical Consultation on Commercially-exploited Aquatic Species, planed by SEAFDEC for 18-20 October 2011 in Bangkok.

II. Updating the Information on Tuna Fisheries through Initiatives Related to Tuna Information Providers

2.1 Overview of Global Tuna Production

4. The SEAFDEC Policy and Program Coordinator, Dr. Somboon Siriraksophon gave the summary of the status of the world tuna production (**Annex 3**). Taxonomically speaking, tunas comprise true tunas, billfishes, and tuna-like species under sub-order Scombroidei. These large and fast moving fishes fall into 15 species under four genera, namely: *Thunnus, Euthynnus, Katsuwonus,* and *Auxis.* The main economic species are the albacore (*Tunnus alalunga*), bigeye tuna (*T. obesus*), Atlantic bluefin tuna (*T. tthynnus*), Pacific bluefin tuna (*T. orientalis*), southern bluefin tuna (*T. maccoyii*), yellowfin tuna (*T. albacores*), and skipjack tuna (*Katsuwonus pelamis*). All these tunas are all oceanic, capable of long migration and constituting one or two stocks in each ocean. With the Atlantic and Pacific bluefin tunas inhabiting their eponymous oceans, the Southern bluefin tuna is found in the Atlantic, while the Pacific bluefin tuna is found in the Indian and Pacific Ocean.

5. In the continental shelf zone, some other neritic tunas inhabit. These include longtail tuna (*Tunnus tonggol*), blackfin tuna (*T. atlanticus*), black skipjack (*Euthynnus lineatus*), kawakawa (*E. affinis*), little tuna (*E. alleteratus*), bullet tuna (*Auxis rochei*), frigate tuna (*A. thazard*), and billfishes represented by marlins (*Makaira* spp.), sailfish (*Istiophorus* spp.), spearfish (*Tetrapturus* spp.), and swordfish (*Xiphias gladius*). Some tuna-like fishes have also made important fisheries; these are slender tuna (*Allothunnus fallai*), butterfly kingfish (*Gasterochis mamelampus*), wahoo (*Acanthocybium solandri*), bonitos (Cybiosarda, Orcynopsis, Sarda), Spanish and king mackerels, seerfish and sierra (*Scomberomorus* spp.), which are fished largely by small-scale and recreational fisheries. The slender tuna and butterfly kingfish are caught mainly as a by-catch in longline southern bluefin tuna fisheries.

6. In the commercial tuna fisheries, skipjack is the species that makes up the largest volume in the catch. With the exception for the Atlantic Ocean, the skipjack fisheries have shown an increasing trend. It is believed that the world's yellowfin tuna stocks have been fully exploited except in the Western and Central Pacific. The bigeye tuna stocks in the Atlantic and Indian Oceans are believed to have been fully exploited, while the Pacific Ocean stocks have yet to be determined. The pricey bigeye tuna has been largely harvested in the purse seine fisheries that hauls in smaller and lower priced fish at the expense of the longline fisheries that go after larger and more expensive tunas. In the temperate waters, the albacore has been moderately exploited in the Indian Ocean and in the North Pacific; it is over-exploited in the North Atlantic. The bluefin tuna, the highly sought after for *sashimi,* is believed to have been over-exploited if not already depleted, while the Pacific stock is now fully exploited.

7. The status of exploitation of the tuna-like species and billfishes is less clear as little attention has been given to these species. A dearth of essential information in biology and fisheries has made the stock assessment of these species virtually impossible. To keep fishing a profitable business, the precautionary approach should be made applicable so that fishing overcapacity and deterioration of tuna and tuna-like fish stocks could be avoided. With interest in the sustainable tuna fisheries, five regional tuna organizations have been undertaking active research in tuna and tuna-like species. These are: the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), Inter-American Tropical Tuna Commission (IATTC), International Commission for the Conservation of Atlantic Tuna

(ICCAT), Indian Ocean Tuna Commission (IOTC), and the Western and Central Pacific Fisheries Commission (WCPFC).

8. In pursuing the objective of the Meeting, it was recognized that species-wise information of the tuna catch has been difficult to acquire particularly for the small sizes of yellowfin and bigeye tunas. Special training was recommended as a means for making available at various landing ports of personnel who is capable of identifying and reporting the tuna catch by species. The ability to segregate the species, especially those at a juvenile stage, should make stock assessment an easier task. In order to perform a tuna stock assessment, the existing or adapted models continue to require *inter alia* information on total catch, fishing effort, fishing grounds, and oceanographic conditions.

2.2 Status of Tuna Fisheries in the Western Central Pacific Ocean

9. In describing the status of tuna fisheries in the Western Central Pacific Ocean (**Annex 4**), Dr. Somboon Siriraksophon, the WCPFC has been active in tuna fisheries in the Western Central Pacific Ocean (WCPO), and the Western and Central Pacific Ocean—Convention Area (WCPO-CA). The Philippines is member of this Fisheries Commission, while Indonesia, Thailand and Vietnam are cooperating non-members. Over the years, the WCPFC has improved the data collection and tuna stock assessment methodology, resulting in a better understanding of the status and trends of WCPO and WCPO-CA tuna stocks. Notably among these improvements are the status and trends of four major tunas: the bigeye, yellowfin, albacore, and skipjack. Much has also been known about the status and trends of major billfishes such as the black marlin (*Makaira indica*), blue marlin (*M. amazara*), striped marlin (*Tetrapturus audax*), and swordfish. The main fishing gear in this fishing region are purse seine (and its drifting fish aggregating devices—FADs), log and free school, longline, pole and line, and troll.

10. In summary, the status and trends of tuna stocks in the WCPO, as perceived by the WCPFC, are as follows:

(1) As a basis for tuna management, it can be stated that the stocks of bigeye tuna are approaching and overfishing state;

(2) The yellowfin tuna stocks have not reached the state of being overfished; its biomass reference points have been found at the level above 1.00. It was noted that the surface fisheries in the Philippines and Indonesia could have contributed to a significant juvenile mortality although the available catch and effort data are insufficient to verify it. It is important in this conjunction that the concerned countries undertake to improve the estimates of their respective historical and current catch data from these fisheries in order to determine the missing components needed to determine the tuna stocks.

(3) Given its biological potential, it can be stated that the WCPO skipjack stocks, at the depletion level of 35% and their fishing mortality reference base points, are still healthy and yet to be overfished.

(4) The fishing mortality estimates indicated that the albacore stocks have neither been overfished, nor their biomass are below the maximum sustainable yield (SBMSY).

(5) There is a need to improve the tuna statistical data collection from the domestic fisheries of Indonesia and the Philippines that representing by species and total catches.

(6) Owing to the unpredictability of species composition in a purse seine catch, the WCPFC was requested to continue its effort to improve the estimates of purse seine catch species composition. This is done while conservation and management measures (CMMs), port states, flag states and vessel operations are supporting the efforts of paired spill and grab sampling together with effort to collect the landing data kept by cannery.

11. After an extensive discussion, the Meeting recommended that a uniform standard to be used to determine the catch of small bigeye and yellowfin tunas should be developed. According to the ICCAT definition, juvenile bigeye tunas are those that weigh less than 30 kg. In light of the reported low proportion (~ 2% of the total) of the juvenile tuna catch, the Meeting was informed that the FAD introduction by the Philippines, as a result of a certain regulatory relaxation, has resulted in a sharp increase of the tuna catches from purse seine fisheries. In another front, the Meeting recommended the tuna RFMOs should undertake study to determine the extent of skipjack exploitation in the region as this fisheries relies on the increasing scarcity of anchovies and small sardines as baits. The Meeting also reminded that any change of fishing gear could result in a collapse of the canning industry.

2.3 Fisheries Statistics of Southeast Asia

12. The SEAFDEC Secretariat, Ms. Saivason Klinsukhon, presented to the Meeting the progress of SEAFDEC's compilation of Regional Tuna Statistics in Southeast Asia: Status, Issues and Way Forward (**Annex 5**). The compilation includes data on production of major tuna and tuna-like species caught by Southeast Asian countries. The compilation could be combined with information from other sources that shed a clearer picture on the status of tuna resources in the region. Nonetheless, various challenges, especially at the national level, e.g. budget and manpower have been reported. These shortcomings have impacted negatively on the timely regional statistical compilation.

13. As pointed out by the SEAFDEC Secretariat, the regional compilation of tuna statistics has faced difficulties in the assembly of the reported data owing to the incompatible methods of collection, analysis as well as the timely availability of the national statistics. Non-uniformity in the national tuna statistics has made it impossible to interpret the reported figures factually at the regional level. It was also suggested that efforts should be made to adopt at the national level a certain web-based tool to facilitate the timely submission and elimination of human errors in the information processing. Where relevant research findings are available, efforts should be made to share the information, for examples, in meetings, seminars or workshops.

14. The Meeting noted that the SEAFDEC compilation of regional tuna statistics is useful in predicting the trends of regional tuna fisheries. The non-uniformity of national fisheries statistics has made it difficult to combine the reported figures that either produces the total tuna catch or the break-down to the volume at species level. Nonetheless, Member Countries should make efforts to improve their data collection, analysis and dissemination through, for example, staff capacity improvement.

2.4 ASEAN Tuna Working Group

15. The representative of Indonesia's Ministry of Marine Affairs and Fisheries, Ms. Putuh Suadela, presented the update information on ASEAN Tuna Working Group (**Annex 6**). The

representatives of Indonesia, Thailand, Vietnam and SEAFDEC attended the May 2011 of the Working Group that succeeded in drafting a Strategic Plan of Action for tuna products promotion. The Working Group also reaffirmed its commitment to the sustainable management of tuna and tuna-like species in the ASEAN region and to the promotion of utilization of tuna resources. It also encouraged the development of a regional tuna management plan.

16. Taking note of the draft Strategic Plan of Action, the Meeting observed that various organizations in the region could have already undertaken actions along this line. To enhance the exchange of information and to avoid duplication of efforts, the Meeting suggested a careful examination of the activities being carried out by various organizations working on tuna fisheries in the region.

2.5 National Initiatives Concerning Tuna Information Collection/Reporting

(1) Japan

17. The representative of Japan's National Research Institute of Far Seas Fisheries, Mr. Hiroaki Okamoto, presented to the Meeting the Japanese Tuna Fisheries and Data Collection System (**Annex 7**). Tuna fisheries in Japan comprise longline, pole and line, and purse seine fisheries. License in each type of the fisheries is given by the size of the fishing vessel. For the longline fisheries, the vessels of <20 GRT fish in the coastal areas, 10-120 GRT in the offshore areas, and >120 GRT in the distant waters. Similarly, the pole and line fisheries is made up by the vessels of <20 GRT in the coastal areas, 20-120 GRT in the offshore areas, and >120 but not exceeding 500 GRT in the distant waters. No coastal tuna fisheries are licensed for the coastal waters. The vessels of <200 GRT belong to the offshore fisheries, and those of >200 GRT to the distant waters. The fishing license obligates the fishers to keep and to submit their logbooks to the authorities at the specified duration. The owners of longline fishing vessel of 10 GRT and greater must submit their logbooks within 30 days after the fishing trip. As from 2008, all distant water longliners are obligated to submission of their logbooks every ten days.

18. Under the Japanese logbook system, some 40,000 licenses are issued each year to coastal longliners, 10,000 to offshore, and 90,000 to distant water longliners. The catch data can be extracted from these logbooks, the rates of return of which were reportedly as high as 90%, 90% and 92% for the coastal, offshore, and distant water longliners respectively.

19. The 100% rate of logbook return has been reported for the pole and line, and the purse seine fisheries. The total landing is readily determinable from the logbook. For smaller fishing vessels that are not included in the logbook system, their catch data are obtained from the landing statistics at local ports. While it is difficult to estimate the purse seine catch by species by the logbook system, validation with the unloading data has been used. As the catch of bigeye and yellowfin tunas often mix with smaller fish, it becomes necessary to determine the composition of the assorted catch.

20. In order to determine the volume of purse seine catch by species, a group of Japanese experts, in collaboration with the SEAFDEC Secretariat and three largest canneries in Thailand, carried out a sampling study in April 2010. The Thai canneries imported tunas from the purse seiners flying the flags of Chinese Taipei, Vanuatu, Japan, Republic of Korea, and

the Federated States of Micronesia. Through this sampling method, the estimates by species of tuna processed by the canneries were obtainable.

21. It was believed that the estimates of the purse seine catch by species, as obtained from the cannery sampling survey, were reliable. However, their reliability depended on the size of the fish as small-sized yellowfin is morphologically similar to that of bigeye, something that made correct sorting at the cannery level difficult to achieve. To estimate the volume of tuna by species at the cannery level, it would become necessary to investigate further as to how the canneries segregate smaller-sized tunas in their processing.

(2) Indonesia

22. The Indonesia representative, Ms. Putuh Suadela, shared with the Meeting the status of tuna fisheries and data collection system of Indonesia (**Annex 8**). The major tuna and tuna-like species caught and landed in Indonesia are largely yellowfin, bigeye, skipjack, and albacore. The major tuna fishing fleets employ longliner, purse seiner, pole and liner, and hand liner, while some fishers resort to using troll line and drift gill nets. Handline is the most common fishing gear used by small-scale fishers operating the vessels under 5 GT. Skipjack, the preponderant species in Indonesian tuna fisheries, is believed to have yet a healthy stock for future exploitation.

23. Tuna statistics is a challenge for Indonesia, given the size of the country, the large number of fishers (estimated at 2 million with >600,000 fishing vessels in 2009), and their different views towards fishing accountability. Even with the science of statistics, it is still difficult to cope with obtaining reliable field data that fit the various analytical models owing to the shortage of qualified field enumerators, and the importance of fishery statistics in the national fisheries management. Human resource development appears to be the foremost necessity to address this situation.

(3) Malaysia

24. The representative of Malaysia, Ms. Noraisyah Binti Abu Bakar, shared with the Meeting her paper on tuna fisheries in Malaysia (**Annex 9**). With the expansion of the EEZ and Malaysia's full membership at the IOTC, Malaysian fishers have enjoyed a much greater fishing rights, especially in the Indian Ocean for tuna fisheries. The recognized tuna species in Malaysian waters include eastern little tuna or kawakawa (*Euthynnus affinis*), longtail tuna (*Thunnus tonggol*), and frigate tuna (*Auxis thazard*) in the coastal fishing grounds, while yellowfin, skipjack, and bigeye are fished in the oceanic waters. Other species, such as marlin, swordfish, sailfish, and Spanish mackerel are also recognized.

25. Malaysia's 2009 tuna landings comprised 49% by weight of longtail tuna, 34% of kawakawa, and the remaining 17% was shared by frigate, skipjack and other oceanic tunas. Small (<70 GRT) purse seiners generally fish for neritic tuna in the South China Sea and the Straits of Malacca, while larger (70 GRT) purse seiners operate in the waters of Sabah, Sarawak and Labuan. A few longliners fish in the Indian Ocean targeting the yellowfin and bigeye tunas.

26. Shortage of competent field personnel for data collection has also challenged the compilation of Malaysia's tuna fishery statistics. In absence of appropriate and cost effective data collection system, inadequate funding has made any tuna survey unattractive to policy

makers. Like other countries, competent staff and comprehensive and standardized data collection system are perhaps the areas that need immediate attention. Better coordination of tuna-related agencies was also suggested.

27. It was noted by the Meeting that the tuna catch within and beyond the Malaysian EEZ should be treated separately as they are relevant to tuna stock assessment. Noting the high quality data, the Meeting also suggested that the Malaysian experience in the management of fishing capacity could be shared with other countries in the region, especially with regard to certain fisheries management measures. It was also noted that the biological aspects of tuna stocks should not be overlooked, given their relevance to the effective management of tuna resources.

(4) Myanmar

28. The report on the status of offshore fishery resources and tuna fisheries in Myanmar (**Annex 10**) was presented by the Myanmar representative, Mr. Julius Kyaw. In Myanmar, offshore fisheries refer to capture fisheries that employ active fishing gear (e.g. trawl nets, purse seine nets) and fishing vessels 30 ft in length overall (LOA), driven by engine of 12HP or greater. In contrast to inshore fisheries, the offshore fisheries operate from 5 nm away from shore in Rakhine State, and 10 nm in Ayeyarwaddy and Tanintharyi States to the EEZ outer limit. Under the Fisheries Law of 1990, Myanmar fishers are allowed to fish in the territorial waters outside the inshore area, while joint venture fishing operators operate from the outer limit of the territorial waters to the EEZ. Myanmar has no fishing vessels that operate in the high seas.

29. It was suggested at the Meeting that the tuna landing statistics of Myanmar should be closely examined as landing outside Myanmar and trans-shipment in offshore waters by foreign fishing vessels are a possible loophole that this portion of the tuna catches may not be reported. Moreover, by species report of the tuna catch could help facilitate export of products to the EU countries.

(5) Philippine

30. The representative of the Philippines, Ms. Elaine G. Garvilles, presented the overview, issues and concerns of Philippine tuna fisheries information collection (**Annex 11**) to the Meeting. Annual tuna catch for 2010 for the Philippines was reported at 574,836 tonnes, 65% by commercial tuna fisheries and the rest 35% by the municipal tuna fisheries. The major species caught are yellowfin, skipjack, eastern little tuna or kawakawa, and frigate tuna. Although bigeye tuna was also caught, the fish under 60 cm in length were often reported as yellowfin tuna. A great variety of fishing gear has been used by commercial tuna fisheries in the Philippines; these include purse seines, ring nets and handlines. Even in greater variety of gear used by the municipal tuna fisheries, the line gears, however, contributed about 60% to the total annual catch. Being a member of the WCPFC, the Philippines submit tuna catch information that comprises data from the country's EEZ and Philippine waters.

(6) Thailand

31. Director of Marine Fisheries Research and Technological Institute of Thailand's Department of Fisheries, Ms. Praulai Nootmorn, presented the report on improvement of tuna

information and data collection in Thailand (**Annex 12**). The economic importance of neritic tuna has remained high since 1982 owing to the demands of tuna canneries in the country. Three species of neritic tunas (frigate, eastern little and longtail tunas) are preponderant in the tuna purse seine operated in the Gulf of Thailand. Bullet tuna, frigate, and kawakawa made up the greater catch composition in that order. Light luring purse seine has been used to catch frigate tuna, bullet and longtail tuna in the Andaman Sea; bullet tuna, frigate and kawakawa made up, in that order, the most abundant species in the catch. Given the high tuna demands by Thailand's canneries, the main supplier of canned tuna in the world, research on tuna stocks has become an urgent matter to shed light on the existing problems, concerns and status of tuna fisheries in Thailand.

32. The meeting noted that tuna longliners from 16 countries (e.g. Indonesia, Japan, Philippines, Malaysia, Singapore) landed their tuna catch in Thailand's Phuket Port. Although landings are also reported from Bangkok and Songkhla, records from the logbooks submitted by the foreign vessels have been made convenient as the landings are eventually transported to Phuket. The logbook reporting has also been practiced by domestic tuna fishing vessels.

(7) Vietnam

33. The Vietnam representative, Mr. Pham Viet Anh, presented the overview of tuna fisheries in Vietnam (**Annex 13**). The Vietnamese tuna fisheries were reported to target oceanic tuna species. Bigeye and yellowfin tunas are largely landed by longline fishing vessels, while skipjack mainly by gillnet and purse seine fisheries. The annual tuna catch in Vietnam was reported at about 14,800 tonnes, largely composed of yellowfin tuna. Being a cooperating member of WCPFC, Vietnam is now developing its tuna fisheries data collection system as well as legal, policy and institutional arrangement of management regimes for country's sustainable tuna fisheries.

34. In discussing the existing data collection mechanism used by Vietnam, the Meeting suggested that in general, the total annual catch should also be supported by the catches by species. It was informed that Vietnam is currently implementing a project aiming to strengthen its national tuna statistics, and reports on the comprehensive tuna transactions (total export from its EEZ, imported raw materials for processing and re-export) are being prepared. In this light, the Meeting encouraged Vietnam to share additional pertinent information, e.g. CPUE and stock assessment data.

III. Stock Assessment of Tuna Resources

3.1 Western and Central Pacific Fisheries Commission (WCPFC)

35. The data requirements of the WCPFC for tuna assessment in WCPO area (**Annex 14**) was presented by the Philippines representative, Mr. Noel Barut who provided the information on the Commission's *modus operandi.* Among the Southeast Asian countries, the Philippines is now a member of the WCPFC, while Indonesia, Thailand and Vietnam are cooperating non-members. As a member, the Philippines is able to participate fully in the WCPFC activities, such as to be represent and to voice opinion in meetings of the Commission and its subsidiary bodies. The activities of cooperating non-members are limited to participation in the Commission's activities but not in decision-making. Nonetheless, the

non-members are bound by any conservation and management measures adopted by the Commission.

36. Many types of data associated with fishing operations (fishery-dependent) are collected by the Commission for the assessment of tuna stocks in the WCPO area. These include catch-effort and landings, based on logbooks, fishing methods, fish size, and other associated biological, environmental and oceanographic data. Recognizing the importance of the quality of the data, there is a need to compromise between the data, information, contents and their costs. These data should facilitate the WCPFC tuna scientists to undertake comprehensive tuna stock assessments, and to report on the status of target tuna stocks, which is essential information for the regional tuna resource management.

37. An assessment of the status of tuna stocks was reported as on-going in the case of the Philippines. The assessment employed the MULTIFAN-CL (MFCL) model that the Commission has been using in tropical tuna stock assessment. The MFCL is a model that analyzes the time series of length-frequency data of the fish stock. In this assessment, the researchers conducted sampling audit of tuna at the related ports so that the tuna data and information of target species could be generated.

3.2 Indian Ocean Tuna Commission (IOTC)

38. The updated information on tuna fisheries of IOTC (**Annex 15**) was reported by Thailand representative, Ms. Praulai Nootmorn. She provided the summary, conclusion and recommendations made during the 13th Session of the scientific committee of the IOTC, held in December 2010 in Victoria, Seychelles. In this context, the outcomes of four working party meetings in 2009 on billfishes, ecosystems and by-catch, tropical tunas, and data collection and statistics were reported, providing a comprehensive stock status and technical advice for the management of all tuna species covered by the IOTC.

39. Attention was drawn to the revision of stock assessments for tunas that recommended the maximum exploitation level of 102,000 tonnes for bigeye, and 300,000 tonnes for yellowfin in order to keep the stocks at a healthy state. It was observed that with the on-going decline in fishing efforts for swordfish, and its annual catch was well below the estimated MSY of 29,000 tonnes, appropriate management measures should be introduced for the Indian Ocean while monitoring of its stocks continues. It was noted that the swardfish annual catch in the southwestern part of the Indian Ocean should be kept below 6,426 tonnes.

3.3 Coastal Tuna Stock Assessment Method

40. Ms. Putuh Suadel of Indonesia presented the status of national fish stock assessment program of Indonesia (**Annex 16**). She informed that various agencies in Indonesia have been involved in fish stock assessment, including the Marine and Fisheries Research and Development Agency (MFRDA), the Directorate General of Capture Fisheries (DGCF), and the National Commission for Fish Resources Assessment (NCFRA). For the assessment of tuna stocks, they employed various methods, e.g., tagging for skipjack in pole and line fisheries in the eastern part of Indonesian waters. In collaboration with the Commonwealth Scientific and Industrial Research Organization (CSIRO) of Australia, the otholimetric technique was also used in a tuna study. Owing to the constraints in operational techniques, the skipjack tagging had been abandoned.

41. The results of the national stock assessment program are expressed as the estimation of fish abundance in terms of volume and biomass, the essential data for the MSY and total allowable catch (TAC) calculation for each fishery management area, and for the national picture. These accounts could facilitate an analysis of population dynamics, from where a proper exploitation rate could be determined for a particular fishing ground or for the whole country. The information could also used to generate alternative management measure for development opportunities and fishing effort management.

42. The remote sensing system, as used by certain agencies for fish stock assessment, was seen as a useful tool to locate the concentration of pelagic fishes, their migratory patterns, and as useful information for fishers. For species identification, the Meeting felt that the molecular genetics approach may not lend itself as an appropriate tool at a landing port. Ocular inspection was recommended by the Meeting as an appropriate method for identification of tuna and other fish species, provided that training of such competent personnel must be conducted. The WCPFC manual for tuna identification that the Commission uses in its observers program may also serve as a useful tool to the ocular inspection at the port.

43. The coastal tuna stock assessment methodology used in Malaysia (**Annex 17**) was presented by Ms. Noraisyah Binti Abu Bakar of Malaysia. Although Malaysia has implemented a tuna tagging program in its waters for the past 30 years, the status of tuna stocks is based on the annual landings of neritic tuna at the various ports. She insisted that the tagging program has not only generated substantial information on tuna biology and stock structure, it is also recognized by concerned fishery scientists as a useful tool for tuna resource management, especially in their migratory route and growth.

44. Mr. Noel Barut of the Philippines presented an overview of the methodology of the national stock assessment program (NSAP) of the Philippines (**Annex 18**). He informed that the NSAP was launched in 1983, and formally implemented nationwide in 1997. The program has helped standardization and continuity of the data/information collection, analysis as a nationwide method for fishery statistics. The data collected from selected landing sites in all 14 political regions are sorted by gear for volume of catch, species composition, fishing effort, etc. These data are made available as a database that can be accessed through nfrdi.da.gov.ph/publication.html. All data, especially on tuna stock assessment, are submitted to WCPFC for further incorporation in the analysis of tuna stocks in WCPO using MFCL. The Meeting was also informed that the NSAP data gathering made it possible to determine the number of licensed and unlicensed fishing vessels.

45. Under the NSAP, statistical enumerators are largely fisheries graduates, employed on an *ad hoc* basis. Their satisfactory performance is held as the determining factor for the renewal of their employment contracts and could serve as a stepping stone toward their future permanent employment. This employment arrangement is believed to be a factor contributing to quality field data as the Philippines, as a member of WCPFC, is obligated to the submission of pertinent data for the WCPO tuna stock assessment.

46. Ms. Praulai Nootmorn of Thailand presented the methodology of coastal tuna stock assessment in Thailand (**Annex 19**). She informed that a 4-year project on neritic tuna resources in Thai waters has been put into implementation from 2011 comprising the following sub-projects: 1) Neritic tuna resources status and fisheries in the Gulf of Thailand; 2) Neritic tuna resources status and fisheries in the Andaman Sea; 3) Reproductive biology of the eastern little tuna, frigate tuna and longtail tuna in the Gulf of Thailand; 4) Reproductive biology of the eastern little tuna, frigate tuna and longtail tuna in the Andaman Sea. The

information is obtained by interviewing of fishing master and their crew members of the tuna purse seiners and king mackerel gillnetters to solicit data on fishing grounds, fishing efforts, volume of catch per month or per fishing trip, etc. Sampling method of the catch by gear is used to obtain data on species composition, body weight and size of each species.

47. It was observed at the Meeting that routine statistical collection is useful and should be established as part of the national fisheries management functions. The importance of statistical reliability cannot be overemphasized. National policies should be formulated in such a way that the fishing fleets provide regularly and timely the reliable information to the authorities. The policies should also ensure a high technical competence of field enumerators at the local level in balance with the number of sampling fishing ports.

3.4 Tuna Companies

48. Thailand's Fish Marketing Organization Deputy Director, Mr. Pramuan Rugjai, presented to the Meeting the EU regulations related to tuna production (**Annex 20**). The regulations recognize some 40 tuna and tuna-like species in the Atlantic, Indian, and Pacific Oceans and the Mediterranean Sea. Out of these five species—bigeye, albacore, skipjack, yellowfin, and bluefin tunas are the preponderant fish in the world tuna trade. In wet weight, 69% of tunas of the global tuna cathch comes from the Pacific; 21% from the Indian Ocean; and the remaining 10% from the Atlantic and the Mediterranean Sea. Being the world's largest market for fish and aquaculture products, the EU imposed regulations on food safety and food security that include the establishment of food safety authority, health condition for the production and marketing of fish products, and establishment of community system to deter and eliminate the IUU fishing. These EU regulations are aimed at addressing important world's fisheries issues, e.g. overcapacity and combating IUU fishing. The EU also ensures that RFMOs accept their full responsibility for attaining food safety and security.

49. Considering the issues on food safety and security as required by the EU and its effort to convince countries in the region, the Meeting recognized the need to strengthen regional collaboration and information sharing in the face of many EU regulations have been put into force. In this connection, coastal countries are expected to lend their support to the RPAO activities, especially with regard to IUU fishing. In short, countries are expected to improve the quality and safety of their fish and fishery products, not only for export but also for domestic consumption.

50. Ms. Pattaratjit Kaewnuratchadasorn, Program Manager of the SEAFDEC-Sida Collaborative Project, delivered the summary of the sustainability for Tonggol/Longtail tuna (*Thunnus tonggol*) from the Gulf of Thailand (**Annex 21**) that was prepared by Abba Seafood of Sweden. As a trading partner, Abba Seafood has, over the past 30 years, been importing Tonggol/Longtail tuna products from Thailand for further distribution to various European markets. The joint efforts made by Thailand tonggol canning industry and all its stakeholders as well as the sustainable tonggol tuna catches have made it possible for the Thai canning industry to export quality tuna products to European consumers over the three decades, and both trading partners have enjoy their profitable relationship. Abba Seafood believes that the role played by the private sector could ensure the effective management of fishery resources for generations to come.

51. This collaborative endeavor has proven valuable for all stakeholders and governments to improve the fisheries. For examples, canneries could assist the government with biological

sampling, retrieving tags where tagging program was being conducted. The private sector could promote further collaboration with other governments as well as facilitating meaningful projects for funding by interested donors. Abba Seafood has held high the tonggol tuna and its products not only as a favorite commodity, but also as a shared interest between the European consumers and the business in Thailand. Abba Seafood also collaborates with the Sustainable Fisheries Partnership and established a stakeholder committee in Thailand. It has also conducted an evaluation of the tonggol tuna fisheries as a basis for formulating a fisheries improvement plan. The results of the evaluation documented a number of areas where investments in research and management are believed to be beneficial.

52. The Deputy General Manager of the Thai Union Group, Mr. Narin Niruttinanon, presented the report on tuna industry situation and outlook in Thailand (**Annex 22**) to the Meeting. He said although Thailand's tuna industry is growing, it has to cope with many adversities: tuna stock management measures, fishing sustainability, produce traceability, reduced tuna catch and its associated higher prices. Measures for the management of tuna stocks have adversely affected the exploitation of bigeye and yellowfin, while skipjack may also brought under this pressure. These harsh management measures could have been derived from inaccurate data supplied by fishing logbooks. Measures in sustainable fisheries and product traceability have put more pressure on the industry to prove that the tuna catch for the product was taken from a sustainable and non-IUU fishing source. NGOs have been active in advocating the enforcement of these measures as well. On marketing, the rising prices of tuna product have been offset by the rising prices of raw materials, leaving canneries and packers with the same or even lower profit margins. It becomes much harder to keep the business going.

53. The Thai Union Group also informed the Meeting of its contribution to strengthening of social responsibility. As the founder of the International Sustainable Seafood Foundation (ISSF), the Union has been funding various tuna research conducted by NGOs, RFMOs and WWF for better management of the tuna resource. Tuna scientists have been funded by ISSF to conduct their studies onboard fishing vessels that may lead to responsible fishing in the Indian Ocean. More such funding is expected for the WCPO and the Atlantic Ocean. During the discussion on these issues, the Meeting admitted that inadequate commitment of fishing crews to the reporting of the catch could have been attributed to their need to ensure the highest possible quality of their catch.

IV. Ongoing Tuna Information Collection in Southeast Asia

4.1 Highly migratory species information collection project" the on-going activity of SEAFDEC/TD

54. In presenting the on-going activities of the SEAFDEC Training Department (TD), its researcher, Ms. Penchan Laongmanee, read the report on Information collection of highly migratory species in Indonesia, Philippines, Thailand and Vietnam (**Annex 23**) to the Meeting. Among these countries, all but Vietnam are members of IOTC, Philippines is WCPFC member, and Indonesia and Vietnam WCPFC cooperating non-members. Despite their membership and obligations, these countries have continued to struggle with the improvement of their tuna statistics. While the oceanic tuna stocks are believed to be depleted, no credible technical verification has been made available owing to a lack of technical and policy support. To address these shortcomings, the SEAFDEC TD has planned to strengthen the national fishing license system, improve registration system for all fishing

vessels, promote the logbook system to keep correct records of the catch, establish/strengthen cooperation/coordination between fisheries scientists and the private sector, and support the assessment of neritic tuna stocks in Southeast Asian waters.

4.2 Use of Tuna Fishing Logbook/Observer Program

(1) Indonesia

55. The Indonesia representative, Ms. Putuh Suadela, presented to the Meeting the lessons learned in implementing fishing logbook in Indonesia (**Annex 24**). Under this system, Indonesia requires the submission of fishing logbook at the landing port to facilitate the verification of fishing license, fishing gear and vessel registration. Despite the great benefits that could be derived by the logbook system, especially for statistical compilation, Ms. Suadela revealed that Indonesian fishers continued to encounter difficulties in filling out the logbook despite the terminologies are given in the local language, and the manual with pictures for species identification have been provided.

(2) Malaysia

56. Ms. Noraisyah Binti Abu Bakar of Malaysia presented the lessons learned in implementing fishing logbook in Malaysia (**Annex 25**) to the Meeting. In Malaysia, the vessel operation report (VOR) serves as the fishing logbook. The VOR requires information on total fish landing by a vessel by species including by-catch. The stratum specific sampling at 35% is applicable for coastal fishing vessel (< 70 GRT), and 100% for deep sea fishing vessels. For neritic tuna VOR, the District Fisheries Officer is responsible for providing basic information, verification of landing data, and preparing the VOR that is subsequently kept with the vessel's folder. The landing report is prepared by the fishery officer on duty from the information provided by the vessel owner. The VOR is used mainly for tuna fisheries; it is also used in regulating the size of fishing fleet as annual renewal of fishing license is mandatory.

(3) Philippine

57. Ms. Elaine G. Garvilles of the Philippines presented to the Meeting the lessons learned in implementing and collecting operational logsheet information in the Philippines (**Annex 26**). She said the catch documentation scheme was launched by the Bureau of Fisheries and Aquatic Resources (BFAR) in 2008. The scheme is part of the Tuna Fishery Data management (TUFMAN) system that gathers the operational logsheet (logbook) data from purse seiners (PS) and ringnettes (RN). The Philippine logsheet provide information on vessel name, country of registration, registration number, fishing operator, fishing permit, volume of the catch by species, type of gear used, type of fishing activity and of fishing set, fishing duration, and geographical location of the fishing ground. In the beginning, it was found that compliance by fishing vessels was low due to a lack of support, cooperation, understanding, and appreciation by the stakeholders. After series of consultations and explanation of benefit for issuance of EU catch certificate, the compliance has improved. BFAR has also compile, as part of the Philippine Cannery Data Management System (PECAN) the monthly cannery uploading data that include information on the fishing vessels and the catch. Ms. Garvilles concluded that, under the TUFMAN system, compliance to providing the catch information has been better.

58. It must be stated that the TUFMAN system is practiced by the commercial fishing industry as the Philippine Sports Fishing Commission is responsible for sports fishing and its pertinent data. The compliance by the commercial fishing vessels has been used as a basis for fishing license renewal, the requirement that needs to be done every three year.

59. The report on status of the Philippines fishery observer programme (PFOP) (**Annex 27**) was presented by Mr. Joeren S. Yleaña of the Regional Fishery Policy Network for the Philippines. The implementation of the PFOP is in line with the WCPFC Convention and is in accordance with the WCPFC conservation and management measures (CMM) 2007-01, the establishment of the regional observer program and CMM 2000-01, and the conservation of the bigeye and yellowfin tuna in the WCPO. As a compatible measure, BFAR issued the relevant Fisheries Administrative Order on the rules and regulation on operation of purse seine and ring net during FAD closure set by the CMM's of WCPFC from July to August from 2010. The PFOP becomes an independent provider of the primary and secondary production data, and information of catch and effort as well as stock assessment. Aiming at promoting responsible fisheries, the PFOP also plays a key role in monitoring, control and surveillance (MCS) activities. Through the PFOP information channel, important scientific data could be acquired.

60. The meeting was informed that BFAR trained personnel have been deployed in observers program under the PFOP. To acquire quality data, the observers need to be trained in debriefing technique. As the PFOP is supported by the industry, the services of these observers are compensated by private companies. BFAR has been worked in close cooperation with the private fishing companies so that observers can be deployed in strategic fishing areas all year round. In this context, the Meeting urged that relevant PFOP activities should be incorporated in academic curricular by fisheries schools and universities.

(4) Thailand

61. Dr. Kamonpan Awaiwanont of Thailand presented the report to the Meeting on the lessons learned in implementing and promoting the use of tuna fishing logbook in Thailand (**Annex 28**). Thailand has been using fishing logbooks (FLB) to acquire data from six different groups of fishing gear: trawl and push net, purse seine, gillnet, liftnet, trap, and other gear. The FLB system requires information on fishing duration, geographical information of the fishing grounds, and volume of the catch. Thai Department of Fisheries (DOF) has made it mandatory for all FLBs to be submitted by fishing operators along with a non-IUU fishing certification. Provincial Fishery Offices also require FLB submission as part of the fishing data network system.

62. The FLB is also a part of Thailand's catch certification scheme that DOF implements as a means of combating IUU fishing. Catch certification (CC) comes in two types: CC for large fishing vessels (>20 GT), and simple CC (SCC) for small fishing vessels (<20 GT). To facilitate a transshipment, the marine catch transshipment document (MCTD) must accompany the catch on a carrier and be submitted to the port. The carrier is responsible for the MCTD preparation as well as collecting the FLBs from the fishing vessels. These documents help the traceability of the catch and fish products. Since the historical submission of these documents for fishing license renewal, it was reported that the compliance had been good.

63. In view of the variety of catch information systems employed by different countries in the region, the Meeting observed that it would be possible for a common information template to be designed for the entire Southeast Asian region. The available information on past experiences of both effective and defective operations should make it possible for this common template is accepted and used by all ASEAN members. Such a common tool should also make it easier for fisheries information exchange and development cooperation, particularly since the ASEAN has targeted 2015 for launching one ASEAN community.

V. Other Matters

64. Mr. Noel Barut of the Philippines presented the report on current situation of tuna in the Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES) (**Annex 29**) to the Meeting. It was during the 15th Meeting of the Conference of the Parties (CoP) of CITES in Doha, Qatar, 13-15 March 2010 when Monaco presented the proposal to include North Atlantic bluefin tuna in Appendix I of CITES which included the relevant report stressing that the population of tuna has drastically declined and current exploitation driven by international trade is having a severe impact on the species and its capacity to recover. However, Indonesia, UAE, Venezuela, Chile, Republic of Korea, Senegal, Grenada, Morocco, Namibia and Turkey responded that the management of the fish species should rest with the RFMOs, while Canada argued that a CITES listing would not stop the decline, as domestic trade would continue and other parties could put a reservation on the listing. Japan argued that once the species is listed, delisting would be virtually impossible and that such listing could represent a precedent for other species of tuna. EU supported the proposal of Japan and suggested that an annotation for delaying the application of the listing should be made until May 2011, although the US said that the EU amendment warranted more discussion. Following the Rules of Procedures, a vote was called on whether to put the Monaco proposal to a vote, and this was accepted. As a result, the EU-amended proposal was rejected with 43 in favor, 72 opposed, and 14 abstentions. The Monaco proposal was also rejected with 20 in favor, 68 against and 30 abstentions. Thus, the final outcome is the proposal was rejected.

65. The Meeting was also informed that the CITES Animal Committee would meet in Geneva Switzerland on 15-20 March 2012, and plans to address a number of agenda that includes discussions on tunas, sharks, snakes, sturgeons, corals and the listing of commercially exploited aquatic species in CITES Appendices, which could include look-alike species. The main reason why bluefin tuna was proposed for listing in CITES appendices is due to the observation that the production trend has been decreasing and thus, would need to promote management measures. It is therefore necessary for the region to come up with stock assessment to show that tuna species from the region are not degraded and that there is no overfishing of tunas in the region and disprove the claims that tuna stock is decreasing. This would call for more work on stock assessment as well as careful reporting of data and statistics.

VI. Study Trip to Fishing Ports in Songhkla Province

66. The participants were taken on a study tour to the Thai FMO's fish landing port in Songkhla province (**Annex 30**). They were welcomed by the Manager, Mr. Chaiyut, who cordially guided their observation of landing activities. A busy port, the participants enjoyed

the opportunity to observe both the landings of fishing vessels and of fish carriers. The local purse seiners who landed their pelagic fish catch, including neritic tunas were also noted by the participants.

67. The participants also travelled to Songkhla deep sea port where substantial tuna catches are imported for processing, and tuna products are exported from Thailand **(Annex 31)**. They were welcomed and briefed by the Assistant Port Manager, Mr. Chan Rattanaprakan, and port officer responsible for tuna products, Mr. Suriya. Transhipment of frozen tuna from a carrier vessel to a cannery by road was also observed during the visit.

VII. Follow-up Activities and Future Possible Pilot Program/Activity to Support Improvement of Tuna Information Collection in Respective Countries

68. SEAFDEC informed the Meeting that the outcomes of this Special Meeting would be used by the Regional Technical Consultation on Commercially-exploited Aquatic Species, scheduled to be held in Bangkok from 18 to 20 October 2011. The recommendations of the Special Meeting would valuable for SEADEC in its 2011 and subsequent annual planning. SEAFDEC would communicate with its Member Countries with regard to the follow-up on the Special Meeting's recommendations as well as sharing other relevant initiatives related to tuna data collection.

VIII. Summary and Conclusion

69. In summary, the common issues and concerns identified during the Special Meeting are as follows:

1) Financial and human resource provisions for tuna data collection are insufficient to carry out smoothly this important activity;
2) Coordination among government, private sector and NGOs with regard to data collection and reporting is unsystematic;
3) Deficient database system for tuna stock assessment in Southeast Asia;
4) National fishery information systems need improvement in the areas of logbook system, observer program, transshipment reporting, tuna cannery records, fishing grounds, species composition.

70. Issues and concerns on data collection at sea include:

1) Awareness and appreciation among fishing masters and fishers of the value and benefits of a good catch reporting system need to be enhanced;
2) Most catch data reported in the fishing logbooks are largely under-reporting;
3) The lack of legal mandate, personnel incompetence and cost have kept most national observer programs *ad hoc* and uncertain;
4) Proper filling out the fishing logbook has continued to challenge fishers. Improvement could be made through assistance by fishery officers and enhancing onboard capability to generate proper data from convenient measurement and sorting of the catch;

5) Competence in species identification need to be enhanced among field enumerators.

71. Issues and concerns on data collection at landing ports include:

1) Heavy workload generated by a large number of incoming fishing vessels, and their landings that need to be enumerated;
2) Readily identification of certain species, especially small bigeye and yellowfin tunas, is difficult to do;
3) Possible coalescence of the catch data from the EEZ and outside;
4) Irregularity of data/information collection;
5) Inadequate mechanisms for validating the catch data from logbooks at the landing port.

72. Issues and concerns on data collection from tuna canneries include:

1) The negative correlation between the increased world tuna production capacity and the sustainability of tuna stocks;
2) Sharp increase of raw material prices;
3) Reliable and good data are scanty;
4) Increasing pressure from conservation agencies and NGOs;
5) Supplying the information and catch data by canneries is yet to be made mandatory;
6) Great duplication of efforts and inefficient action resulting from poor cooperation among stakeholders.

73. Concerns over data processing and reporting include:

1) Available and convenient Information Technology has yet to be employed effectively in information sharing under the logbook system;
2) Web-based information dissemination is yet to become popular as a tool for data verification and sharing.

74. Based on the identified issues and concerns, the Special Meeting recommended the following actions that need to be taken by concerned government or regional organizations:

1) Simplifying data collection format;
2) Selecting a common methodology for data processing;
3) Enhancing the national capability of segregating the catch by species of tuna and tuna-like fishes in fishing grounds, on fishing vessels, at landing ports, and at tuna canneries);
4) Carrying out scientific research aiming at sustaining the tuna resources on, for example, impacts of various methods of exploitation;
5) Promoting consultations and joint studies among fishery scientists, especially in improving data quality;
6) Collecting and compiling biological information of tuna fisheries as a means for improving the stock assessment methods;

7) Designing effective national data collection and information gathering mechanism;
8) Strengthening the present collaborative efforts with tuna RFMOs to minimize the duplication of efforts, especially in making the best use of the tuna resource;
9) Developing a new and pragmatic model (or adapting the existing ones) for tuna stock assessment in the EEZs;
10) Making the job of field enumerators more attractive (either to government personnel or temporary workers), especially with suitable incentives to make their best effort to acquire good and accurate data and information;
11) Changing any *ad hoc* fishery data collection into a routine activity that ensure its continuity and steady budgetary support;
12) Cooperating and sharing tools and responsibilities among member countries, and working with industry on data and information gathering;
13) Promoting the port sampling audit to address the existing problems of low quality reporting;
14) Making a better use of competent software for speedy and correct analysis of fish stock data (e.g. MFCL);
15) Developing and formalizing the use of data collecting mechanism as part of the national policy;
16) Validating and revising the catch landing data by the fishing grounds (i.e. domestic or overseas);
17) Implementing measures that provide incentives and confidence among fishers and other stakeholders in generating good quality data;
18) Promoting information sharing with canning industry to improve data collection.

75. On the part of SEAFDEC, the following actions are deemed feasible:

1) Consulting with the Member Countries on the prospect of continuing to develop regional tuna fisheries database;
2) Improving quality and timeliness of data through capacity building programs:
   - Onboard tuna fishing vessels: logbooks, observers onboard;
   - Landing sites: catch unloading, catch enumeration by species;
   - Cannery: accuracy in species identification.
3) Conducting research on reduction of juvenile tuna by-catch by purse seines, ring nets (FAD fisheries), pole and line. Possible technological intervention may also be considered, as suggested by the Meeting, for reduction/elimination of incidental and by-catch of juvenile tuna.
4) Translating and disseminating relevant information materials (e.g. guidebooks, posters, brochures) from the national languages into English for a wider distribution to Member Countries in the region.
5) Consult with experts on stock assessment in order to come up with appropriate plan of activity to support the countries in the improvement of their respective information collection

IX. Closing of the Meeting

76. Mr. Kenji Matsumoto, SEAFDEC Deputy Secretary-General delivered his closing remarks, in which he expressed his appreciation for the valuable contribution and active participation by all, especially the resource persons and tuna fisheries stakeholders. With such benevolent efforts, the Special Meeting was held with a great success. He also thanked SEAFDEC staff for their hard work and all the necessary preparations to facilitate the smooth and effective flow of the professional deliberations. Mr. Matsumoto offered his good wishes to everyone for a safe journey home; and declared the Meeting closed. His closing statement appears as **(Annex 32).**

Annex 1

Special Meeting on Improvement of Tuna Information and Data Collection in the Southeast Asia. 7-9 September, 2011. Songkhla Province, Thailand.

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