



**The 6<sup>th</sup> Regional Scientific and Technical Committee Meeting for  
the SEAFDEC/UNEP/GEF Project on Establishment and Operation of  
a Regional System of Fisheries *Refugia* in the South China Sea and the Gulf of Thailand**

4-6 July 2022

SEAFDEC/Training Department, Samutprakarn, Thailand

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## **I. OPENING THE MEETING**

- 1) Project Coordination Unit of the SEAFDEC/UNEP/GEF Project on Establishing and Operation of a Regional System of Fisheries *Refugia* in the South China Sea and the Gulf of Thailand organized the Sixth Meeting of the Regional Scientific and Technical Committee (RSTC6) at SEAFDEC/Training Department (TD), Samutprakarn Thailand on 4-6 July 2022. The National Scientific and Technical Focal Point attended the meeting from six partner countries. The project's national focal points and the SEAFDEC/TD scientists also participated in the discussions. The list of the participants is in [Annex 1](#).

### **1.1 WELCOME SPEECH FROM SEAFDEC/TD**

- 2) Mr. Isara Chanrakhij provided a welcome remark on behalf of the SEAFDEC secretary general, Ms. Malinee Smithrithee. He welcomed all participants to the 6th Regional Scientific and Technical Committee Meeting for the SEAFDEC/UN Environment/GEF Project on Establishment and Operation of a Regional System of Fisheries *Refugia* in the South China Sea and the Gulf of Thailand. Eventually, the project could do a hybrid meeting. Also, he mentioned that it was a good sign that the project has used lessons learned from the Covid-19 pandemic. He recalled some members who visited the SEAFDEC/TD during the first PSC meeting in December 2018. This is the first time the fisheries *refugia* project has organized a meeting at the Training Department (TD) of SEAFDEC. He conveyed SG's apology to the meeting as she could not attend the meeting due to an urgent appointment. However, she ensured the Project Coordination Unit (PCU) and the TD staff took good care of the participants during their stay at TD. He mentioned that since Thailand officially opened the country without requiring a Covid-19 test and quarantine starting on 1 July, he encouraged all participants to stay safe and wear masks during the meeting due to many barnstorming sections to discuss how to meet the project objectives and outcomes. Finally, he looked forward to the fruitful results of the RSTC6 meeting.

### **1.2 OPENING REMARKS BY DOF/THAILAND**

- 3) Ms. Prulai Nootmorn, National Scientific and Technical Focal Point and National Focal point for Thailand, provided the opening remark on behalf of the Department of Fisheries/Thailand, the co-host of the meeting. She was pleased to meet all participants face to face. She apologized that the RSTC6 venue was finally at SEAFDEC Training Department after discussing with the PCU due to the logistics and existence of the Covid-19 situation. Regarding this, the organizer team will do their best to accommodate participants during the three days meeting in TD. On the progress works, she expressed her

appreciation for all countries' efforts since 2017; many achievements are from the joint effort at national and regional levels. Therefore, she has confidence that the project will be completed successfully by the end of this year. She also stated that the Department of Fisheries/Thailand considers the importance of the fisheries *refugia* approach as a tool for the sustainable development of the Fisheries. DOF/Thailand will continue applying fisheries *refugia* to protect critical economic species even after the end of the project. She expressed her appreciation to all for participating in this meeting. She also looked forward to fruitful discussions from this meeting. Then, she declared the meeting open.

## II. ELECTION OF OFFICERS FOR RSTC5 ORGANIZATION OF THE MEETING AND ADOPTION OF AGENDA

### 2.1 DESIGNATION OF OFFICERS

- 4) Mr. Somboon Siriraksophon, Project Director, as a secretariat of the RSCT6, introduced the meeting to the elected chairpersons and vice-chairpersons in the past RSTC meetings. He also informed the meeting that the election of a new RSTC chair and vice chairperson would only be among the RSTC members. The RSTC members were, therefore, invited to nominate a new Chairperson and Vice-Chairperson. After deliberation, Mr. Jamil bin Musel, alternate National Scientific and Technical Focal Point for Malaysia, and Ms. Astri Suryandari, National Scientific and Technical Focal Point for Indonesia, were elected as Chairperson and Vice-Chairperson, respectively. However, there was a brainstorming session on day one in which Mr. Somboon Siriraksophon led the discussion.

### 2.2 ORGANIZATION OF WORK

- 5) Mr. Somboon Siriraksophon informed the meeting about the details of the hybrid meeting and logistic arrangement and other general information for the smooth operation of the RSTC6 meeting with the highest safety from the Covid-19.

### 2.3 ADOPTION OF THE AGENDA

- 6) Mr. Somboon Siriraksophon introduced the meeting agenda in detail, referring to the target objectives and outputs of the RSTC6. After consideration, the committee adopted the agenda as [Annex 2](#) of this report.

## III. BRIEF PROGRESS REPORT OF THE PROJECT DIRECTOR (WP01)

- 7) Mr. Somboon Siriraksophon highlighted the progress of establishing the fisheries *refugia* in six participating countries based on the country's report as of 30 June 2022. He summarized that 12 of 15 fisheries *refugia* sites of about 810,649 hectares are expected to be adopted by 2022. Among these, three fisheries *refugia* are agreed upon among stakeholders and approved by the government, including two in Cambodia at Kep Province for blue swimming crab and Koh Kong Province for indo-pacific mackerel, and another one in Surat Thani provinces Thailand for blue swimming crab. In addition, eight fisheries *refugia* are receiving the perception and agreement from the stakeholder and will be adopted by the responsible agencies. These include one in Cambodia at Kampot Province for the juvenile grouper, one in Thailand at Trat Province for indo-pacific mackerel, two in Malaysia at Tanjung Leman, Johor State for spiny lobster, and at Miri, Sarawak State for tiger prawn, three in the Philippines at Bolinao for siganids, at Masinloc for one-stripe fusilier, and Coron for redbelly yellowtail fusilier, and one in Indonesia at West Kalimantan for white prawn. Indonesia has another fisheries *refugia* site for squid at Bangka Belitung, which is underway to identify the fisheries *refugia* boundaries. While, due to delayed initiatives of the project, Viet Nam

reduced the project size with the expectation to implement two *refugia* sites by the end of 2022.

- 8) Ms. Astri Suryandari informed the meeting that Indonesia proposed a Fisheries *Refugia* for penaeid shrimps in West Kalimantan, about 414,807 ha, which cover three regencies: Kubu Raya, Ketapang, and North Kayong Regencies. In addition, during the second quarter, Indonesia finalized fisheries *refugia* for squids in the Bangka Regency of about 468,000 ha. The management at *refugia* sites would depend upon distances from the shoreline, as under 12 nautical miles will be managed by the provincial regulation. Also, the establishing process would take time to be adopted; however, it would be adopted by 2022.
- 9) Mr. Le Tran Nguyen Hung, National Focal Point for Viet Nam, apologized for the country-level slow process. However, they will do their best. He informed the meeting that the *refugia* sites have changed due to the proposed Con Dao Island being set as a Marine Protected Area (MPA), while another site at Bach Long Vi Island is far from the land, and no fishermen are operating on the area. He then updated the meeting on two new *refugia* sites: at the coastal area of Lagi – Binh Thuan for Subcrenata ark clam and another one at the eastern coastal area of Phu Quoc – Kien Giang for Blue swimming crab. Also, D-Fish of Viet Nam will apply the existing Fisheries Laws and co-management, which is fundamental to establishing the fisheries *refugia* in both identified sites.
- 10) Concerning the proposed priority species at three *refugia* sites in the Philippines, Mr. Somboon Siriraksophon sought clarification on the updated status of the white-tipped scad in Coron and Frigate tuna and Fringe scale sardine in Masinloc. In response, Mr. Joeren S. Yleana, National Point for the Philippines, clarified that usually country proposes one species per site. Considering other species listed, as mentioned, the on-site committee identified that the project needs to have additional species with transboundary importance. Accordingly, the National Fisheries Research Development Institute (NFRDI) has analyzed reproductive biology to validate the other three species and understand the critical life stages before deciding on managing the species via the *refugia* approach. He also updated the status of the initial Executive Order for establishing three *refugia* which are already on the table of the Local Government Unit (LGU). Then, hopefully, by the third or early fourth quarter, we could submit the uphold *refugia* areas.
- 11) Mr. Ouk Vibol, National Point for Cambodia, pointed out that in the case of Cambodia, the approved map has to be stamped and sealed. He suggested making use of the approved map provided to the PCU.
- 12) For Malaysia, Mr. Salleh Udin Bin Jamon, National Scientific and Technical Focal Point for Malaysia informed the meeting after Malaysia proposed the adjustments of two *refugia* boundary areas after discussion with the experts and consultants. He announced that the fisheries *refugia* for spiny lobsters at Tanjung Leman, Johor, is changed from 140,000 ha to 171,549 ha in the exact location.
- 13) Additionally, Ms. Praulai Nootmorn corrected the duration of the closed season for the Indo-pacific mackerel in Trat province from January to February.
- 14) Mr. Somboon Siriraksophon, therefore, revised the *refugia* map based on the updated information from six countries as shown in [Annex 3](#).

#### IV. BRAINSTORMING SESSION ON THE RESULTS FRAMEWORK

##### 4.1 COMPONENT 1: IDENTIFICATION AND MANAGEMENT OF FISHERIES AND CRITICAL HABITAT LINKAGES AT PRIORITY FISHERIES *REFUGIA*

- 15) Somboon Siriraksophon presented the required outcomes from Component 1 on Reduced stress on fish stocks and coastal habitats via improved national management of key anthropogenic threats to fisheries and critical habitat linkages. Regarding this, the PCU focused on the target outputs from six countries as follows:

**A. ABOUT 50% REDUCTION IN FISHING PRESSURE**

- 16) Mr. Somboon Siriraksophon informed the meeting of the results framework's objective No.1: effective management of critical threats to 14 fisheries *refugia* sites [269,500 ha], including ~50 percent reduction in fishing pressure within sites at times critical to the life-cycles of fished species of transboundary significance. He informed that the results on establishing 14 *refugia* sites targeting 269,500 ha are no longer an issue because the project could meet 15 *refugia* with about 1.36 million hectares committed by six countries as mentioned in Agenda 3. However, He raised the issue of about a 50 percent reduction in fishing pressure within *refugia* sites. He then asked the country how they considered this issue when drafting the management measures to reflect a reduction in fishing pressure in each *refugia* site.
- 17) Ms. Prulai Nootmorn shared the lessons learned from Thailand by referencing the catch data from the *refugia* area. To manage the catching of Indo-pacific mackerel spawners during the fishing closure from January to February, the stakeholders agreed to ban pair trawlers and purse seiners in the area for two months while other small-scale gillnet vessels are allowed to catch. These management measures for Indo-pacific mackerel could 100% reduce commercial fishing gears in the *refugia* area of Trat Province. She also informed that in the case of blue swimming crab *refugia* around Koh Sed, Surat Thani Province, the measures are not to allow crab traps and crab gill net fishing to be operated in the *refugia* entire the whole year. This is because the *refugia* area is essential as nursery and spawning grounds where seagrass are habitat linkages. This is also the measure to reduce 100% fishing pressures from two gear types.
- 18) Mr. Somboon Siriraksophon also requested the meeting to consider whether the management measures for established *refugia* concerned the commercial fisheries rather than small-scale fisheries. The original project proposal assumed the impact on fisheries *refugia* and habitat linkages only on small-scale fishing pressure. However, the results from Thailand showed that not only small-scale alone but commercial fisheries affect the fisheries *refugia*.
- 19) Mr. Valeriano M. Borja, National Scientific and Technical Focal Point for the Philippines, mentioned that in the Philippines's case, the measures being proposed or being considered in the management plan are spatial-temporal closure, which would reflect the 100% reduction during specific periods where there are critical stages of the species being protected like in one of our sites in Masinloc. NFRDI also imposes size limitations in the *refugia* area. However, his opinion on measuring the 50% reduction in fishing pressure is hard to determine because NFRDI already set the baseline on size limitations.
- 20) Mr. Somboon Siriraksophon pointed out how to reflect the 50% reduction of fishing pressure even though the country baseline is a size limitation. Considering the size limitation baseline is linked to the selective mesh size net for targeting fish size. The size limitation implied the need to manage fishing mesh size or indirectly manage fishing vessels. The number of fishing vessels or % in reduction of fishing pressure follows size limitation measures, which can then be calculated.
- 21) Mr. Joeren S. Yleana emphasized that for small-scale features remarkably, the Philippines differs in terms of classification of their waters, 15 km from the shore is for the small scale

- that's for vessels using only not over than three gross tons in measurement, just around 30ft. There's no commercial feature allow.
- 22) Mr. Somboon Siriraksophon concluded that Philippine do not face issues on reduction of 50% fishing pressure at all.
  - 23) Ms. Prulai Nootmorn sought clarification from the Philippines on monitoring whether caught fish is the right size.
  - 24) Mr. Joeren S. Yleana mentioned that the Philippines do have random checks in the market, and so sometimes we also conduct information, education, and communication campaign (IEC).
  - 25) Mr. Le Tran Nguyen Hung shared some experiences in managing and regulating size limitations. He mentioned some existing problems in world fisheries, particularly on fishing net mesh size and the catching of juvenile fish. He mentioned that every country has its own fishery measures to regulate and control the fish size, but why on landing, there are so many juveniles. To solve that problem, awareness building, regulation, and penalties are very important. However, in Vietnam, the community is very important like the fisheries *refugia* approach; the community is involved in developing its own rules and regulations.
  - 26) Mr. Somboon Siriraksophon added that changing attitude of the human to accept more conservation, right? He thought that is the solution that he observed many countries when they establish fisheries *refugia*, they also come up with that management measure to conserve the fish. He thought for Philippines based on his conclusion he found that the gear limitation is linked to the link to the fish size limitation. So that the project still can know numbers of vehicles that have been regulated. Because the vassals who test someone's side, they have a specification like that. But the problem is how to apply the best practice to them. Modification of gear. since he works on gears, he found that this is the most important and the more difficulties to change the fishermen's attitude or change the gear specification. In Thailand, he thought this is quite clear. Thus, the project can know exactly how many vehicles from this area. So, the project tries to make link to the number of the vessels.
  - 27) Mr. Salleh Udin Bin Jamon mentioned that when the project reduces the fishing pressure, the stock number is supposed to be increased. Also, the best way here to prepare the project can use the stock assessment before implementing the *refugia*, and after that, it can be compared to see the difference in the stock status before and after. Therefore, if the project gets more stock, it is good. However, for Fisheries *refugia*, the project only closed a few months to protect; it is necessary to note that getting 50 percent is very high. Also, some species migrate to different countries, which is hard to track.
  - 28) Mr. Jamil Bin Musel added that Malaysia's practice in the tiger prawn *refugia* was simply because tiger prawns did not migrate far, this is one of the better solutions to calculate 50%, and we just prevent catching tiger prawns for stage four from August to October, which is three months only then Malaysia will collect from the previous years, maybe two or five years before the implement. Then Malaysia can calculate it how to reduce the 50% from the area. He further updated that DOF/Malaysia has negotiated with the stakeholder and local community of the establishment of tiger prawn *refugia* in 2021, the stakeholders and fishers agreed the proposed fishing closure for three months from August to October. In addition, the stakeholder agreed on the measures and regulations to remove all trawlers in the *refugia* area or ship out all trawler within 7 km to 14 km from the shoreline. Meaning that 100% trawlers are removed from the *refugia* area within 7 km from shoreline.
  - 29) Mr. Salleh Udin Bin Jamon added on spiny lobster *refugia* that there is a fishing closure season from July to September, and no trawlers allow to operate in the area. Based on

fisheries statistics and licensing system, only seven trawlers operated in the area. DOF/Malaysia regulates and does not give the license during the fishing closure period to protect the lobster spawner. Also, during the consultation, Malaysia also mentioned to the stakeholder to release the small size of lobsters outside the closing seasons. Also, the lobster with gravid eggs should be released back to the sea. Also, the releases of the small size are applied for the whole year.

- 30) Mr. Somboon Siriraksophon sought clarifications from Malaysia on “how can DOF/Malaysia know that fishers released the small lobsters to nature”? any communication, social media or evidence to confirm fisher’s good practices?
- 31) Mr. Salleh Udin Bin Jamon mentioned that was a good point. Maybe Malaysia can check at the landing site and the enforcement programs.
- 32) Mr. Somboon Siriraksophon suggested that Malaysia learn from DOF/Thailand as they use the social communication media, such as LINE, FACEBOOK, etc to communicate with fishers on releasing blue swimming crab with gravid eggs to nature from trawler. The essential things are the fisher’s attitude toward marine resources conservation; behind this, the social media from mobile phones stimulate fishers to perform good fishing practice by releasing crabs with eggs to nature because the fisher is an actor in the short video-clip and share to the public during at sea or after back to home port. People, who saw video-clip, appreciated, and liked these excellent practices, while other fishers from other trawlers followed the same. From one to ten to a hundred and ten thousand crabs were released to nature in a year. This is one of the best practices from Thailand on changing fisher’s attitudes on the protection of spawners, even outside the fisheries *refugia* area, that should be applied to other countries, including lobster fisheries in Malaysia.
- 33) In Cambodia, Mr. Leng Sy Vann confirmed 100% fishing pressure reduction during the closed season in the selected *refugia* area. For instance, at Kep fisheries *refugia* for blue swimming crab, and at Koh Kong for Indo-pacific mackerel, trawlers are prohibited from operating in the *refugia* area and the fisheries management area (FMA), while the project cooperates with Civil Social communities or Organizations and local government on deploying concrete blocks (as artificial reefs) to prevent trawlers and to enhance the fish shelter to protect spawner and fish larvae stages. He added the importance of public awareness to the stakeholders and communities at all levels to understand the fisheries *refugia* approach and their roles for sustainable management of fisheries at the site level. Strong support from the high ministerial level through proclamation and improved law and regulations could operate a regional system of fisheries *refugia* in long term.
- 34) Ms. Astri Suryandari, National Scientific and Technical Focal Point, informed the meeting that the reduction of fishing pressures in *refugia* sites is about 60%. Indonesia proposes fishing closure in West Kalimantan for penaeid shrimps *refugia* from October to December and Bangka Belitung for squid *refugia* from November to December. Currently, Indonesia has been working on management measures to regulate and manage the proposed fisheries *refugia*. One of the possible management measures applied in the *refugia* area to reduce the fishing pressure is to regulate the fish quota. Ms. Astri Suryandari also informed another good practice from the local community and fishers by stopping fishing one day a week. This is because most fishers are Muslim and do not go fishing every Friday. This Muslim practice could be considered good practice that supports the reduction of the fishing pressures; however, this is an optional one.
- 35) Mr. Hung Le Tran Nguyen shared his concerns regarding the management of fisheries that align with the fisheries *refugia* approach: firstly, decentralize the activities to the community level, secondly developing the management plan through the engagement of relevant stakeholders, and lastly, require regulations to coordinate inside the community.

Throughout these three main activities, the fisher's awareness will be enhanced. However, there is a problem as the outside fishers enter the area. Thus, fishery regulations from the central government are needed. The meeting also noted that Viet Nam is in the process of drafting the management plan for two fisheries *refugia*.

- 36) The meeting also noted how vital the biomass assessment is in supporting the calculation of 50% fishing pressure reduction for long-term management proposed by Malaysia. Mr. Salleh Udin Bin Jamon and Mr. Jamil Bin Musel mentioned that the most crucial thing for biomass assessment or stock assessment is the historical data. However, other immediate solutions for resulting in this target objective are also accepted, as mentioned earlier by each country.
- 37) In conclusion, the meeting could solve the issue related to a 50% reduction of fishing pressure at the *refugia* sites. Regarding this, many countries showed their management measures that could meet the project target indicator. Cambodia, Malaysia, the Philippines, and Thailand indicated a 100% reduction of fishing pressures in the *refugia* areas, while Cambodia also created fish shelters for spawner and fish larvae in the fisheries management area and *refugia* area.

#### **B. FISHERIES MANAGEMENT PLAN**

- 38) Mr. Somboon Siriraksophon requested each country to briefly update about the status of their management plan. Also, the capitalized community exchange and the networking call as a site-based management board.
- 39) Mr. Ouk Vibol from Cambodia stated that Cambodia has three *refugia* sites officially endorsed by the Ministry of Agriculture Forestry and Fisheries (MAFF). Moreover, only one in Kep for blue swimming crab, the 5-year management plan, was endorsed by the Director General of FiA and the Governor of Kep Province. Another one for Indo-pacific mackerel in Koh Kong is in the final stage of the national consultation. For blood cockle Fisheries *refugia* in Sihanouk Ville, Cambodia does not have enough budget for drafting. Therefore, FiA requested the support budget from the project unspent budget from Viet Nam to develop the 5-year management plan. Besides, the *refugia* that has been developed so far, called Marine Management Plan, has been supported by the EU through EU Agriculture Program, and *refugia's* activities are supported in drafting the Marine Fisheries Management Plan. Also, Cambodia has a management plan for each *refugia* area and a national management plan to be applied to the whole country, which is in the final stage of consultation and hopefully will be finalized by Q3/2022.
- 40) For Thailand, Ms. Praulai Nootmorn stated that the Marine Fishery Management Plan for 2019-2022 was endorsed by the Department of Fisheries. Necessary management measures specified in the FMP (2019-2022) include the control of fishing effort through a total allowable effort (TAE) and licensing scheme and the use of incentives to remove excess capacity for fishing vessel, the introduction of area-based management for selected fisheries and introducing Fishery Improvement Projects (FIPs) for selected fisheries. This FMP includes progress in legislation on fisheries *refugia* in Thailand, covering two fisheries *refugia*. The FMP also guided a site-based management board setting-up and roles to look after and monitor the *refugia* areas. In addition, required capacity building or awareness-building programs to ensure that the board or fisher group understand their roles in monitoring and managing the *refugia* areas. Moreover, Ms. Praulai Nootmorn updated the meeting on setting of a knowledge centre for fisher groups in the *refugia* site. She also informed that a new FMP for 2022-2015 is on drafting which is finalized by the end of this year.

- 41) Mr. Jamil Bin Musel from Malaysia informed the meeting that in Malaysia there are seven Fisheries Management Areas (FMAs) which is under the Fisheries Management Plan (FMP), where target species will be enforced or regulated. The formula is for those species that caught more than 500 ton per year, those species is to be considered as one of the FMP endorsed by the Director-General of the Department of Fisheries. The management plan for two *refugia* were drafted called "inception report" for spiny lobster *refugia* and tiger prawn *refugia*. These reports are finalized soon after stakeholder consultation at both *refugia* sites starting in coming August 2022. These are essential documents involving the legal officer from the Department; hopefully, two *refugia* FMP to be endorsed by the Director-General by the end of this year.
- 42) Mr. Valeriano M. Borja stated that NFRDI submitted the drafted management plan for three *refugia* sites to the Site based management committee for review and endorsement. Currently, NFRDI is waiting for feedback from the committee, and It is expected to be finalized by the third quarter. He also informed the management plan needs to be reviewed every five years.
- 43) Mr. Joeren S. Yleana added that all fisheries *refugia* sites in the Philippines are under the local community committee. So, the formulation and the implementation of the management plan are with them. BFAR and NFRDI's roles are monitoring and providing technical support to the community. But most importantly, in passing these management plans, especially in posting the measures, it is vital to make sure that all management plans are considered through a series of consultations.
- 44) Ms. Astri Suryandari informed that Indonesia had already drafted the management plans and recommendations documents from the stakeholders to be endorsed by the relevant agencies, including the Directorate General of Marine Spatial Planning, Directorate General of Capture Fisheries, and the provincial government of West Kalimantan, and Bangka Belitung. These agencies directly have the authority to manage marine space and resources. She pointed out again that three relevant agencies must endorse the Drafted management plans for two *refugia*, and later they will issue regulations for the legal of site management.
- 45) Mr. Somboon Siriraksophon sought clarification from Indonesia on whether Indonesia can complete the endorsement process of establishing two fisheries *refugia* by 2022?. In response to the question, Indonesia informed the meeting that the endorsement process might take more than one year to complete the process in practice.
- 46) For Viet Nam, Mr. Le Tran Nguyen Hung stated that Viet Nam is drafting the management plans for two fisheries *refugia*. In Viet Nam, the communities and local government at the provincial level are decentralized from the central government. Therefore, the management plan needed to be endorsed by them; in other words, the final benefit from the management plan should also refer to community and provincial government requirements for sustainable utilization of fisheries resources purposes.
- 47) Mr. Somboon Siriraksophon thanked all six countries for the updated status of the management plan documents for establishing fisheries *refugia*. He also noted that all country's efforts to complete establishing fisheries *refugia* by the end of 2022. However, He informed the meeting that before the project ended, the PCU would determine again whether the country's Certificate of Substantial Completion is required or not.

### **C. GEF SMALL GRANT PROGRAM**

- 48) Mr. Somboon Siriraksophon informed the meeting that there is one expected outcome that the project did not do anything in terms of seeking funding from the small grant program. The expected outcome on a strengthened civil society community and organization participation and implementation to support the project through the GEF Small Grant



Program. The PCU notes that no GEF SGP was applied to support the project implementation from SCOs, but it does not mean there is no engagement from the CSOs in the project implementation. Accordingly, the brainstorming session discussed this matter as follows:

- 49) Mr. Joeren S. Yleana stated that most of the time, in conducting the stakeholder consultation, the civics society community and organizations, including non-government organizations, will engage in the meeting.
- 50) In Thailand, the Sustainable Development Foundation (SDF) incorporated the project on the socioeconomic study in two *refugia* sites. Some grants from the project supported the survey and drafting of the study report conducted by SDF.
- 51) Mr. Jamil Bin Musel Malaysia agreed with the Philippines that Malaysia had imported the community concept called "MY KP" meaning that the community has a role in protecting and managing the *refugia* area. This civil society community from the site activities provided the necessary input or output to support the project.
- 52) Mr. Ouk Vibol mentioned that Cambodia has all relevant stakeholders involved in the project implementation. For instance, the community is involved in patrolling the area, and the local government works closely with the community, especially with the Fisheries cantonment.
- 53) Ms. Astri Suryandari informed that the project conducted the socioeconomic assessment through cooperation with the local society and community at two *refugia* sites. She was also impressed that at both *refugia* sites, there were many participations from communities in the fisheries *refugia* management and project implementation.
- 54) In conclusion, In conclusion, a strengthened civil society community and organization participation and implementation in the project was conducted in all countries supporting the project without application for the GEF Small Grant Program. The project could work well through the support and engagement of the CSO and communities at the site level.

#### **4.2 COMPONENT 2: IMPROVING THE MANAGEMENT OF CRITICAL HABITATS FOR FISH STOCKS OF TRANSBOUNDARY SIGNIFICANCE**

- 55) Mr. Somboon Siriraksophon introduced the primary outcomes requirement of project Component 2 is Increased institutional capacity in the 6 participating countries for the designation and operational management of fisheries *refugia* via the transformation of enabling environments and the generation of knowledge for planning. Regarding this, the PCU focused on the target outputs from six countries as follows:

##### **A. 20 PERCENT INCREASE IN SMALL-SCALE FISHING VESSELS USING GOOD PRACTICES**

- 56) Mr. Weerasak, the project technical coordinator from SAFDEC/Training Department, pointed out that the issues on fishing gear and practices designed to safeguard fish stock and critical habitat linkages have already passed this stage in Thailand. Thailand has already regulated crab trap fishing in the *refugia* sites by modifying the net mesh size for the crab trap and crab gill net. In addition, another best practice on releasing crab spawners into the sea.
- 57) The challenge is how can we know the fishers modify their fishing gear and practices to fishing in the regulated *refugia* area? Regarding this, Ms. Prulai Nootmorn clarified that Thailand linked the measures to the fishing license for commercial fisheries, such as limiting the size or number of fishing gears, e.g., length of gillnet and numbers of traps. To monitor the fisher's practices, enforcement programs are needed, including monitoring, control, and severances. At the Surat Thani *refugia* site, the local government, particularly the

*refugia* site-based management board, works closely with fishers in the community called "Ranger" to monitor and protect the areas from illegal fishing. They work closely with the government officials in the community.

- 58) In Malaysia, Mr. Jamil Bin Musel shared his experiences in regulation and monitoring of the catch of Spiny Lobsters. Even though trawl fisheries are one of the critical threats to the spiny lobster's life cycles, mass size regulations are also tough to apply for manage of lobster *refugia*. However, fishing closure to protect spawners is one of the key measures
- 59) In Cambodia, Mr. Ouk Vibol stated that during the fishing closures for a few months in the fisheries *refugia*, some types of fishing gear that affected the critical target species are prohibited; but other gear types that do not harmful to the target species are still can operate in the areas. However, it is hard to say the 20 percent increase of fishing vessels applied to best practices.
- 60) In Malaysia, considering the tiger prawn mainly caught by trawl fishing, Mr. Jamil Bin Musel strongly suggested that fishing closure is the most effective way to conserve, protect the spawners and enhance tiger prawn recruit stock. However, in the case of the spiny lobsters, it is good to catch by trap and the idea of releasing undersize and spawners back to nature. Malaysia will consider it in developing management plans and measures for stakeholders' acceptance.
- 61) Mr. Joeren S. Yleana mentioned similar approaches to Cambodia and other countries that rather than fishing closures with some management measures, it is hard to qualify the 20% increase fishing vessels target. He also updated the meeting that the management plans for three *refugia* in the Philippines are in approval processes through the relevant stakeholder and local governments. Regarding this, Mr. Valeriano M. Borja shared that it is better to limit the number of gears operations in the critical *refugia* rather than improve fishing gears and techniques for operation in the *refugia* area. For instance, in Coron Bay, by law, the local government approved only 20 bag-net boats to operate in the area. The approaches are more applicable to fishing license control.
- 62) Mr. Ouk Vibol added that during the closed season of Blood Cockle *refugia* in Sihanouk Ville, usually, people use the motorized vessel to harvest blood cockle. After applying the fishing closure in the blood cockle *refugia*, fishers are not allowed to gather blood cockle for a few months. In addition, fishers are not allowed to harvest with motorized vessels but only by hand during harvesting seasons.
- 63) Ms. Astri informed that Indonesia is still discussing the management measures related to fishing gear type and mesh size to apply to the west Kalimantan *refugia* site. For Banka Belitung, using the non-collective gears, which look like a trap but are small in size in the mangrove area, is a crucial threat to the juvenile stages of squid. Also, Indonesia proposed to discuss with the experts and stakeholders the relocation of the fishing area, limitation of Fishing gear and applying for a fishing license.
- 64) Mr. Jamil Bin Musel questioned how conservation of priority target species if they migrate outside the areas.
- 65) Mr. Somboon Siraksophon said all the countries might face this issue, particularly if the selected target species are highly pelagic migration fish. In such a case, regional or sub-regional cooperation is needed to manage this transboundary fish stock like the Indo-pacific mackerel.
- 66) Ms. Astri Suryandari informed the meeting that Indonesia would apply the quota policy regulations this year to support and manage the fishing management area for small-scale fisheries within 12 nm from shore and fishing vessels from outside the area.

- 67) In Viet Nam, Mr. Hung mentioned that the activities on policy and legal are in progress. He mentioned that the new master plan that includes 73 fisheries *refugia* would be adopted by the government this year, while the project's management plan is in the drafting process. The management plans as primary legal documents are to support the local government in managing fisheries *refugia* at the provincial level.

#### **B. CROSS-SECTORIAL AGREEMENT ON NATIONAL GUIDELINES**

- 68) The meeting updated the status on the National Guideline development by country to support the long-term implementation of fisheries *refugia*. The results as of 30 June 2022 are as follows:
- Cambodia is finalizing the draft national guidelines.
  - Indonesia drafted the guidelines and now seeking approval from the lead agency; the meeting also noted that it might take time for approval;
  - Malaysia is drafting the guidelines;
  - The Philippines is in the final process of documenting it as institutional guidelines;
  - Thailand is in the final approach for adoption;
  - No updated information from Viet Nam.

#### **C. OTHER OUTPUTS RELATED TO IMPROVING THE MANAGEMENT OF CRITICAL HABITATS FOR FISH STOCKS OF TRANSBOUNDARY SIGNIFICANCE**

- 69) Mr. Somboon Siriraksophon informed the meeting on other outputs required under the component two, such as 1) status and trends in fish stock, 2) Online National and Regional websites, 3) GIS Mapping, 4) Fisheries and habitat data collection programs, and 5) demonstration of best fishing methods and practices.
- 70) Mr. Somboon Siriraksophon introduced the Marine Capture Fisheries Database and Dashboard for consideration by the committee. He pointed out that there are no issues on the national status and trends of a fish stock linked to the national statistics of fisheries in each country. However, to support the fish stock analysis of transboundary species in which more than one country is concerned in the management, the Project Coordination Unit decided to use the FAO fisheries statistical data for developing the regional marine capture fisheries database in Southeast Asia due to their continuous data availability. The PCU developed both the capture fisheries database and the dashboard and linked them to the fisheries *refugia* websites. The database is expected to support the ASEAN Member States in understanding the status and trends of transboundary fish stock or shared stocks for further appropriate management.
- 71) Concerning the national web portal, the meeting updated the progress on this issue as follows:
- Indonesia, Thailand, and the Philippines completed the national web portal under the national lead agency websites. Currently, these web portals are linked to the *refugia* website.
  - Malaysia updated the *refugia* activities and database system under the relevant agency, Marine Park websites. Malaysia did not separate the web portal for *refugia* taking into account the long-term maintenance.
  - Cambodia and Viet Nam are considering updating their national *refugia* information and data through the regional *refugia* website managed by PCU.

- 72) Concerning the Regional Mapping of fisheries *refugia*, including the GIS data and information, Mr. Somboon Siriraksophon is compiling the coordination of 15 *refugia* areas from six countries; it is expected that after the meeting, the PCU could have all GIS data and information for further updating to the Google Map software or another similar platform. If there were no changes on the *refugia* locations as reported, the PCU could complete these outputs by September 2022.
- 73) In addition to the regional *refugia* website, Mr. Somboon Siriraksophon informed that the website is improved quarterly by the PCU. All updated technical reports from national and regional programs are updated. In addition, the website includes the country's page with aims to promote the country's achievements and data collected at pilot sites.
- 74) Concerning the fishing practices demonstration at project sites, unfortunately, the PCU has prepared this activity by the end of 2019, but due to the Covid-19 pandemic until the 1st quarter of 2022, there is no demonstration. .

#### **4.3 COMPONENT 3: INFORMATION MANAGEMENT AND DISSEMINATION**

- 75) Somboon Siriraksophon presented the required outcomes from Component 3 on strengthened knowledge management and information sharing and access for enhanced uptake of good practice in integrating fisheries management and biodiversity conservation in the design and implementation of fisheries and environmental management systems, including Marine Spatial Planning. Regarding these, he summarized the required outputs as follows:
- 76) Concerning the enhanced uptake of best practices in integrating fisheries management and biodiversity conservation, the main output is related to the regional catalogue of the best practices in which the PCU will compile the existing best practices based on the results from 6 countries. The PCU expects to complete this task by September 2022.
- 77) Concerning the improved community acceptance of area-based approaches, the main outputs are the published and online awareness materials. All countries are requested to update the materials on the websites or national web portals. But for those countries that do not have a web portal, they can share with the PCU for uploading to the country page under the regional website—regarding this, sharing the awareness materials in pdf, picture format, or video recording data.
- 78) Concerning the knowledge generated and experiences from establishing and operating fisheries *refugia*, this output relates to the online web portal in which the meeting had discussed and updated. In addition, the project also required six published GEF IW Experience Notes. The PCU provides the Experience Note Template, as shown in [Annex 4](#). Regarding this, the timeline for submission of the Experience Note is by the end of September 2022. The PCU plans to discuss the country experience note at the Seventh Meeting of the RSTC in October 2022 before sharing them with the GEF IW-Learn for publication online.

#### **4.4 COMPONENT 4: NATIONAL AND REGIONAL COOPERATION AND COORDINATION**

- 79) Mr. Somboon Siriraksophon presented the required outcomes from Component 4 on cost-effective and efficient coordination of national and regional cooperation for integrated fisheries and environmental management. Regarding these, Mr. Somboon Siriraksophon summarized the key outputs as follows:
- 80) Concerning the Strengthened cross-sectorial coordination, National scientific and technical expertise and knowledge harnessed, and Community-led planning of fisheries *refugia* management, the PCU has compiled the lists of the National Fisheries *Refugia* Committee (NFRC), National Scientific and Technical Committee (NSTC) and Site-based Management

Board (SMB), respectively as shown in [Annex 5](#). Regarding this, all countries can check and make corrections to the name and logos suggested by Mr. Ouk Vibol and resubmit to PCU for further publishing on the *refugia* website by the end of September 2022.

- 81) In addition, the PCU needs to document the TORs of each committee. Some countries officially submitted to the PCU, but some appeared in the quarterly technical reports. Accordingly, to ensure that there are no missing documents, the PCU requests the partner agencies to submit the TORs to PCU by the end of September 2022.

## V. NATIONAL RESULTS FRAMEWORK

- 82) Mr. Jamil Bin Musel, the chairperson, welcomed all participants to the second-day meeting by introducing the agenda to be discussed today. He started with agenda five on national results frameworks in which the partner countries will update their progress works aligned with result frameworks.

### 5.1 CAMBODIA

- 83) Mr. Leng Sy Vann, National Scientific and Technical Focal Point for Cambodia, presented the progress report of Cambodia as of 30 June 2022. His presentation divided it into four main points, including 1) fisheries *refugia* project site; 2) establishment and management of fisheries *refugia*; 3) fisheries *refugia* management and coordination structure; 4) legal framework and strategy plan for fisheries *refugia* management. There are four *refugia* sites, including Koh Kong province for Indo pacific mackerel, Kampot province for juveniles Groupers, Kep province for blue swimming crab and Anchovy, and Sihanouk Ville for blood cockle.
- 84) Concerning the establishment of fisheries *refugia*, the first site is Marine Fisheries Management Area, including Fisheries *Refugia* at Koh Po, Kep province. The target species are blue swimming crab and anchovy. This site covers 11,307 ha covering 417 ha for blue swimming crab fisheries *refugia* area. Also, it was endorsed on 12 April 2018. Moreover, Site Based Management Board for the marine fisheries management area includes provincial hall administration, fisheries administration, involved provincial departments, provincial police, provincial military police, maritime police No. 430, ocean open committee, involved district and commune authorities, development partners, private sector, and community fisheries. For management measures of the Marine Fisheries Management Area, including blue swimming crab fisheries *refugia* in Kep, there is a closed season for blue swimming crab from May to July, so all fishing that targets crabs do not allow. On the other hand, Anchovy fishing is not permitted to operate in the area. In addition, 345 concrete blocks were employed in the MFMA and *refugia* sites to protect marine habitat and prevent illegal trawling. The awareness building was made using local and community social media.
- 85) For Indo-pacific mackerel *refugia* at Peam Krasob, Koh Kong Province, covers 1,283 ha endorsed on 16 September 2019. The Site Based Management Board for the Marine Fisheries Management Area includes Provincial Hall Administration, Fisheries Administration, Involved Provincial Departments, Provincial Police, Provincial Military Police, Maritime Police No. 269, Ocean Open Committee, Involved District and Commune Authorities, Development Partners, Private Sector, and Community Fisheries. Based on the proclamation, all kinds of fishing gears are not allowed from December to March. There is patrolling, crack down on illegal fishing, and stand by at the *refugia* site. Also, 50 concrete blocks were deployed on the seabed to prevent trawlers. Also, Cambodia prohibited trawlers in the fisheries *refugia* sites.

- 86) For grouper fisheries *refugia* at Preak Thnoat, Kampot Province, covering 8,904 ha where 890 ha is for juvenile grouper fisheries *refugia* area. Moreover, Site Based Management Board for the Marine Fisheries Management Area includes Provincial Hall Administration, Fisheries Administration, Involved Provincial Departments, Provincial Police, Provincial Military Police, Maritime Police No. 241, Involved District and Commune Authorities, Development Partners, Private Sector, and Community Fisheries. As this site has not yet been approved, the closed season has not yet been applied. However, FiAC, with the collaboration of WEA disseminated and educated people about the closed season of juvenile grouper fisheries *refugia* area. Also, 50 concrete blocks were employed to protect and improve marine habitat.
- 87) For blood cockle (*Anadam granosa*) fisheries *refugia* at Prek Sangke village, Tek Khlar commune, Prey Nob district, Preah Sihanouk province, covers 116 ha, and it was adopted on 20 August 2020. The key stakeholders are provincial hall administration, fisheries administration, involved provincial departments, provincial police, provincial military police, prey nob district, commune authorities, and community fisheries. For the management measure, a closed season starts from June to October, and all fishing gear is not allowed. However, they enable collecting blood cockle by hand during the open season.
- 88) Concerning the legal framework and strategic management plans, Mr. Leng Sy Vann informed the meeting that there are three proclamations on the establishment of management of fisheries *refugia* area in Kep, Koh Kong, and Preh Sihanouk provinces. Also, Cambodia published three fisheries *refugia* profiles in Kep, Kampot, and Koh Kong. In addition, five year-Action Plan for Marine Fisheries Management Area with BSC *refugia* at Koh Po and Koh Tonsay Archipelago, Kep province, was officially adopted. The National guideline for fisheries *refugia* management is being finalized. Furthermore, National Action Plan for fisheries *refugia* management is needed to consult and discuss more with the provincial and national stakeholders to complete this document.
- 89) The concept of fisheries *refugia* has been integrated into the National Plan of Action for Combating IUU Fishing, a 10-year strategy plan for fisheries conservation, the Marine Management Plan for FiA, and the amendment of a new fisheries law. Currently, Cambodia is engaging the concept of fisheries *refugia* in the five years provincial investment plan. The presentation is enclosed in [Annex 6](#).

## 5.2 INDONESIA

- 90) Ms. Astri Suryandari, National Scientific and Technical Focal Point for Indonesia presented the progress report. In Indonesia, there are two sites, including West Kalimantan for Indian white shrimps with an area of 414,807 ha and Bangka Belitung for Mitre Squids with an area of 468,828.32 ha. The closed season for West Kalimantan and Bangka Belitung is November - December, and October – November, respectively.
- 91) Concerning the identification of fisheries *refugia* in both pilot sites, based on the research study conducted in 2015 by MMAF, the management zone for Indian white prawns was recommended. In addition, through the collaboration with the Local University in Banka Belitung, which has conducted the squid survey and studies, the results identified the management zone for squid or *refugia*. Using previous research studies, Indonesia proposed two *refugia* sites: one in West Kalimantan for prawns and another in Bangka Belitung for squid. As of June 2022, the two *refugia* sites are under finalized and endorsed by the relevant agencies.
- 92) She further informed the meeting that many stakeholders engaged in the project implementation, including local government, fishing communities, and academic institutes. The project also engaged the private sector from the mining company, the key stakeholder

in Bangka Belitung. Bangka Belitung is well known as an important location for mining in Indonesia.

- 93) Concerning the management plan for two *refugia* sites, these documents were drafted and submitted for approval by three relevant agencies: Directorate-General of Marine Spatial Planning, Directorate-General of Capture Fisheries, and the local government of West Kalimantan and Bangka Belitung.
- 94) Concerning the national review and regulation reform, these are in progress and expected to complete and published during the third quarter of 2022. MMAF is being revised the policy and strategic management plan called FMA 711. In addition, MMAF has formulated the draft regulation of the Quota Based Fishing Policy, which divides the FMA into zones. This policy is in line with fisheries *refugia's* rehabilitation of aquatic resources and critical habitats in a specific area; in this stage, MMAF plans to apply the quota policy to the FMA 711 *refugia* for Squid and Shrimp. The above-mentioned describes the fisheries *refugia* approach in Indonesia. Since there are many FMA zonings for conservation and protection of fish stocks and habitats, therefore, fisheries *refugia* concept would be adopted under the Indonesian FMA. The FMA Management Institutions will manage each FMA stipulated in 2021.
- 95) The national guideline on establishing and operating fisheries *refugia* has been carried out and finalized for approval by a relevant agency.
- 96) National reports on policy, legal and institutional aspects of *refugia* establishment and management have been developed through the multi-stakeholder meeting, and quarterly progressed to the PCU.
- 97) Concerning the National action plan, the meeting notes that the national action plan would be subsequently approved after relevant agencies endorsed the *refugia* management plans.
- 98) For the online database, Indonesia has already identified the fisheries *refugia* basis data consisting of ecology, biology, and socio-economic studies. In this stage, Indonesia still needs more time to analyze and process data until it is ready to be uploaded to the website.
- 99) The main threats to fish stock and habitat linkages Indonesia has faced are using non-selective fishing gears in both nursery *refugia* sites. Therefore, Indonesia proposed fishing closures and reallocated the non-selective fishing gear outside the *refugia* areas. Also, in Bangka Belitung, as there are mining activities in the same management area, communication with the mining department is needed to avoid conflict. The presentation is enclosed in [Annex 7](#).
- 100) Mr. Joeren S. Yleana shared a similar approach to fisheries management by areas in the Philippines; he mentioned that the Philippines is divided into 12 Fisheries Management Areas (FMA). Fisheries *refugia* are considered as a subset under the FMA. Therefore, the FMA policy or plans would implicate the management plan for fisheries *refugia*. In addition, an FMA committee member generally engages in fisheries *refugia* decision-making.
- 101) Ms. Astri Suryandari implied that the fisheries *refugia* approach is a part of the Indonesian Fisheries Management Areas. Even though it is a new concept, the Minister of MMFA is welcome. As she earlier introduced, the Quota policy for FMAs is in line with the fisheries *refugia* concept; Indonesia, therefore, is willing to implement the fisheries *refugia* areas not only in two identified sites but also in other FMAs that's what we have in the near future.
- 102) Mr. Ouk Vibol pointed out that the critical process before applying fisheries *refugia* to the community is the stakeholders' engagement and acceptance of the fisheries *refugia* setting. He also shared his experience on several issues faced during the setup of the fisheries *refugia*, such as the required fishery law reform to include the fisheries *refugia* concept as

a fisheries management tool. He, therefore, asked whether Indonesia faced the same issues.

- 103) Ms. Astri Suryandari shared her experiences that Indonesia found the face-to-face issue with the stakeholders, particularly the local communities. However, the communities accepted the fisheries *refugia* definition that they should "no take zone". At the Bangka Belitung, she mentioned that the community is willing to have a *refugia* establishment in the area because the community can engage in the area management. However, some communities in the West Kalimantan, Bangalore, do not want to have *refugia* because they already have a conservation zone. This is a challenge for the lead agency to communicate further through local government and community consultation.

### 5.3 MALAYSIA

- 104) Mr. Sallehudin bin Jamon, National Scientific and Technical Focal Point for Malaysia, presented the development of a refugium management plan to the meeting. Progress report based on the achievements of two *refugia* Sites in Malaysia: one located in Tanjung Leman, East Johor, for spiny lobster (*Panulirus polyphagus*); and the second one at Kuala Baram, Sarawak, for Tiger Prawn.
- 105) For spiny lobster, a carnivorous predator feeding distributes in the shallow water and offshore depending on the life cycle stage.
- 106) There has been a declining trend of Lobsters since 2000 due to habitat degradation, illegal fishing activities, and overfishing, which are the key drivers determining the lobster population in the area. Malaysia has considered implementing a lobster *refugia* to deal with this declining resource.
- 107) For the management steering framework for establishing and operating fisheries *refugia*, Malaysia conducted 35 series of technical and stakeholder consultations. For instance, the key strategies that formed the framework for the lobster *refugia* management plan at Tanjung Leman, Johor, consisted of the following strategies: 1) elaborate biology and reproduction cycle of target species, 2) outline potential migration patterns, 3) identify the area of potential settlement of the critical stages, 4) identify target groups for public awareness and dissemination of information, 5) identify strategic period for closure, 6) identify information gaps and methods for data collection.
- 108) Concerning the delineation of the lobster *refugia*, based on the surveys data analysis, Malaysia proposed *refugia* according to the following justifications:
- Since the nursery area in Zone A is also a significant fishing ground for traditional fishers, at the initial stage, the gazette is the only spawning ground as *refugia* which locate in Zone C. Next step will be followed by *refugia* in Zone B and Zone A after some progress of *refugia* in Zone C.
  - This strategy is to prevent social conflict with traditional fishers in zone A, and at the same time, the Department of Fisheries Malaysia has more time for public awareness campaign activities for Zone C.
  - Fisheries *refugia* are focused on the spawning ground located in zone C. This area covers the southern part of Pulau Aur, in Johor waters, where there is a high concentration of mud spiny lobsters compared to other sites.
  - The proposed new coordinates of the *refugia* area are appropriate for management and monitoring purposes during enforcement activity by the DOFM officers and easy to remember by fishing vessel skippers.



- 109) Malaysia plans to enhance the spiny lobster stock by deploying artificial reefs in the *refugia* area. The purpose of artificial reefs is not only for shelters but to deter the operation of bottom trawlers within the *refugia*.
- 110) The aim of the off-harvesting season establishment is to protect the resources during the significant spawning period. Thus, any activity of harvesting spiny lobster within specific periods is prohibited, which has already started in 2021 (July to September). Another management measure is that spiny lobster shall not be harvested, possessed, purchased, or sold during the closure period.
- 111) The main problem affecting Malaysia's sustainability of spiny lobsters is the capture of undersized lobsters, which the market accepts. Therefore, the Department of Fisheries plans to revise the harvesting size and technology through literature related to the body size at sexual maturity of spiny lobster and fishing gear in the Malaysia coastal water area.
- 112) The *refugia* management plan is formulated through the 6 critical strategies mentioned above. The lobster *refugia* plan is a dynamic document that should be updated regularly. Also, the management plan will provide cards and key performance indicators for the efficiency of the management in their respect of importance. So, the key performance indicator will be used as a benchmark for the efficiency of the management plan, which will be reviewed from time to time. Lastly, the frequency of the review shall be based on the plan's efficiency and change in the government's policy.
- 113) Mr. Sallehudin bin Jamon continued presenting the management plan for tiger prawn *refugia* at Kuala Baran Miri Sarawak on behalf of Mr. Jamil Bin Musel. He introduced the distribution of tiger prawn. Ecologically, penaeid shrimps have to go through two significant ecosystems: the offshore and the coastal inshore environments, to complete their life cycle. Mature penaeids breed in deep water while post-larval and juvenile stages inhabit inland marshes, estuaries, brackish water, and mangrove areas, then they migrate back to the sea for maturation and breeding.
- 114) Critical threats to the tiger prawn population are the extensive farm that requires wild spawners, overexploitation, destructive fishing gear, and deforestation of mangrove habitats.
- 115) The management steering framework for tiger prawn *refugia* is the same as for the spiny lobster.
- 116) Through the stakeholder consultations, the results are as follows:
- All stakeholders agreed with the proposal of the tiger prawn *refugia* establishment.
  - Fishing closure for tiger prawn *refugia* will start from August to October. This regulation will be included as an additional clause in the vessel license and fishing equipment for fishing vessels' zone C7.
  - This regulation is applied to all trawlers at Zone C7. All fishing activities by the trawlers must operate beyond 12 nautical miles from the shoreline.
  - The implementation of the regulation starts in 2021 voluntarily. In 2023, the Department of Fisheries will fully enforce these regulations.
- 117) For key components and strategies of tiger prawn *refugia* establishment, there are 7 strategies based on 5 components. The strategies are 1) to determine the migration pattern of tiger prawn from larvae to adulthood; 2) to determine the ovarian maturation stages; 3) to determine the length of tiger prawn at maturity; 4) to propose off-season for tiger prawn; 5) to identify information gaps, insufficient data, and method; 6) to facilitate and validate

the proposed management with stakeholders, and 7) financial model for a compelling mix of finance solution.

- 118) For the designated area for *refugia*, DOFM adjusted the *refugia* area off Kuala Baram (red-dash lines) to cover the nursery area of the tiger prawn post-larva and juvenile in the five rivers Sg. Pasu, Sg Lutong, Sg. Miri, Sg. Bakam Sg. Sibuti. The revised *refugia* area covers 55,600 ha.
- 119) Concerning the population preservation and restoration effort, DOFM preserves mangrove buffer zones of 50 to 100 m facing open seas and 20 to 50 m along riverbanks to protect the nursery area of the tiger prawn post larvae and juvenile.
- 120) For the stock enhancement program, prawn fries produced from Kuala Baram spawners in the hatchery are released back into these rivers and should be carried out at least twice a year to increase prawn stock in the *refugia* area as well as the surrounding sea. Moreover, stock assessment and biological survey for post-larvae and juveniles prawn in the area before and after the release program should also be carried out. In addition, DOFM will carry out the stock assessment for the tiger prawn resource in the *refugia* area once a year to ascertain the success of the demarcation of the site in preserving the stock.
- 121) Regarding the protection of spawners and seasonal closure, numerous studies have shown that environmental factors can, directly and indirectly, affect prawn's life cycles in many ways. In the worst-case scenario, a change in the environment can cause prawn recruitment to collapse. In Kuala Baram, all sizes of *P. monodon* and all maturation stages, from immature juveniles to mature adults and berried females, are harvested. This scenario is hazardous because it will cause the collapse of a population in the near future. Based on research on ovarian maturation stage findings, implement closure or other protective measures from August until October to ensure that females are protected during such a high reproductive output period.
- 122) For the Revision of harvest methods and gears, fishing gears and trawling areas have a total of 112 fishers operating drift net, hook & line, trammel net, and trawl net (twin out-rigger) are being used at the coastal waters up to 15NM offshore in Miri. Also, the number of licenses by zone, including C12-30; C10-1; C7-24, and the rest (57 boats) are traditional operators from zone B and A. With the new regulation of shifting the trawling area to 8NM and above, the areas of less than 5 NM are considered protected from trawling activities where the stations of high concentration of tiger shrimp spawners are in the range of 4.47 – 5.76 NM. In terms of Harvest strategy, the primary strategy would be to introduce measures that would reduce fishing capacity by 50% through limited access and the use of rights-based approaches in small-scale fisheries.
- 123) For identification and engagement with stakeholders, most of the fishers involved in the harvest of tiger prawn are small-scale fishers that operate along the coastal zones and utilize traditional gears, although some fishermen use trawlers and purse seine in deeper off coastal zones of more than five nautical miles. Also, establishing *refugia* requires the combined effort from various stakeholders. Public participation and the active involvement of community players are critical to ensure the successful implementation and sustainability of any *refugia* management plan. Moreover, the latest stakeholders' engagement with other relevant stakeholders, including Miri Port Authority, Sarawak Fishing Vessel Association, Department of Marine Fisheries, Sarawak, Sarawak Forestry Corporation, Miri Fishermen Association, Department of Irrigation and Drainage Branch Miri, and Sarawak Rivers Board was held on 23rd September 2021 and 21st October 2021. Based on the report, all stakeholders understand the importance of establishing tiger prawn *refugia* to safeguard the wild tiger prawn populations at Kuala Baram, Miri, Sarawak.

- 124) In inclusion, the establishment of tiger prawn *refugia* requires careful and detailed representation of essential aspects such as their life cycle, following the determination of their weight-length relationship, environmental conditions, and their harvesting methods and gears. The involvements of specific parties, the stakeholders, and the government bodies are important for management and financial sustainability throughout the entire *refugia* plan. According to acquired preliminary data and visual anthropogenic impact, more conservation efforts are required to ensure that the tiger prawn population in the *refugia* area is not affected. Furthermore, financial sustainability research is necessary for the long-term establishment of tiger prawn *refugia*. The presentation is enclosed in [Annex 8](#).
- 125) Somboon sought clarification on the secured trust funds for the management of fisheries *refugia*, who is the responsible agency to manage trust funds, and where the sources of funds come from.
- 126) Regarding the funds, Mr. Jamil Bin Musel added that after the project ends in December, Malaysia will have national projects for sustaining the area. However, before this project, Malaysia also protects the species by using national contributions to preserve the sites. He pointed out the importance of prawn stock and habitat linkages, which is also suitable for aquaculture. However, a final discussion will be held in August regarding all concerns.
- 127) Mr. Jamil Bin Musel also updated that DOFM has prepared a special fund to deploy artificial reefs in the *refugia* areas. The designed artificial reefs depend on the area.
- 128) Mr. Joeren S. Yleana shared his experience on the perspective of biology, it's really hard to manage the lobster, considering that's what the Phyllosoma stage takes around less than a year for them to set out. It's called the Puerulus stages. And we have similar difficulties in the Philippines. That's why some biologists suggest that it's even better to collect the juvenile for aquaculture rather than prevent them from the wild because the survival is very low. So the reason why he pointed out this is that Malaysia will help a lot in regards to enhancing the resource or the stock, not just in the country, but also maybe if parents will drive them to other areas, so it will become of regional importance also to other countries where they set up. Because at very early juvenile states around 10 months before. That's why there's no hatchery of lobsters all around the world. So it's really hard to manage that. That's why in the Philippines, we allow the collection of Perulai, as long as we don't export it. So that's a new regulation the Philippines has. In addition, Philippines do not allow the collection of gravid lobsters only make sure we have all property, and we check the markets for the size.

#### **5.4 PHILIPPINES**

- 129) Mr. Valeriano M. Borja, National Scientific and Technical Focal Point for the Philippines, updated the progressed work from January to June 2022. The Philippines has been doing reproductive biology and validating the data on the priority species in the Philippines for two sites in Bolinao, Pangasinan, and Masinloc, Zambales. In Coron, the Philippines faced difficulty traveling there because of some travel restrictions by air. But the NFRDI team at sites was able to do some monitoring.
- 130) Regarding reproductive biology, NFRDI continued data collection at sites for other target species to support the Stock Assessment group. The NFRDI team also conducted a site management Committee meeting in Bolinao, Pangasinan, in March and June.
- 131) In relation with the World Ocean Day (Month of June), the NFRDI produced the IEC materials such as life-jackets, raincoats, and rush guards to the relevant fishers and local government units who support the enforcement programs in three *refugia* sites.

- 132) Concerning national guidelines on establishing and operating fisheries *refugia*, the Philippines completed the guidelines for published and submitted them to the PCU. Also, three reports are under review before submitting to the journal.
- 133) Furthermore, the Philippines are drafting the National Action Plan for managing priority fisheries *refugia*, including the capacity-building program on law enforcement.
- 134) For the *refugia* boundary delineation, there are some changes as suggested by the three pilot sites. Thus, it will be finalized soon.
- 135) The Philippines also informed the meeting that the fisheries *refugia* concept was accepted by the other national programs funded by the USAID.
- 136) At the end of his presentation, He showed a short video on promoting fisheries *refugia* in the local language. This video is shared with the PCU for reference. The presentation is enclosed in [Annex 9](#).

### 5.1 THAILAND

- 137) Ms. Prulai Nootmorn, National Scientific and Technical Focal Point for Thailand, presented the country report to the meeting. Thailand has two (2) *refugia* sites: Trat province for 154,600 ha Indo-pacific mackerel *refugia* and Surat Thani for 900 ha blue swimming crab *refugia*.
- 138) She referred to the Notification of the Ministry of Agriculture and Cooperatives regarding Prescribing Fishing Gears, Fishing Methods, Fishing Areas, and Conditions Prohibited from Fishing in some Parts of the Fishing Ground in Trat Province B.E. 2565 (2022). The fishing closure period in Trat province is from 1 January to 29 February each year. During the closure period, the motorized Purse seiners and motorized Pair trawlers are not allowed to operate in the area. Also,
- 139) For the Surat Thani *refugia*, she referred to the Notification of Surat Thani Provincial Fisheries Committee regarding the Prohibition of Some Fishing Gears Fishing in the Fishing Ground within the Coastal Seas around the Area of KohSed, Phum Riang Subdistrict, Chaiya District, Surat Thani Province B.E. 2565 (2022). The *refugia* area is closed for an entire year. Crab traps and crab gill nets of a mesh size less than 3 inches are not allowed to operate in the area.
- 140) In addition, the site-based management committee to look after and manage fisheries *refugia* was set in Surat Thani province, while the committee in Trat province is underway by Q3/2022.
- 141) Ms. Prulai Nootmorn also shared the television documentary film at the meeting; the film link is shared with the PCU for reference. The presentation is enclosed in [Annex 10](#).

### 5.5 VIET NAM

- 142) Mr. Le Tran Nguyen Hung, National Focal Point for Viet Nam informed the meeting that Viet Nam is trying their best to have an umbrella framework of fisheries *refugia* under the national law. In Viet Nam, the fisheries protection areas or fisheries *refugia* are planned at the national level. The key frameworks are to decentralize to the local government and community levels. In the national master plan, 73 marine fisheries protection zones or *refugia* are planned for 2021-2030, with a total area of about 1,416,547 hectares, equivalent to about 1.5% of the natural size of Vietnam's sea area. Therefore, when the master plan is ready, it will be decentralized to the community through the co-management approach, including *refugia* approaches. The systems will engage multisectoral stakeholders in implementation.

- 143) He also proposed two of the 73 *refugia* sites: at the Coastal area of Lagi – Binh Thuan, for the Subcrenata ark, 73,900 ha, and at the Eastern coastal area of Phu Quoc – Kien Giang for Blue swimming crab, 32,860 ha. The presentation is enclosed in [Annex 11](#).
- 144) Mr. Somboon asked Viet Nam to share the list of 73 Fisheries Protected Areas with the PCU for reference. In response, Mr. Le Tran Nguyen Hung noted and will share accordingly.

## VI. THREATS AND BEST PRACTICE FISHING GEARS AND METHODS

- 145) Mr. Somboon Siriraksophon presented the Threats and Best Practices Fishing Gears and Methods for consideration at the meeting. He referred to the initial stage of the project implementation; the country worked locally with multi-stakeholders at project priority *refugia* sites on causal chain analysis. Later, the PCU compiled all CCA to understand the situation of threats to the critical fisheries' resources and their habitats. In addition, how the country comes up with management actions to solve and reduce threats at each *refugia* site.
- 146) Somboon summarized the critical threats faced by the country, based on the country's inputs, are overfishing, illegal fishing, use of non-selective gear, and loss of habitats (such as habitat destruction, deforestation, coastal development, water pollution, and destructive fishing gear).
- 147) Accordingly, the proposed management actions by five countries are summarized as follows:
- Establishment of a conservation area
  - Resource enhancement, Crab bank,
  - Strengthening law enforcement, MCS
  - Fisheries law, policy improvement
  - Rehabilitation, Replanting flooded forest
  - Strengthening transboundary cooperation
  - Effective management measures, size regulation, mesh size regulation
  - moratorium on permits for offshore tin mining activities
  - Empower community
  - Strengthening Information dissemination
- 148) Mr. Somboon Siriraksophon also introduced the fishing management options, compiled from Mr. Weerasak Yingyuad the FAO technical guidelines for responsible fisheries, compiled by for reference to all country.
- 149) With regard to the gear modifications, Mr. Isara SEAFDEC mentioned in the chat that gear modification needs to be supported by legal and accepted by the relevant stakeholders. However, the experiment and socioeconomic study need to prove all fishing gear modifications.
- 150) The presentation and working papers are in The presentation is enclosed in [Annex 12](#).

## VII. MARINE CAPTURE FISHERIES DATABASE AND DASHBOARD

- 151) Somboon informed the meeting that Marine Capture Fisheries database is one of the project's target outputs, which aims to support the country in analyzing the stock status and trends of some economically important species. The original project frameworks addressed a burden issue to establishing the fisheries *refugia* because of the lack of fish database in the past to understand the stock status and trends.

- 152) To fill the data analysis gaps, the Project Coordination Unit developed the Marine Capture Fisheries Database using the FAO capture data from 1950 to the present (2019). The PCU selected FAO data due to their continuous availability, which is vital to present the fish stock status and trends.
- 153) He also demonstrated the dashboard created together with the fisheries database. All these databases and dashboards are linked to the *refugia* website. The working paper is enclosed in [Annex 13](#) of the report.

#### VIII. FISHERIES REFUGIA MAPPING ON GOOGLE EARTH

- 154) Somboon informed the meeting on the development of the fisheries *refugia* GIS mapping on the google earth application, which the PCU has linked to the *refugia* website since 2020. However, as of 30 June 2022, many GIS data from six countries are updated. Accordingly, after the RSTC6, the PCU will update the GIS mapping again. The PCU expects to complete all GIP mapping by September 2022. The working paper is enclosed in [Annex 14](#) of the report.

#### IX. GENDER MAINSTREAMING IN MANAGING FISHERIES REFUGIA

- 155) Mr. Somboon Siriraksophon introduced the working paper on gender mainstreaming in managing fisheries *refugia*, referred to the [Annex 15](#).
- 156) In his presentation, he referred to the Project objectives, which comprise four components, on establishing a regional system of fisheries management areas (*fisheries refugia*) in the South China Sea and Gulf of Thailand. Specifically, Component 1 encompasses five expected outcomes, one of which is to bring about "Empowered fishing communities, particularly artisanal fishermen and women involved in inshore gleaning and processing, for enforcement of agreed management rules at 15 priority *refugia* sites in the South China Sea and Gulf of Thailand." This outcome has been realized by mainstreaming gender not only in the Project development but also in the implementation, having been pursued through capacity-building activities at the community level with the specific objective of enhancing the capabilities of target community members, mainly artisanal fishermen and women, while participating in *refugia* management at the 15 fisheries *refugia* sites. Having empowered the fishing communities at the 15 sites, the project has catalyzed community action for fisheries *refugia* management and strengthened the participation of civil society and community organizations in fisheries *refugia* management. Indeed, such feat, which had been attained mainly through gender mainstreaming and promoting gender dimension in the Project execution, has resulted in the improved role of women in fisheries management and balanced benefits obtained by the fishermen and fisherwomen in the established *refugia* sites. In addition, bringing about gender equality and gender equity contributed to the pool of projects in the Southeast Asian region where gender had been successfully mainstreamed not only in the project development but also in the implementation, monitoring and evaluation.
- 157) The PCU divided 225 activities from six countries into three groups. The sex ratio (in percent) between women and men is calculated as the number of women per hundred men engaged in the project activities by year and entire Project from 2017-2021. The overall results of sex ratio show that for the development and implementation of management plans for the individual *refugia* sites, local officials and fishing community members were involved in increasing the proportion of target community members, about 38 percent of women participating in *refugia* project

- 158) Mr. Joeren S. Yleana has general comments that, of course, every country has its inclusive standards, ensuring that women are involved in decision-making during consultation processes. Like in the Philippines, we have institutional standards regarding gender equality, which is at least 65% for males and 35% for females. But again, in particular, in some real men's projects, it's hard to achieve that ratio. The critical point is to ensure that every time we do our consultation or engineering process, women should involve at all levels.
- 159) Ms. Jariya Sornkliang, Project Manager of Gender Dimension in the Value Chain of Small-scale Fisheries & Aquaculture in Southeast Asia, provided her opinion that the number alone may not be enough for gender equity; it is necessary to know the role of women is also needed. In addition, she suggested for thought that when establishing the *refugia*, how the impact on communities, in other words, women and men, particularly their livelihood and income.
- 160) Mr. Jamil Bin Musel shared his views on how important to mainstream the gender aspect in the project implementation. However, he considers balancing males and females in the fishing industry challenges.

#### **X. THE FOURTH BUDGET REVISION AS OF 31 MARCH 2022**

- 161) Mr. Somboon Siriraksophon presented the fourth budget revision as of 31 March 2022, he referred to the results of the Project Steering Committee at its Seventh Ad-hoc Meeting held on 27 May 2022. At the PSC7 Ad-hoc meeting the unspent budget requested from Cambodia and Thailand with the proposed budget revision were adopted. The PSC7 also agreed to include the requested budget revision from other countries and partners that should be addressed at the RSTC6 and completed the process before the end of July 2022. Malaysia and SEAFDEC/PCU revised budget as of 31 March 2022 to be included in the PSC7 Ad-hoc Report. Accordingly, the Project Coordination Unit compiles all revised budgets from countries and partners for consideration at the RSTC6 whereas all National Focal Points and national Scientific and Technical focal points are attended, the working paper is enclosed in [Annex 16](#).

#### **XI. REGIONAL TRAINING WORKSHOP ON LARVAL FISH IDENTIFICATION**

- 162) Mr. Somboon Siriraksophon updated the progress work to prepare for the Regional Training Workshop on Larval fish identification, scheduled for November 2022. The Training Workshop will be organized in collaboration with the Research and Development Division of the Training Department of SEAFDEC
- 163) The meeting noted that the Regional Training Workshop is planned for two Phases: 1) Larval Fishing Identification Course held on 17-27 November 2022 funded by SEAFDEC/UNEP/GEF project, and 2) Determine Spawning and Nursing Ground Based on Survey Results Course held on 28 November to 3 December 2022 funded by the SEAFDEC/Japanese Trust Fund.
- 164) The invited participants are from the ASEAN Member States, including six *refugia* countries and four non-*refugia* countries.
- 165) The meeting also noted the suggestion from Malaysia to include the SEAFDEC/MFRDMD participation in the Training Workshop either as trainer or instructor. Regarding this, the PCU will further discuss with relevant persons and RRD/TD to finalize the list of participants. The working paper is enclosed in [Annex 17](#).

## XII. ARRANGEMENT IN ADVANCE FOR CLOSURE OF THE PROJECT ACTIVITIES AND MEMORANDUM OF AGREEMENT

- 166) Mr. Somboon Siriraksophon, the project director presented the arrangement for closure of the project activities and memorandum of agreement for consideration and information to all six partner countries. He mentioned that the project initially planned for 48 months from January 2017 until December 2020, this period excluded inception phase in 2016. But the Project duration was extended until 31 December 2022 due to the Covid-19 pandemic and delayed implementation by countries.
- 167) Regarding this, he strongly suggested to all partner agencies that all activities at the national level, and hence expenditures are planned to be completed by 31<sup>st</sup> December 2022. Each partner agency is therefore required to submit the following documents to the PCU by 31 January 2023:
- A progress final report on establishing fisheries *refugia* as of 31 December 2022;
  - An expenditure report encompassing all expenditures between the time of the last accepted expenditure report and the last quarter of 31 December 2022; and
  - An inventory report of all non-expendable equipment purchased under the agreement.
- 168) In addition, a terminal audit report covering all expenditures should be submitted to the PCU no later than 31 March 2023. Once these documents mentioned above have been received and accepted by the PCU and SEAFDEC, a letter will be issued by SEAFDEC formally closing the agreement and stating that the equipment purchased now remains the property of the lead agency (This issue will further be confirmed at the PSC8 Meeting).
- 169) if everything proceeds according to the agreed schedules, then all progress and expenditure reports, and inventories of non-expendable equipment, would be received by the PCU no later than 31 January 2023. Allowing for checking and some corrections.
- 170) Finally, all MoUs between SEAFDEC and partner agencies could be closed by 31 March 2023 upon receipt of the final audit report.

## XIII. WAYS FORWARD

- 171) Mr. Somboon Siriraksophon informed the partner agencies on the tasks or inputs that need to submit or update to the PCU as follows:

No.	Country's Outputs /Tasks	Due date/	Remarks
1	Awareness Materials uploaded to National Web Portal, * In case, country did not create national Web Portal, Country are requested to share them to PCU for Regional Website	30 Sept. 22	<ul style="list-style-type: none"> <li>• PDF, JPG format</li> <li>• Youtube, MP4</li> </ul>
2	Develop the GEF IW Experience Note	30 Sept. 22	• <a href="#">Annex 04</a>
3	Confirm the List and logos of agencies and stakeholders of the NFRC, NTSC, and Site-based Management Board (SMB)	30 Sept. 22	• <a href="#">Annex 05</a>
4	Submit the TORs of NFRC, NSTC, and SMB	30 Sept. 22	• PDF format



#### **XIV. DATE AND PLACE OF THE 7TH MEETING OF THE REGIONAL SCIENTIFIC & TECHNICAL COMMITTEE**

- 172) Mr. Jamil Bin Musel opened the floor for nomination of the RSCT7 Meeting venue, regarding this Mr. Somboon Siriraksophon informed the tentative schedule for the next meeting will be held on 4-6 October 2022.
- 173) Mr. Alza Rendian, Cooperation Analyst of the Bureau of Public Relations and Foreign Cooperation, Ministry of Marine Affairs and Fisheries (MMAF) Indonesia, was encouraged to host the RSTC7 in Indonesia. However, he needs to have an internal consultation with the Head office before making the decision for hosting the RSTC7. Regarding this, Indonesia will response back to the PCU within August 2022 or earliest as possible.
- 174) Before moving to the last agenda, Mr. Jamil Bin Musel welcomed the team from *Implementing the Strategic Action Programme for the South China Sea and Gulf of Thailand* (SCS SAP Project) led by Mr. Dan Bodunescu, SCS SAP Interim Project Manager, and his team: Mr. Reynaldo F. Molina, Project Management Support Specialist; Dr. Vo Si Tuan, Scientific Officer; and Ms. Pakawan Talawat, Programme Management Specialist.
- 175) Mr. Reynaldo F. Molina takes the opportunity to inform the meeting that the SCS SAP Project will organize the first RSTC Meeting in Bangkok during the first week of September 2022. Regarding this, the fisheries *refugia* Scientific and Technical Committee would be invited to the meeting, considering both projects are linked together between habitats conservation and fisheries resources enhancement.
- 176) In addition, Ms. Prulai Nootmorn Nootmorn informed the meeting that this is her last chance to meet all participants due to her promotion, the Department of Fisheries will nominate Dr. Pavarot Noranarttragoon, Senior professional fisheries biologist of the Department of Fisheries Thailand to replace her as a national focal point and national scientific and technical focal point for Thailand. Mr. Jamil Bin Musel on behalf of the RSTC6 welcomed him to the *refugia* project.

#### **XV. CLOSING REMARKS**

- 177) Mr. Isara Chanrachkij expressed his appreciation to the RSTC6 members and other participants for their valuable contribution over the last three days. He acknowledged many issues and challenges were raised and discussed which reflexed the project target outputs and outcomes relied with the results framework.
- 178) Mr. Isara Chanrachkij also deepest thanks to the Project Coordination Unit and involved SEAFDEC/TD staff for their priceless contributions and for running a smooth event. Finally, he wished all participants a safe journey back home, and declared the closure of the RSTC6 Meeting at 12:15 PM.