Southeast Asian Fisheries Development Center

United Nations Environment Programme

Global Environment Facility

Establishment and Operation of A Regional System of Fisheries *Refugia* in the South China Sea and Gulf of Thailand

REPORT
THE SEVENTH PROJECT STEERING COMMITTEE AD-HOC MEETING

VIRTUAL MEETING
27 MAY 2022

SEAFDEC/UNEP/GEF
Fisheries *Refugia*

JULY 2022

Cover Graphic:
Somboon Siriraksophon

SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER

UNITED NATIONS ENVIRONMENT PROGRAMME

GLOBAL ENVIRONMENT FACILITY

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(14 July 2022)

1. OPENING OF THE MEETING

1) The 7th Project Steering Committee Ad-hoc Meeting (PSC7 Ad-hoc) for the SEAFDEC/UNEP/GEF Project on Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand was virtually organized by the Project Coordinating Unit (PCU) on 27 May 2022. The Meeting was attended by all National Focal Points and all National Scientific and Technical Focal Points from 6 participating countries: Cambodia, Indonesia, Malaysia, Philippines, Thailand, and Viet Nam, Ms. Isabelle Vanderbeck: the project task manager from UNEP, Mr. Isara Chanrachkij, Head of Project Planning and Management Division from SEAFDEC Training Department, and Mr. Worawit Wanchanna, Policy and Program Coordinator from SEAFDEC Secretariat, attended the meeting. The list of participants is enclosed in **Annex 1** of the report.

1.1 WELCOME FROM PROJECT COORDINATING UNIT (PCU)

2) Mr. Somboon Siriraksophon, on behalf of PCU and the secretariat of the meeting, welcomed all the participants to the PSC7 Ad-hoc meeting. He recalled the last face-to-face meeting in Miri, Sarawak, Malaysia, in November 2019 and five (5) visual meetings between 2020 and 2022, including this meeting. There were many changes not only in project achievements but also many committee members have been promoted to higher levels. He congratulated to all members who had been promoted to higher levels, including Mr. Haji. Mohd. Sufian bin Sulaiman was promoted to Deputy Director-General of the Department of Fisheries Malaysia, Ms. Praulai Nootmorn was promoted to Executive Advisor on Fisheries Management of the Department of Fisheries Thailand. In addition, Viet Nam has nominated the new National Focal Point, and Scientific and Technical Focal Point, Mr. Le Tran Nguyen Hung and Mrs. Pham Thi Thuy Linh, respectively. Mr. Nguyen Thanh Binh, the former National Focal Point, and Scientific and Technical Focal Point for Viet Nam, has been promoted to Deputy Director of the Vietnam Institute of Fisheries Economic and Planning (VIFEP). Also, Mr. Somboon Siriraksophon welcomed Ms. Astri Suryandari as the National Scientific and Technical Focal Point for Indonesia.

3) Mr. Somboon Siriraksophon, also mentioned that it had been almost five years since he joined the project in mid-2018. Everyone has been through many issues and challenges together. However, with everyone's efforts and support, the project has achieved many vital outputs. He sincerely thanked everyone. He informed that this meeting would be discussed many issues, particularly the results of the mid-term review and the way to achieve the target's goals by the end of 2022.

1.2 KEYNOTE ADDRESS BY UNEP PROJECT TASK MANAGER GREETING FROM UNEP PROJECT TASK MANAGER

4) Ms. Isabelle Vanderbeck, UNEP Task Manager, greeted the meeting. She emphasized some of the points made by Mr. Somboon Siriraksophon. Since the inception meeting in November 2016, the project has been almost halfway through its execution of the project. It would be exciting as countries have many to showcase, share, and exchange. She mentioned that the mid-term review happened slightly later than the admitted point. She encouraged the meeting to reflect on the conclusion and recommendations so that the project could execute the remaining project faster and efficiently. She also encouraged the meeting to look forward beyond the project on how the countries want for the next steps as GEF is hoping that through this project, the project would categorize the new approaches or visions. She informed the meeting that this is the time as the replenishment of the GEF is starting in July. Thus, with a new cycle, there are new opportunities. There is a new budget has been developed. So far, overall, across all of the focal areas, it has

reached USD 5.2 billion. It does not mean that international waters under which this project falls get actually all the amount. However, countries might be interested to know that the emphasis will be placed on a healthy ocean, free from pollution and land-based resources. For a healthy ocean, it is in terms of management, in terms of environmental security, in terms of food systems. These topics may be things that the region might be interested in. Moreover, she mentioned that if countries want to approach the Project director, Mr. Somboon Siriraksophon, and discuss any ideas that countries might have or feel priorities for the region, please feel free to engage with him at SEAFDEC, UNEP, or elsewhere. Also, the GEF8 replenishment certainly offers some opportunities.

1.3 OPENING SPEECH FROM SEAFDEC/SECRETARY-GENERAL

5) Mr. Worawit Wanchana provided a welcoming speech on behalf of the Secretary-General of SEAFDEC, at the PSC7 Ad-Hoc Meeting for the Fisheries Refugia Project. He stated that, as was mentioned earlier by earlier speakers that it has been already two (2) years, and the project has not had any face-to-face meetings, but SEAFDEC is looking forward soon to meeting everyone in person. As SEAFDEC is the executing agency for the project, he expressed his highest appreciation and congratulations to everyone regarding what the project has achieved so far and thanked them for the active participation and engagement of participating countries in implementing the project to achieve many targets outputs. Even though the project has faced many challenges during the Covid 19 pandemic, it is a good sign now in many countries in the region and also participating countries about the success of the project as mentioned earlier by the previous speaker on the result of the midterm review. SEAFDEC, also, acknowledged the result and recommendation from the midterm review. However, this agenda will be discussed further, and the project will improve the project performance to meet the target objectives, and goals as said in the project document. As this is the final year of the project, he stated that SEAFDEC was very pleased to work with everyone. He encouraged the project to keep up the good work for this final year. He referred to the statement earlier made by UNEP Task Manager regarding what to do next regarding the funding arrangements beyond this project, he took this opportunity to encourage the meeting to focus on the activities of the project and program regarding the existing project document rather than thinking or having the idea for a new creation of the project activity beyond this project. Finally, he expressed his most appreciation to the meeting for the kind contribution and time to participate in this meeting, and he wished this would be a fruitful discussion.

2. ORGANISATION OF THE MEETING

2.1 DESIGNATION OF OFFICES

6) Referring to the election results from an online poll, Mr. Somboon Siriraksophon announced that Mr. Ouk Vibol, the national focal point for Cambodia, and Mr. Joeren S. Yleana, the national focal point for the Philippines, were elected as chairperson and a vice-chairperson of this meeting, respectively. He welcomed Mr. Ouk Vibol to lead the meeting.

7) Mr. Ouk Vibol, the chairperson, thanked the meeting for believing in him to lead the 7th PSC Ad-hoc meeting. He informed the meeting that Mr. Joeren S. Yleana, the vice-chairperson, would lead agendas 4.3 and 4.4, and the rest would be led by Mr. Ouk Vibol, the chairperson.

2.2 ORGANIZATION OF THE WORK

8) Mr. Somboon Siriraksophon, the project director, informed the meeting of housekeeping notes. Firstly, meeting documents are available for the meeting to download at the Fisheries Refugia Website. Secondly, this meeting would be conducted virtually. Thus, in case of participants losing

connection, the participants could rejoin the meeting via the given link with support from PCU for admission to the meeting. Thirdly, this meeting was a half-day meeting running from 8 to 11:30 am without a break session. To smooth the meeting, the participants were required to turn off their microphones during the meeting. Also, if participants intended to say something while others were speaking, they could let the meeting know by using the raising hand function via the Zoom application tool. Moreover, he informed that the representatives from SEAFDEC and UNEP were allowed to speak the same as other PSC members. The Project Director would support the meeting as the secretary. Lastly, the first draft of this meeting report was planned to be circulated within one week after the meeting for feedback from participating countries and later adoption by the project steering committee.

2.3 INTRODUCTION AND ADOPTION OF THE MEETING AGENDA

9) Mr. Somboon Siriraksophon introduced the meeting agenda to the participants. Then, the chairperson requested the committee to review the agenda for consideration and adoption. With no further comments, the committee agreed and adopted the agenda as **Annex 2** of this report.

3. ACHIEVEMENT AS OF 31 MARCH 2022

10) Mrs. Praulai Nootmorn, the chairperson of the 5th RSTC meeting, presented the achievement of the project as of 31 March 2022. She stated that in the South China Sea and Gulf of Thailand areas, the indication of the habitat and biodiversity conservation in the fishery management and practice has been improved through the efforts of the concerned community and governments. This approach is possible under this project with funding support from GEF. This project is implemented by the UNEP with the main focus on the establishment of the regional system of the Fisheries Management Area such as Fisheries Refugia in the South China Sea and Gulf of Thailand. The project is executed by SEAFDEC in partnership with the fishery agencies of participating countries in the South China Sea and the Gulf of Thailand. The duration of the project was initially planned for 48 months from January 2017 to December 2020. However, it was extended to the end of December 2022. The completion of the implementation of the project activities has been delayed due to the Covid 19 pandemic from January 2022 to March 2022.

11) She highlighted the achievements of the project implementations as of 31 March 2022 that even though the project activities have been delayed due to Covid 19 pandemic for two (2) years, in March 2022, the communication of the Fisheries Refugia Sites of the participating countries have been working forward to achieve to the indication of the habitat and biodiversity conservation into the fishery management and practice of the identified aquatic species that the respective governments have been identified economically significant. The effective management of critical threats to 12 of the 14 Fisheries Refugia Site of about 660,236 ha is expected to be adopted by 2022. Accordingly, 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 also 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 Mitre squid at Bangka Belitung, which is underway to identify the fisheries refugia boundaries.

12) Regarding the reform of the Fisheries Refugia management, she stated that in order to strengthen the enabling environment for the formal designation and operational management

of refugia in the riparian countries of the South China Sea area, review of the relevant laws and regulations of the participating countries was carried out to harmonize and understand the legal terminologies describing fisheries refugia; formal procedures for demarcating boundaries of spatial management areas such as refugia were developed while the requirements for assessing the socio-economic impacts of the management measures were identified, and the provisions for decentralizing refugia management to the community level were established via the development of co-management and rights-based approaches. Results of such efforts had been used as inputs in drafting the required amendments to the countries' policies and regulations for adoption by competent authorities. In terms of legislative reforms and development of the fisheries management plans, Cambodia and Thailand have completed their support toward the establishment and operation of a refugia system. In this regard, Cambodia issued the Proclamation of Fisheries Refugia in Kep Province and the Proclamation of Fisheries Refugia in Koh Kong Province. In addition, Cambodia has also developed its Strategic Plan for Fisheries Conservation Management (2020-2029) and Five-Year Action Plan in Kep (2019-2023). As for Thailand, the country has developed its Fisheries Law, the Fisheries Management Plan for Fisheries Refugia in Thailand, and also issued the Notification Order for Fisheries Refugia for Blue Swimming in Surat Thani, Thailand. For Indonesia, Philippines, Malaysia, and Viet Nam, the development of their respective fisheries legislation and management plans is underway.

13) She presented the flowchart about the regional guideline on indicators for the sustainable management of the Fishery Refugia. She pointed out how the Fisheries Refugia approach supports the fishery's sustainable development. Nevertheless, what kinds of information and indicators the countries would need to guide themselves toward sustainable development in the context of the fisheries refugia approach. For this reason, to meet the target objective, six countries responsible for fisheries worked together at a brainstorming session moderated by Project Director in September 2019 and come up with the structural framework for sustainable management of fisheries refugia. Later, the PCU further developed the full paper of the Regional Guideline on Indicators for Sustainable Management of Fisheries Refugia. This final draft will be mentioned again in agenda 4.2.

14) She updated the committee on the overall expenditure as of 31 March 2022 that the Cumulative expenditures since the project started until Quarter 1 of 2022 is 1.976 million USD. The balance as of 31 March 2022 is about 1.024 million USD. She pointed out that the remaining budget is about one-third of the overall budget approved by GEF, and the project has only nine months to complete. In addition, the progress in percent by activities as of 31 March 2022 shows that components 1, 2, 3, and 4 have been completed 67, 62,69, and 73 percent, respectively.

15) She compared the Co-financing both in kind and in cash of the partners consisting of participating countries and SEAFDEC to GEF Co-finance requirement. Finally, she welcomed the comments and suggestions from the committee to enhance the project objectives and target goals. The working paper and presentation are enclosed in **Annex 3** of this report.

16) Mr. Ouk Vibol added two points to the report. Firstly, it would be better if Cambodia could provide the full size (11,307 ha) of the marine fisheries management area for the Refugia site in Kep even though the refugia area with 417ha targeted Blue Swimming Crab. This is because the rest of the area is also for anchovy, as Cambodia has prohibited the use of trawling for anchovy in the area. Secondly, there is another achievement of provision and inclusion of the Fisheries Law. Currently, the revised fishery law is now at the Council Ministers, and it will soon be sent to the National Assembly for adoption. For insight, some chapters related to penalties for illegal activities within the Fisheries Refugia area.

17) Mr. Somboon Siriraksophon supported the inclusion of this updated information in the report and will discuss it further with Mr. Leng Sy Vann, the National Scientific and Technical Focal Point

for Cambodia. Accordingly, Mr. Leng Sy Vann provided the provisions related to fisheries refugia inclusion in the Draft New Fisheries Laws as follows:

- Articles 15 and 16: Stated the type of Fisheries Management with the inclusion of Fisheries Refugia (FR)
- Article 17: Stated about Legal type to support the establishment of FR
- Article 20: Stated Where FR shall be established
- Article 24: Stated about Restriction of fishing activities within FR
- Article 126: Stated about Penalty (250$ - 2500$); in some cases, the amount is double.

18) Ms. Astri Suryandari, the National Scientific and Technical Focal Point for Indonesia, informed the meeting about the updated Refugia Areas in the West Kalimantan. Indonesia has extended the area in the West Kalimantan from 275,400 hectares (as stated in RSTC meeting in March) to 414,807 ha. Also, the area has been finalized after the RSTC meeting in March and the updated information will be included in the report submitted to PCU.

19) Mr. Bohari bin Haji Leng, the Alternate National Focal Point for Malaysia, provided some information about the progress on two Refugia sites in Malaysia. The sites were defined from site-based information and national expert. The sites include 1) Spiny Lobster *Refugia* in Java covers above 140,000 ha, 2) Tiger prawn covers above 85,200 ha through a series of socio-economic services and consultation among the stakeholders starting from 2017, 88% of officers from eight towns in Johor State, and 69% of fishers from two towns in Miri Sarawak support Spiny Lobsters, Refugia and Tiger Prawn effectively. However, the Department of Fisheries Malaysia (DOF/Malaysia) finally consulted and received the acceptance for the Proposed *Refugia* Boundary and management plan in both sites by the end of December 2021. DOF/Malaysia is in the process of evaluating and identifying management measures based on the scientific findings. As for the initial proposal, DOF/Malaysia has suggested a close season for Spiny Lobsters from July to September, while for Tiger Prawn from August to September. During the consultation conducted in 2021, fishermen agreed on the proposed close season. As for final action to test Fisheries Refugia Approaches, Malaysia also has implemented a close season at two sites starting in the year 2021. That was the latest progress for the two sites in Malaysia.

20) Mr. Joeren S. Yleana, National Focal Point for the Philippines, updated the meeting that the Fisheries Legislation and the management plans are in the process and will be finishing it soon. He mentioned that as the meeting is known, the Philippines is currently in the transition period. The good news is that the local management board will be still headed by the incumbent leaders on the ground. The Philippines may not have problems starting again. Furthermore, he highlighted that the guidelines for the Fisheries Refugia have been adopted during the preparations of specific management plans. Particularly, one example is the preparation for a management plan on octopus commodity with the concepts of Fisheries Refugia has cooperated in the management plans. Also, the Philippines is very optimistic that the Philippines is now finalizing some of the deliverables of the project. Also, the Philippines is now managing waters in a framework of Fish Management Areas. As well as the Philippines divided waters and is already managed by management boards. Hence, the Philippines currently has 12 management areas managed locally by multisectoral groups headed by regional offices and these three *Refugia* sites are now considered south Fisheries Management Areas of this greater FMA.

21) Mrs. Praulai Nootmorn, National Focal Point for Thailand, shared her experience with the internal meeting with the local committee in Thailand. The committees were happy with the project, and they requested to expand the Fisheries Refugia to other areas. However, in her opinion, it would not be possible for Thailand because the project will be finished very soon. However, the

committees were happy about the progress of the work. Moreover, in Trat, the regulation has been processed by the Ministry of Agriculture and Cooperatives, and it is expected that the Provincial's Notification for Indo-Pacific Mackerel in Trat province will be approved by the Ministry in early June 2022. Then, the refugia team will proceed following steps for the refugia management. Additionally, in Surat Thani, there will be a workshop to deploy the buoy around the refugia boundary with the support from SEAFDEC for drone filming.

22) Mr. Nguyen Thanh Binh, Former National Focal Point for Viet Nam, added that Viet Nam has identified three (3) Fisheries Refugia Sites among 73 areas of the Fisheries Resource Protection Areas. These areas will be included in the Master plan Protection and Exploitation of fisheries resources for the period 2021-2030, vision to 2050. The target species for protection at three project sites consist of 1) Shrimp and Seahorse around the Bach Long Vi Island (Quang Ninh); 2) Seahorses (three species of seahorses) along the coastal of Phan Rang Bay and around Hon Cau Island (Binh Thuan), and 3) Seahorses (two species of seahorses), Blue Swimming Crab nearby Phu Quoc Island (Kien Giang). Accordingly, the project is needed to prepare Fisheries Management Plans for those three pilot sites. Moreover, he emphasized that it is very important for D-Fish as a Central Fishery Administration to instruct the local level to manage the project sites and assess the management efficiency.

23) Mr. Worawit Wanchana sought clarification on the statement made by Viet Nam whether the activities are considered activities under the Fisheries Refugia project, or they are the parallel national program and activities of Viet Nam; whether, for the sake of the record on the achievement of the project implementation as far as executing agency, SEAFDEC is overseeing the actual and the overall implementation of each participating country.

24) Mr. Le Tran Nguyen Hung, the new National Focal Point for Viet Nam mentioned that this year Viet Nam would like to learn some experience from other participating countries. Due to the Covid 19 situation, Viet Nam has difficulty implementing this project.

25) To answer the question from SEAFDEC, Mr. Nguyen Thanh Binh confirmed that Viet Nam has not yet spent any money from the project funding. This is because currently, Viet Num uses its own budget not only from the National Assessment Program in Vietnamese water but also uses the budget from establishing the Masterplan for Fisheries Development in Viet Nam. Viet Nam used those budgets to do it to survey and consult to identify the list of Fisheries Refugia sites in the master plan. Moreover, after the last RSTC meeting, based on the results, D-Fish also cooperated with PCU to update the future plan for the project implementation in Viet Nam. Also, the official letter about the request for supporting documents has been sent to SEAFDEC so that D-Fish can have the justifications to make the proposal to the Ministry for approval before any further actions.

26) Ms. Isabelle Vanderbeck thanked the countries for the presentation and the status of the achievements. She mentioned that It is always so nice to hear that things are moving on quite well, even if a bit slower in some countries. But ultimately, it will all work out. The project does have a big milestone report coming up soon, which is the Project Implementation Review report (PIR). Moreover, she suggested it would be nice to present all of the achievements and the results in that report. That is the only annual report which goes to the GEF Secretariat. Also, Mr. Somboon Siriraksophon has shared already the nice map that Mrs. Praulai Nootmorn presented to the meeting with the coverage of the hectare Fisheries Refugia. That was very well received. She was sure that if the project can add more detailed information to the reports, the Secretariat of the GEF would love to hear about the project. Also, the project is preparing a Newsletter Special Edition of the newsletter for World Ocean Day in June. Therefore, she encouraged the project and the lead of the PCU and Mr. Somboon Siriraksophon to Write Stories to share the good news and the great achievement of this project so far. He mentioned that Mr. Somboon Siriraksophon has been a great champion of the project on the project's behalf, and he writes

often stories. In her opinion, with such a high level of achievement, the project should write more detailed stories about each of the countries themselves, and maybe everyone can champion a story about their own experience in their respective countries.

27) Mr. Somboon Siriraksophon thanked countries for updating information on this program, thanked SEAFDEC for the question on the corporation of the Viet Nam activities, and to Madam Isabelle for guiding and encouraging about promoting articles and the newsletter submitted to the IW: Learn to promote our activity. He mentioned that in June, there is world ocean day, which the newsletter will be published by GEF. In this regard, he has already submitted the achievement of the project's activities to the IW Learn. Moreover, he informed all participating countries that many countries might not be aware of the replication and also scale-up of the activity, which is one of the project outputs. Many countries that he observed, have done quite well on the replication and scale up the project activities. However, the country does not often say it in the Refugia forum. For example, in Thailand, they have many replications and scale-up on the establishment of Fisheries Refugia for the protection of the spawning and nursery ground in the Gulf of Thailand or even in the Andaman Sea. This is very important that Thailand can show their efforts not only to achieve the project implementation but also to share the country's replication and scaleup. In Cambodia, they have a list of the activities such as the established Blood Cockle fisheries refugia in Sihanoukville province and the protection of the Anchovy Fisheries Management Area. Thus, these are all excellent achievements regarding the project's replication and scale-up. For the Philippines, he understood that each site has more than one target species fisheries refugia to be established. Therefore, he believed that the Philippines can also submit other refugia areas based on identified target species at each pilot site. At the final of the project, there will be more than 14 Refugia sites established. The confirmation of the total number of refugia sites will be further discussed when having a face-to-face RSTC6 meeting in the first week of July 2022. He believed that countries would mention very clearly how the application and scale-up of the area to the PCU so that we can keep this in a good record. Also, Mr. Somboon Siriraksophon encouraged Thailand. Actually, Thailand initiated implementing the fisheries refugia approach almost 15 years already after the first phase of the SCS project ended. Thus, he believed that Thailand does not depend on the GEF budget only. Countries can use their own budget if this is a good management approach. He strongly supports Thailand in moving forward further if some areas would like to have a Refugia established. He suggested that it would be better to work closely within the Department of Fisheries.

4. DECISIONS ON THE PROGRAM, POLICY, AND FINANCE

4.1. RESULTS OF MID-TERM REVIEW

28) Mr. Somboon Siriraksophon was invited to present this agenda on behalf of the Mid-Term Review (MTR) evaluator. Mr. Somboon Siriraksophon informed the meeting that the Midterm Review was taken by Mr. Peter Whalley from November 2021 to February 2022. Also, the Mid-term review report (as **Annex 4**) indicates the UN project ratings according to the criterion, including a six-point scale and sustainability criteria. The six-point scale consisted of Highly Satisfactory (HS); Satisfactory (S); Moderately Satisfactory (MS); Moderately Unsatisfactory (MU); Unsatisfactory (U); Highly Unsatisfactory (HU). In addition, the sustainability criteria are rated from Highly Likely down to Highly Unlikely, including Highly Likely (HL), Likely (L), Unlikely (U), and Highly Unlikely (HU). As a result of the mid-term review, the project was rated as Moderately Satisfactory (MS) overall.

29) The MTR acknowledged the achievement to date and a significant program to compete within 2022 and rated the output delivery as Moderately Satisfactory. The project builds directly on the success of the strategic action program. This is highly relevant to the region's countries and the strategy of UNEP. Thus, relevance was rated as Highly Satisfactory. The project has been Effective

in establishing 12 refugia sites and undertaking multiple workshops, capacity development, and awareness-raising activities. Consequently, MTR was rated as Satisfactory. Moreover, The Efficiency of project execution is rated as Moderately Satisfactory due to the delays. The overall Sustainability of the project's activities is considered to be Likely.

30) He also presented the recommendations one by one made during the midterm review. The first recommendation is for Project Co-ordination Unit/Executing Agency. Project Coordination Unit/Executing Agency should seek an additional project extension to complete the remaining work and utilize the budget to deliver expected activities, especially for the countries that have achieved 50% or less from the expected outputs. The Mid-Term Review considers that a further one-year extension would enable the project to focus on the countries that have achieved less progress.

31) The second recommendation is also for Project Co-ordination Unit/Executing Agency. Irrespective of Recommendation #1 being accepted, the Project Coordination Unit should revise the workplan and Results Framework as soon as possible to ensure that these reflect the current situation and budgets to deliver all remaining expected activities and outputs to be achieved. There is an opportunity at the Mid-Term Review to present realistic deliverables that reflect the 10% reduction of unspent budgets that might have an impact on what can be achieved by the pilots at the national/local level. The Project Co-ordination Unit should also prepare a clear statement of the significant project component changes with justifications and an assessment of the impacts on the intended ambition of the project. This is referred to the Endorsed CEO Document. This second recommendation focuses on the expenditure as of September 2021 compared to CEO GEF Approval Budget.

32) Mr. Somboon Siriraksophon informed the meeting of two issues from the MTR Recommendation#2: 1) revision of the workplan and the resulting framework, particularly the project Component 4, because the MTR found overspent of component 4 against the CEO approval, 2) Reduction of 10% might have an impact on what can be achieved at country level. Accordingly, Mr. Somboon Siriraksophon provided feedback as follows:

i. Regarding the overspent-on Component 4 against the CEO's approval. The total allocated budget for national and regional activities for component 1 and component 4 is USD 754,900 and USD 1,199,500, while the CEO Approval is USD 1,304,900 and USD 649,500, respectively. UNEP Task Manager, with the project director and MTR evaluator, discussed this matter, recalling some expenditures from Component 4 to record in Component 1. The amount of USD 550,000 from the overall costed workplan under Component 4 must be recorded under Component 1, such as BL 1200 (consultant fee), BL 1600 (traveling cost for consultant), and BL 3300 (Regional meeting cost). Hence, this designed budget for the project implementation is clearly mentioned in the Project Documents, especially the Appendix-1-2-linked-budget. However, the PCU recognized the intention of the planned budgets resulting in all actual expenditures from Component 4 being higher than the CEO's approval. In conclusion, national and regional activities followed the costed workplan approved by GEF/CEO. There is not necessary to revise the workplan and result framework.

ii. With regards to the 10% reduction as of 31 December 2019 due to support two-year extension for 2021 and 2022 adopted by the project steering committee, the PCU proposed that all participating countries request an extra budget from the Viet Nam's unspent during the PSC6 Ad-hoc Meeting. The committee adopted additional funding of USD 20,000 and USD 3,000 to Cambodia and Thailand, respectively, to reduce the impact on what the country can achieve.

iii. Moreover, The PCU feedback to the MTR Recommendation #2 should be recorded in the PSC7 Ad-hoc Meeting Report for further analysis or as a reference to the Terminal Evaluation.

33) The MTR Recommendation #3 is direct to the PCU in the College and analyzes disaggregated sex data of participants involved in project activities. According to this recommendation, PCU is underway to analyze the disaggregated sex data at the RSTC6 meeting.

34) The MTR Recommendation #4 is for the PCU on the development of a clear Exit Strategy for the regional and national sustainability and replication of the activities. The project has collected a wealth of experiences and information from the pilot sites and regional activities, many of which are presented on the website(s) and at various IW: LEARN and other organizations' events. The Mid-Term Review recommends that the project managers of this project and the South China Sea Strategic Action Programme implementation project brainstorm shared approaches to address their project needs. Accordingly, the PCU will be further discussed with the SCSSAP project.

35) The MTR Recommendation #5 is for the PCU. Preparation of GEF IW: LEARN Experience Notes. Considering, that the project has a number of key aspects that would merit sharing through this mechanism including stakeholder involvement in pilot locations (design, implementation, and management), lessons from gaining acceptance of the fisheries refugia concept, coastal ecosystem management, etc.

36) Lastly, the MTR Recommendation #6 for UNEP and executing agency is to ensure that regional and national staff (and any replacement staff) engaged in financial management are briefed on the requirements of the Implementing Agency (IA) and the Executing Agency (EA) at the start of the project. Stakeholders and the UNEP Fund Management Officer identified that staff and consultants were not sufficiently familiar with the requirements of financial reporting. The Fund Management Officer suggested that a training session is provided at project inception meetings to act as an induction course on the approaches for complying with UNEP financial reporting and the expectation of the GEF as the donor.

37) The committee was requested to consider the findings and six (6) recommendations of the Mid-term Review while providing their views on the findings, lessons learned, and recommendations from the MTR evaluator. Also, Committee was requested to respond to Recommendation #1, considers a further one-year extension; the committee and the relevant agency may provide their views on this recommendation. Refers to Recommendation #2, the Committee was requested to understand the original project design, mainly recording expenditures reports under the project Component 1 and Component 4, which are aligned with the Budget Endorsement by the CEO. Lastly, Committee was invited to acknowledge the MTR Report as it is and include a note of some feedback to the recommendations for further reference.

38) Mr. Worawit Wanchana sought clarifications on two (2) points. The first point is where does the figure of the overall budget allocation (Approved Cost Work Plan in Prodoc) come from? Secondly, when did the project notice this issue?

39) Mr. Somboon Siriraksophon explained that the overall budget allocation mentioned here appeared in the Appendices appended to the Project Document. Referring to the first PSC meeting, the costed work plan and total budget allocation were shared with all participating countries for reference and guidance. Thus, countries would have the information on their hands as the information contains how much funds that countries would receive in each component. Nevertheless, the PCU did not move some expenditures from Component 4 to Component 1. The results show overspent expenditures in Component 4 compared to the CEO's Budget Approval. This matter was solved at the internal meeting between the UNEP Task Manager and MTR evaluator on 17 March 2022 after the MTR report had been submitted to SEAFDEC.

40) Mr. Worawit Wanchana thanked Mr. Somboon Siriraksophon for the clarification. Furthermore, he drew the meeting's attention to the large gap between the figures from GEF/CEO approval budget and the overall budget allocation. Thus, he suggested checking the record and evidence

of the existence of the document of the overall budget allocation in the first PSC meeting to avoid any problems at the end of the project.

41) Mr. Somboon Siriraksophon clarified the discussion on Recommendation#2 with the MTR evaluator after the evaluator had submitted the final MTR report to SEAFDEC. Accordingly, the evaluator wants to maintain the texts without changing the report's recommendation. However, the evaluator suggested the project director explain the findings on the budget recording from Component 4 to Component 1 for consideration and approval by the PSC7 Ad-hoc to reference the terminal evaluation.

42) Mr. Worawit Wanchana mentioned that it is very important to get appropriate feedback from the evaluator and those relevant agencies in terms of implementing a project activity. Thus, he requested the PCU to have a meeting soon in order to get the feedback appropriately on this matter.

43) Ms. Isabelle Vanderbeck emphasized the point that Mr. Somboon Siriraksophon has made. Basically, Mr. Peter Whalley misinterpreted the budget at design. He misunderstood it and concluded wrongly. Ms. Isabelle Vanderbeck and Mr. Somboon Siriraksophon had a tripod conversation with Mr. Peter Whalley. She mentioned that his assessment was actually not adequate. This is because he was analyzing the budget with today's GEF rules although this project has been designed many months ago and does not follow the same budget presentation. After this was made clear to him, he accepted that this was the wrong understanding and the wrong conclusion. But as Mr. Somboon Siriraksophon said, sadly, he had already handed out these reports and did not feel like changing them. Thus, that is why it was important to flag this to the PSC so that the committee has clarification on the matter and that the committee can approve such statements, so to speak, as Mr. Somboon Siriraksophon presented to the meeting so that it stays for the record and when the terminal evaluation kicks in, they do not come up with the same analysis, which obviously is not right.

44) Mr. Worawit Wanchana referred to the qualifications made by Ms. Isabelle Vanderbeck. He believed that the project needs a kind of official confirmation from the MTR evaluator that he accepted that this was the wrong understanding and the wrong conclusion/misunderstood this matter. Otherwise, the project may have a problem when having a final evaluation just to get official communication from the MTR evaluator. Otherwise, as mentioned, he did not want to change or revise the report. We have to have something in order to make sure what he said that he misunderstood when he evaluated this one. Another point is that whenever he requested the PCU's PD and UNEP Task Manager in the future if there is any concern about SEAFDEC. Mr. Worawit Wanchana requested to consider seriously involving SEAFDEC staff in the loop of discussion.

45) Ms. Isabelle Vanderbeck mentioned that as the contract for the MTR evaluator was issued by SEAFDEC, not UNEP, SEAFDEC has the right to ask and to go back to the evaluator. Also, she did believe that SEAFDEC was invited to the call with the evaluator. Unfortunately, no one from SEAFDEC was able to meet for the call. She thought it is up to SEAFDEC to follow up with the evaluator personally as UNEP does not have this authority to do so.

46) Mr. Somboon Siriraksophon mentioned that it is not often to get the endorsement or adoption from the meeting. However, this is also very important. So, if the committee agrees in principle that they adopt. However, the PCU may have to consult with the executing agency on how to make feedback appropriately so that the project can put that feedback and reflection in the report and send it to countries for consideration. This may be one thing that the project can do to move ahead.

47) Mr. Worawit Wanchana, on behalf of executing agency, was not accepting the report of the MTR because the MTR report is misleading the budget recording under component 4 as mentioned by

the project director and the conclusion made on the slide. In his opinion, SEAFDEC should check that. Thus, SEAFDEC would not accept the report of the MTR if they are not recorded as misreporting by the MTR evaluator as SEAFDEC found under this agenda.

48) Ms. Isabelle Vanderbeck referred to the Project Steering Committee's Term of References. It mentioned that: "the Committee shall operate and take decisions on the basis of consensus, regarding any matter relating to project execution that has regional significance. Where full consensus cannot be achieved in reaching an agreement during a full meeting of the Committee, on any matter relating to project execution that has regional significance, the Secretariat shall, in consultation with the Chairperson, facilitate negotiations during the subsequent inter-sessional period with a view to seeking resolution, and will report the results of these negotiations to the Committee members". Due to this, she suggested that perhaps this can be held back from making a decision until the PCU facilitates resolution.

49) Mr. Worawit Wanchana suggested on behalf of the SEAFDEC which recruits an evaluator for MTR, that it is difficult to let it go that way as the amount budget is not that low. Also, executing agency has implemented or executing the project activities under the program and project document as agreed and sign under this agreement of the project.

50) Ms. Isabelle Vanderbeck suggested to move on with accepting the MTR recommendations. The debate was to accept or not the fact that as presented by Mr. Somboon Siriraksophon, there is a discrepancy between what the evaluator stated and the realities, the actual realities. That is the point that SEAFDEC is not in agreement with. However, it does not mean that this group cannot accept the MTR report. Also, the issue of the discrepancies between the reality and the statement of the evaluator, maybe the report of this meeting can state that follow up with the evaluator himself will be done and facilitated through SEAFDEC so that the project can have an official record of this discrepancy. This is because she does believe that Mr. Worawit Wanchana has a point. Thus, it is important to have that in writing as the project moves on with the closure of this project. Then, when the project was faced again with the terminal evaluation. Moreover, she could show the meeting basically the new rules of the GF require that separate monitoring and evaluation and project management cost. In the past project were not to do this. Hence, there are different representations of the budget in the Excel workbook, and the evaluator misinterpreted one of the tabs which were summarizing the component resources with monitoring and evaluation resources.

51) Ms. Isabelle Vanderbeck clarified the budget issue by referring to the excel worksheet of Appendix 1-2 on Linked Budget attached to the Project Document. She showed the discrepancy between the two (2) worksheets in Appendix 1-2: the worksheet 1 for "overall cost outlines for each activity per project component" in which Component 1 and Component 4 has about 1.455, and 0.499 million USD, respectively. Another worksheet-2 for "Reconciliation between GEF activity-based budget and UNEP Budget by Expenditure Code", in which Component 1 and Component 4 have 0.754 and 1.199 million USD, respectively. The comparison between the two (2) worksheets, the discrepancy is the balance of the Project Management Cost (PMC), and Monitoring and Evaluation (M/E) costs cooperated in Component 1 of worksheet 1. She mentioned that the evaluator, Mr. Peter Whalley, did not fully comprehend and just thought that basically the project had reduced the budget of component one, but the project had not reduced the ambitions of component 1. Therefore, that was a important issue that he needed to flag (see enclosed Worksheet 1 and 2).

52) Mr. Worawit Wanchana requested Ms. Isabelle Vanderbeck to share the project cycle policy through the chat box.

53) After deliberation, the PSC members took note of the Mid-term Report recommendations and requested the PCU and SEAFDEC Secretariat to request the MTR evaluator regarding his recommendation #2 about the budget discrepancies with Components 1 and 4. The PSC members

also took note of the rejection of MTR Recommendation #2 on the revision of the workplan and the resulting framework. In addition, the PSC members also accepted that the Reduction of 10%, and in the case country, has an impact on achieving the country's progress; they still could ask for additional budget from the remaining Viet Nam's unspent to support project activity performing at the country level.

54) In response to para 53, the internal meeting via Zoom between the MTR evaluator, the Project Task Manager, and Project Director was held on 17 March 2022 to discuss the MTR Recommendation #2. The evaluator suggests including any response to the MTR Recommendations in annex 9 of the MTR report. Accordingly, the PCU added notifications to MTR Report's annex 9, as shown in **Annex 5** of this report.

55) At the end, the PSC members acknowledged the MTR Report with the amendment of annex 9 of the MTR report.

4.2. PROPOSED ACTIVITIES UNDER THE UNSPENT BUDGET FROM VIET NAM

56) Mr. Somboon Siriraksophon presented proposed activities under the unspent budget from Viet Nam. Referring to the results of the Sixth Ad-hoc Meeting of the Project Steering Committee (PSC6 Ad-hoc) held virtually on 30 November 2021, Viet Nam proposed to reduce the budget of USD 142,608.67 from the original budget allocation, which is called later “Unspent” budget. The project steering committee at PSC6 Ad-hoc agreed in principle that the unspent budget could be utilized; however, the PCU proposed to discuss this matter at the Fifth Meeting of the Regional Scientific and Technical Committee (RSTC5), which was conducted during 16-17 March 2022. In the conclusion of the RSTC5, two national proposals have been endorsed, which need to be addressed at this meeting for consideration and approval. One of the proposals was proposed by Cambodia to support the operation of Blood Cockle Refugia in Sihanouk Province and the enhancement of the stock of Blue Swimming Crab in Kep Province. Due to this, Cambodia requested USD 20,000 with clear identification of the component and activity, including Activity 1.3.2, 1.4.1, 1.4.3, and 1.4.4. Another proposal from Thailand requests a publication budget of USD 3,000. This is linked to components 1 and 2. Meanwhile, PCU, Cambodia, and Thailand have prepared the budget revision tables for the meeting consideration and approval. According to the tables, the budget of USD 20,000 will be added to Cambodia’s budget, while the budget of USD 3,000 will be added to Thailand’s budget.

57) The Committee was requested to consider and comment on the proposals using the Unspent budget. The Committee is also requested to adopt the proposals as it is or as amended. Accordingly, the PCU prepared the budget revisions for Cambodia and Thailand in advance for consideration and approval by the Committee. The Committee is also requested to adopt the Unspent Balance as of 31 March 2022, as well as guidance to the PCU/EA for managing the remaining unspent budget to benefit the project target goals. The working paper is enclosed as **Annex 6** of this report.

58) The Chairperson summarized the presentation. He found three (3) points. The first point is to consider whether Viet Nam agreed to allow using the unspent budget. The second point is meeting agreed to use the unspent budget from Viet Nam. The third point is to consider the proposals to use the unspent budget for Cambodia and Thailand. Cambodia will use the budget for the blood cockle Refugia, which already has a clear boundary by deploying concrete blocks using the budget from Cambodia’s government. However, Cambodia still needs a budget to prepare the five (5) year management plan for the blood cockle Refugia, which can be included in the project. Then, Cambodia planned to release some crabs into the Fisheries Refugia in Kep province. Also, Thailand proposed to use the unspent budget for publication. As well as, the rest of the unspent budget, PCU will manage.

59) Mrs. Praulai Nootmorn thanked the meeting and added that Thailand will prepare to publish documents and some posters. Also, Thailand will prepare to establish a Knowledge Management Center, which will be helpful to support the Fisheries Refugia project in Thailand.

60) Mr. Nguyen Thanh Binh mentioned that Viet Nam has no objection and agreed with the proposal from both countries and the coordination of the PCU for two activities.

61) Mr. Worawit Wanchana sought clarification if this revision of the budget of the project will be the final. This is because there is no time anymore to revise the further budget. Also, the revision of the budget will be last, and the project needs to prepare the next step to deal with the project budget allocation refund or something like that in the near future.

62) Ms. Isabelle Vanderbeck was wondering to what extent the reprogramming of the savings of Viet Nam would not prevent Viet Nam to deliver on what was expected of them. This is because this was a project conceived for six countries, and the project would not want to have anyone left behind. Also, it would be an unsatisfactory practice to send back money to GEF. Thus, how is Vietnam coping without the resources which will be reprogramming?

63) Mr. Somboon Siriraksophon replied to Mr. Worawit Wanchana's question that this budget revision would be the last as suggested by SEAFDEC.

64) To answer Ms. Isabelle Vanderbeck's question, Mr. Somboon Siriraksophon shared what the PCU has learned from Viet Nam at every PSC meeting, where the national focal points update the progress and the country's situation. The PCU understands that the latest budget revision as of 31 September 2021 is in the process of government approval. In addition, the Fisheries Masterplan included the number of fisheries protected areas, including the three fisheries refugia pilot sites. However, the PCU did not receive updated documents related to this matter. Due to this, Mr. Somboon Siriraksophon will discuss further with D-Fish/Viet Nam to ensure which target outputs will be achieved within the remaining time until the end of 2022.

65) Mr. Worawit Wanchana informed the meeting that SEAFDEC would fully support Viet Nam on managing and implementing the project activity under the budget arrangement from the project. This is because these activities are essential, as SEAFDEC would not leave anyone behind. Regarding this, he sought confirmation from Viet Nam if this is parallel national activities in Viet Nam and the activities that propose to use the budget under this project arrangement if it is clear, the project can work out how to fully utilize the program and activities. The second point is that there are proposals from only two (2) countries from Cambodia and Thailand. However, there is some remaining amount of unspent which the country can utilize or propose activities at the national level. SEAFDEC encouraged the countries to fully and timely consultation with the National Committee to get back to the PCU and SEAFDEC very soon if countries are still thinking that the budget arrangement can be made by the country.

66) Following the comments from Mr. Somboon Siriraksophon and Mr. Worawit Wanchana, Mr. Nguyen Thanh Binh, just had some comments. First, regarding the implementation, Mr. Nguyen Thanh Binh reported to the PSC. Also, National Focal points and PCU noted the Viet Nam situation before. Another thing is that Viet Nam already sent the official letter to SEAFDEC as Viet Nam really needs the official letter from SEAFDEC to propose the plan for 2022 implementation and to get the approval from the Ministry, so that Viet Nam can get the project move on.

67) Mr. Worawit Wanchana requested further clarifications before replying to Viet Nam as it was unclear for SEAFDEC whether national activities using the budget from the national government or other resources. Also, he sought clarification if the outcome that will be recorded under the project.

68) Mr. Nguyen Thanh Binh emphasized that Viet Nam uses the Fisheries Refugia project approach to first make the provisions on the fisheries research protection areas. That is the Fisheries

Refugia in the legislation system. Secondly, Viet Nam also uses this approach plan to include it in the draft master plan for 73 areas in Viet Nam. That is equivalent to the Fisheries Refugia sites in the sea. Along the sea, Viet Nam also has some more in the coastal area. Thus, he mentioned that it is reasonable to get that one into the outcome of the project as Viet Nam uses the idea from the project to make their own.

69) Mr. Worawit Wanchana took note of that. Also, he requested the floor to provide some comments and sought confirmation from Ms. Isabelle Vanderbeck, whether the output outcomes mentioned by Viet Nam were one of the outputs based on project implementation.

70) Ms. Isabelle Vanderbeck mentioned that it is an excellent case whereby the project can demonstrate that the project catalyzed the uptake of the Fisheries Refugia approach in a country without even using much of the GEF resources. Somehow, projects achieve more with fewer resources. The project can showcase this and showcase that just the fact of belonging to a regional project was sufficient for Viet Nam to move ahead with the approach nationally, which is commendable.

71) After deliberation, the chairperson concluded that the meeting adopted the unspent budget requested from Cambodia and Thailand. And, if other countries/partners would like to request for unspent budget and revision of the budget, they can do before finalizing the final budget revision by the end of July 2022. Accordingly, Malaysia and Project Coordination Unit proposed the revision of budgets for approval. The adopted budget revision as of 31 March 2022 is shown in **Annex 7**.

4.3. REGIONAL GUIDELINES ON INDICATORS FOR SUSTAINABLE MANAGEMENT OF FISHERIES REFUGIA

72) Mr. Somboon Siriraksophon introduced the regional guidelines on indicators for sustainable management of fisheries refugia. This is the final draft of the guideline due to the indicators play an essential part in communicating scientific results to the decision-maker. He informed the meeting that the regional guidelines on Indicators are one of the project outputs to guide and support the country's management of fisheries refugia. Taking into account that many countries develop indicators to support effective decision-making and also the policy-setting at every stage of the decision-making cycle, including program identification, policy formulation, information, implementation, and also policy evaluation. The indicators usually are identified based on the target objectives and goals. He, therefore, indicated how the indicators for Fisheries Refugia were developed under the sustainable development concept based on the regional fishery expert consultation in September 2019 organized by the PCU. The content of the regional guideline on the indicators for sustainable management of Fisheries Refugia includes four chapters. The first chapter is an introduction that mentions the critical indicators and the sustainable development concept and Fisheries sustainability, and lastly, the indicators for Fisheries sustainability. The second chapter on the understanding of the concept includes three sessions: first on the nature of fisheries and adaptive management needs, second on the comparison with other ecosystem approaches, and third on the Fisheries Refugia concept. The third chapter consists of indicators for managing Fisheries Refugia, including long-term objectives, developing the framework, and specifying criteria and indicators. The fourth chapter is a glossary that contains the vital terminology explain in this chapter, as well as there, are acknowledgment and references.

73) The Committee was requested to consider the final draft of the Regional Guidelines on Indicators for Sustainable Management of Fisheries Refugia" developed based on the Expert Consultation held in September 2019 by the PCU. The Committee was invited to suggest/comment on the final draft and to adopt the Guidelines as it is or as an amendment. The Committee was also requested to advise the way forward to the PCU/executing agency to promote further the guidelines.

74) The Vice-chairperson, Mr. Joeren S. Yleana, commented to PCU for packaging this publication as one of our key outputs of this project. In addition, considering the project proceed to the end, the regional guidelines will guide the country to continue implementing and managing the fishing refugia. Finally, he invited the committee and participants to seek their clarification if any and to provide suggestions and comments for the improvement of this draft guidelines.

75) With no further comments and recommendations, the steering committee adopted these guidelines as it is **as Annex 8 of the report.**

4.4. ANNUAL EXPENDITURES VERSUS AUDIT REPORT

76) Mr. Somboon Siriraksophon presented agenda 4.4 on the annual expenditure versus the result from the audit report. The intention of this is to provide the actual expenditure that came from the audit report to the countries so that the country can understand that the remaining budget in the account should also relate to the audit report. Referring to the expenditure that has been quarterly reported by participating countries to the Project Coordination Unit from quarter one 2017 to quarter 1 2022. PCU found it is necessary to update each country on the actual expenditure which is aligned to the audit report so the comparison between the quarterly expenditure report from the country to PCU and the audit report from each country's audit firm as of 2018, 2019, and 2020 show the difference in the value of the expenditure. This is the reason why the PCU must inform the countries about actual expenditure based on the audit report during the past years and the country's balance budget as of 31 December 2020. The presentation did not include the expenditure for 2021 because it is still in the process of auditing this financial statement. The PCU showed only four countries, excluding Viet Nam and Thailand. This is because Viet Nam does not have expenditure yet, and SEAFDEC/TD works closely with Thailand as the fund was transferred in Thai Bath.

77) In the case of Cambodia, PCU found a variance of USD 10.32 in the year 2020 expenditure report submitted to the PCU when comparing the audit report. This can be referred to **Annex 9 of the report**. For Indonesia, PCU found that the variance between the expenditure report submitted to PCU and the audit report for 2020 was USD 0.01. Although it is a small amount, it still needs to be adjusted. Also, there was a bank interest of USD 12.15. Accordingly, the balanced budget will be increased by USD 12.16. For Malaysia, the actual expenditure in the audit report for 2019 was USD 1,523.40, less than the expenditure report submitted to PCU. In contrast, in 2020, the balance was USD 965.90, higher than the expenditure report submitted to PCU. Thus, the variance of two years is USD 557.50 over the actual payment as of 31 December 2020. Similarly, Philippines' expenditures also showed that the overall 2 years expenditure report submitted to PCU was USD 465.20, which is higher than the actual payment as of 31 December 2020. This is very important that the countries must be aware and consider the actual expenditures from the Audit report. Then countries can know exactly the balanced budget by the end of the project.

78) The committee was requested to consider variances between the expenditures reported to PCU and the actual expenditures audited by the Firm from 2018 to 2020. The committee might seek clarification from the PCU on the variance. At the same time, the Committee was also requested to adopt the proposed variances for further adjustment of the annual expenditures recorded by the concerned countries. Noting that the actual expenditures are related to the balanced budget of each participating country as of 31 December 2020.

79) Mr. Leng Sy Vann explained that Cambodia has a project accountant to prepare all the expenditures based on the project cost plan. The accountant works closely with the audit firm for finalizing the financial statement report for Cambodia.

80) Mr. Somboon Siriraksophon thanked Mr. Leng Sy Vann for the internal process of supporting the financial audit. He further informed the meeting that the intention of this report is to note and accept the findings of the actual expenditures in the audit report.

81) Mr. Bohari bin Haji Leng, the Alternated Project Steering Committee from Malaysia, accepted and noted the report.

82) Ms. Astri Suryandari from Indonesia accepted and took note of the report.

83) Mr. Valerianno M. Borja did not have any clarification with the report of the audit report regarding the expenditure. Also, he accepted and took note of it.

5. OTHER MATTERS

84) Mrs. Praulai Nootmorn informed the meeting that DOF Thailand is planning to conduct the training program at Refugia Sites for implementation and management of Fisheries Refugia after the government has approved. She also raised the difficulty of the internal process for producing the Polo-shirt for the promotion of the Refugia Project. She, therefore, requested PCU to design and produce 300 Polo-shirts using the budget from Thailand to facilitate and promote the establishment of fisheries refugia at the sites. Regarding this, she then requested the committee to support Thailand's request.

85) Mr. Ouk Vibol informed the meeting that Cambodia plans to draft a short article related to the establishment of fisheries refugia to celebrate a national fish day on 1 July 2022 under the Prime Minister or Deputy Prime Minister.

86) Mr. Somboon Siriraksophon responded to the committee from Thailand; on behalf of the PCU he does not have any objection to the request to produce the Polo shirts. However, he is concerned that it would be a problem to charge the expenditure to the national activity's budget directly from SEAFDEC if the DOF Thailand does not permit funds for this activity. In such a case, the PCU suggested supporting Thailand's activity by using the PCU budget if the meeting and SEAFDEC support the idea. In addition, the PCU plans to produce Polo-shirt for a regional training course on larval fish identification; it is an opportunity to produce the same designed polo shirt using all partners' logos.

87) The Committee agreed and adopted the suggestion from PCU to use the PCU budget to produce Polo-Shirts for Thailand. On the other hand, SEAFDEC will recheck SEAFDEC's regulations and collaborate with PCU on budget details. However, they noted that the participating countries in the project agreed to make the promotion shirts.

88) Mr. Nguyen Thanh Binh emphasized the urgent need for an official letter from SEAFDEC to move the project forward.

89) Mr. Le Tran Nguyen Hung informed the meeting on behalf D-Fish. He requested if it is possible to extend one year with no extra funds because it is very important this year. Also, he requested a meeting with the PCU.

90) It would not be possible. However, Vietnam can work closely with PCU and SEAFEC for the workplan.

6. DATE AND PLACE OF THE EIGHTH MEETING OF PROJECT STEERING COMMITTEE

91) Mr. Somboon Siriraksophon informed the meeting on the work plan by the end of 2022; the PCU will organize a maximum of three regional meetings such as the RSTC6 meeting in July 2022, the RSTC7 Meeting in October 2022, and the PSC8 meeting in December 2022.

92) Mr. Ouk Vibol, as a committee from Cambodia, recalled to the PSC2 that the Philippines proposed to host the following face-to-face meeting, but due to the COVID-19 pandemic situation, the PCU postponed the PSC meeting in the Philippines. Accordingly, he proposed the Eighth Meeting of the Project Steering Committee in the Philippines.

93) After deliberation, the project steering committee from the Philippines accepted to host the PSC8, while the meeting venue and date in December 2022 will be further discussed with the PCU.

7. CLOSURE OF THE MEETING

94) Mr. Ouk Vibol, the chairperson, stated that we, the chairperson, and vice-chairperson, would like to thank Madam Isabelle Vanderbeck, Mr. Worawit Wanchana, Mr. Somboon Siriraksophon, and all colleagues from countries and SEAFDEC/PCU for supporting us so we could move all agendas smoothly except the agenda 4.2 that we need to work further.

95) Ms. Isabelle Vanderbeck encouraged the countries to keep up the excellent work. It was great to be at the meeting to hear all the success stories, and she looks forward to meeting face to face soon.

96) Mr. Isara Chanrachkij, on behalf of SEAFDEC, thanked all Project steering committee members for their active and constructive participation. SEAFDEC really appreciated all efforts and hardworking that countries have already done since the morning. He mentioned that it is well known that the project helps build secure biodiversity in the region, and it helps to build resilience for those who rely on the Marine Ocean and their food and livelihood. He could not wait to see the outcome that is coming soon. Moreover, he thanked PCU's team and SEAFDEC for preparing this meeting. Lastly, he thanked all participants again for their precious time.

97) With no other concerns raised, the meeting ended at 12:03 pm.

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ANNEX 1: LIST OF PARTICIPANTS

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PHILIPPINES

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THAILAND

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VIET NAM

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ANNEX 2

AGENDA AND TIMETABLE

TIME	DETAILS ACTIVITIES	
08:00-08:20	AGENDA 1: OPENING THE MEETING	
	• WELCOME FROM CHAIRPERSON OF THE PSC6 AD-HOC	PCU
	• GREETING FROM PROJECT TASK MANAGER	UNEP
	• OPENING SPEECH FROM SEAFDEC	SEAFDEC
08:20-08:45	AGENDA 2: ORGANIZATION AND ADOPTION OF THE AGENDA	
	2.1 DESIGNATION OF OFFICES	PCU
	2.2 ORGANIZATION OF WORKS	New Chairperson
	2.3 INTRODUCTION AND ADOPTION OF THE AGENDA	New Chairperson
08:45-09:10	AGENDA 3: ACHIEVEMENTS AS OF 31 MARCH 2022	RSTC5 Chairperson
09:10-10:45	AGENDA 4: DECISIONS ON THE PROGRAM, POLICY, AND FINANCE	
09:10-09:50	4.1 RESULTS OF MID-TERM REVIEW	MTR Consultant
09:50-10:10	4.2 PROPOSED NATIONAL ACTIVITIES UNDER THE UNSPENT BUDGET FROM VIET NAM	PCU
10:10-10:35	4.3 REGIONAL GUIDELINES ON INDICATORS FOR SUSTAINABLE MANAGEMENT OF FISHERIES REFUGIA	PCU
10:35-11:00	4.4 ACTUAL EXPENDITURES VERSUS AUDIT REPORT	PCU
11:00-11:15	AGENDA 5: OTHER MATTER	
11:15-11:20	AGENDA 6: DATE AND PLACE OF THE EIGHT MEETING OF THE PROJECT STEERING COMMITTEE	Chairperson
11:20-11:30	AGENDA 7: CLOSING OF THE MEETING	
	• REMARKS FROM CHAIRPERSON	New Chairperson
	• REMARKS FROM PROJECT TASK MANAGER	UNEP
	• CLOSING SPEECH FROM SEAFDEC	SEAFDEC

ANNEX 3: HIGHLIGHTS OF THE PROJECT'S ACHIEVEMENTS AS OF 31 MARCH 2022

I. INTRODUCTION

In the South China Sea and the Gulf of Thailand areas, the integration of habitat and biodiversity conservation into fishery management and practices has been improved through the efforts of concerned communities and governments. This approach is made possible under the Project "Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and the Gulf of Thailand," which received funding support from the Global Environment Facility (GEF) and was implemented by the United Nations Environment Programme (UNEP). With the main focus of establishing a regional system of fisheries management areas (fisheries refugia) in the South China Sea and the Gulf of Thailand, the project is executed by the Southeast Asian Fisheries Development Center (SEAFDEC) in partnership with the Fisheries Departments of the riparian countries of South China Sea, namely: Cambodia, Indonesia, Malaysia, Philippines, Thailand, and Viet Nam. Initially planned for 48 months from January 2017 until December 2020, the Project duration was extended until December 2022 to complete the implementation of the Project activities that had been delayed due to the COVID-19 pandemic situation from January 2020 to March 2022. This paper highlights the achievements of the project implementations by six participating countries as of 31 March 2022.

II. ESTABLISHMENT OF FISHERIES REFUGIA

Even though the project activities had been delayed due to the COVID-19 pandemic impact for more than two years, nevertheless, as of March 2022, the communities in the fisheries refugia sites of participating countries have been working towards enhancing the integration of habitat and biodiversity conservation into fishery management and practices of the identified aquatic species that the respective governments had identified economically significant. The effective management of critical threats to 12 of 14 fisheries refugia sites of about 660,236 ha is 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 Mitre 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. **Figure 1** maps the fisheries refugia boundaries and location for each target economically important species identified by respective countries. Table 1 summarizes the progress on establishment of Fisheries refugia by six participating countries.

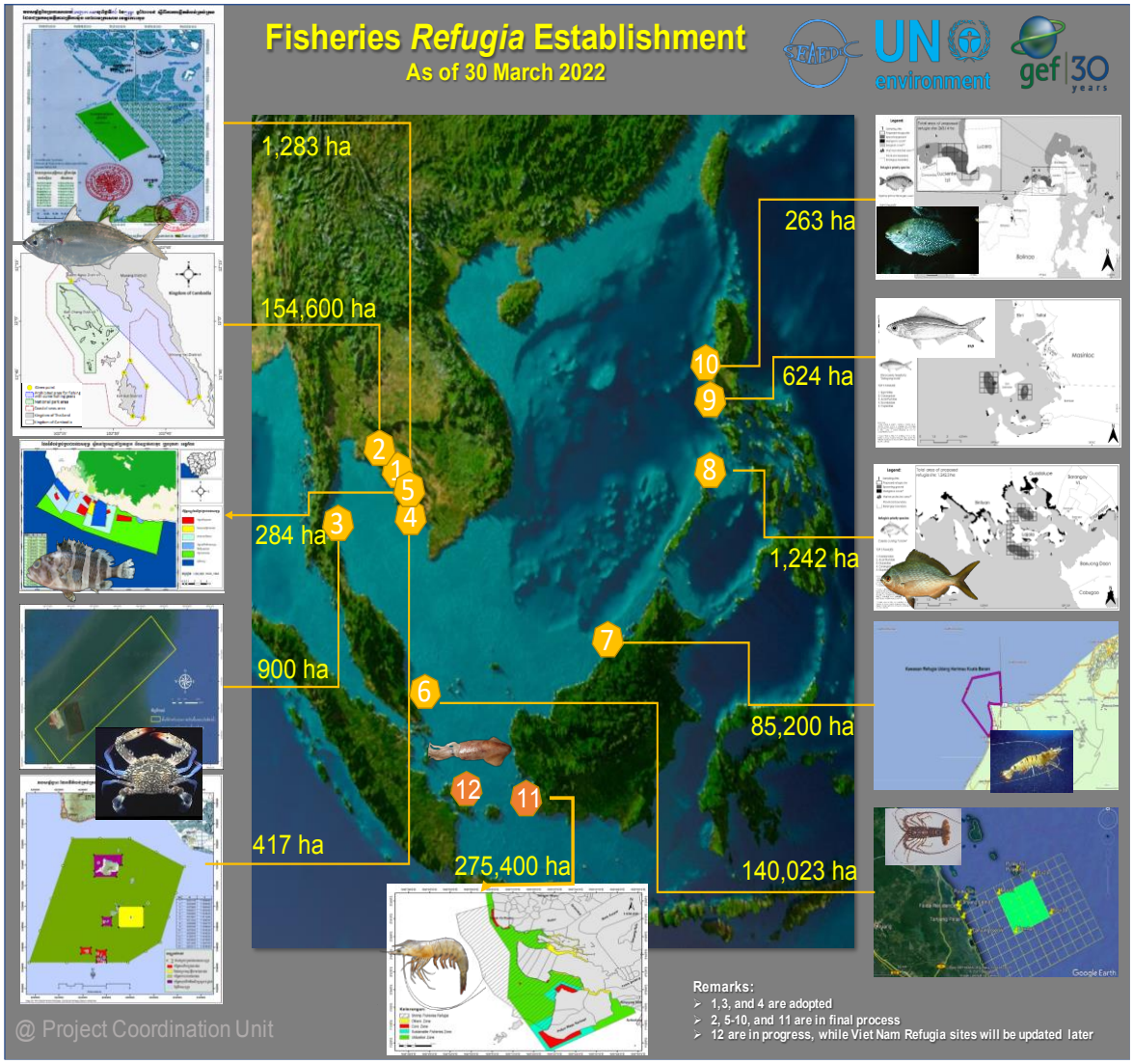

Figure 1: Progress on Establishment of Fisheries Refugia as of 31 March 2022

Table 1. 12 of 14 refugia sites identified by participating countries

	***Refugia* site**	**Target species**	**Area (ha)**	**Status**
1	Koh Po & Koh Tonsay Archipelago, Kep	Blue Swimming Crab	417	Approved
2	Trat	Indo-Pacific Mackerel	154,600	Final process
3	Off Ban Don, Surat Thani	Blue Swimming Crab	900	Approved
4	Peam Krasob, Koh Kong	Indo-Pacific Mackerel	1,283	Approved
5	Prek Thnaot, Kampot	Grouper	284	Final process
6	Tanjung Leman, Johor State	Spiny Lobsters	140,023	Final process
7	MIRI, Sarawak State	Tiger Prawn	85,200	Final process
8	Off Coron Islands, Palawan	Redbelly Yellowtail Fusilier	1,242	Final process
		White-Tipped Scad	underway	
9	Masinloc coastal area, Zambales	One-Stripe Fusilier	624	Final process
		Frigate Tuna	underway	
		Fringe Scale Sardine	underway	
10	Bolinao coastal area, Pangasinan	Siganids	263	Final process
11	West Kalimantan	Indian White Shrimp	275,400	Final process
12	Bangka Belitung (islands)	Mitre Squid	underway	

III. REFORMS FOR FISHERIES REFUGIA MANAGEMENT IN PARTICIPATING COUNTRIES

In order to strengthen the enabling environment for the formal designation and operational management of refugia in the riparian countries of the South China Sea area through the GEF/UNEP/SEAFDEC Project, review of the relevant laws and regulations of the participating countries was carried out to harmonize and understand the legal terminologies describing fisheries refugia; formal procedures for demarcating boundaries of spatial management areas such as refugia were developed while the requirements for assessing the socio-economic impacts of the management measures were identified; and the provisions for decentralizing refugia management to the community level were established via the development of co-management and rights-based approaches. Results of such efforts had been used as inputs in drafting the required amendments of the countries' policies and regulations for adoption by competent authorities.

In terms of legislative reforms and development of the fisheries management plans, Cambodia and Thailand have committed their support toward the establishment and operation of a refugia system (SEAFDEC, 2022). Cambodia had issued the Proclamation of Fisheries Refugia in Kep Province and Proclamation of Fisheries Refugia in Koh Kong Province. In addition, Cambodia had also developed its Strategic Plan for Fisheries Conservation Management (2020-2029) and Five-Year Action Plan in Kep (2019-2023). As for Thailand, the country has developed under its Fisheries Law, the Fisheries Management Plan for Fisheries Refugia in Thailand and also issued the Notification Order for Fisheries Refugia for Blue Swimming in Surat Thani, Thailand. For the Philippines, Malaysia, and Viet Nam, the development of their respective fisheries legislations and management plans is underway, while Indonesia continues to conduct internal discussions for the possible inclusion of Fisheries Refugia in the country's regulations on Marine Protected Areas.

IV. REGIONAL GUIDELINES ON INDICATORS FOR SUSTAINABLE MANAGEMENT OF FISHERIES REFUGIA

Referring to the outputs of the Project's component 3 on strengthening information management and dissemination for enhancing the national uptake of best practices in integrating fisheries management and biodiversity conservation and improving community acceptance of area-based approaches to fisheries and coastal environmental management at the national level. More specifically, Component 3 also focuses on developing indicators to monitor the effectiveness of coastal fisheries management systems established for priority fisheries refugia. During the implementation of the Project, the riparian countries of the South China Sea, as the Project participating countries, had defined the structural frameworks together with criteria and indicators to enhance the effective management of fisheries refugia leading to the development of the Regional Guidelines on Indicators for Sustainable Management of Fisheries Refugia. The structural framework for enhancing the effective, sustainable management of fisheries refugia, which included four dimensions comprising twelve targets, is defined as shown in Figure 2. The 1st draft of this Regional guideline was proposed for consideration by the Fifth Meeting of the Regional Scientific and Technical Committee (RSTC5). The PCU will address the final draft for finalizing and adoption at the Seventh Ad-hoc Meeting of the Project Steering Committee (PSC7 Ad-hoc).

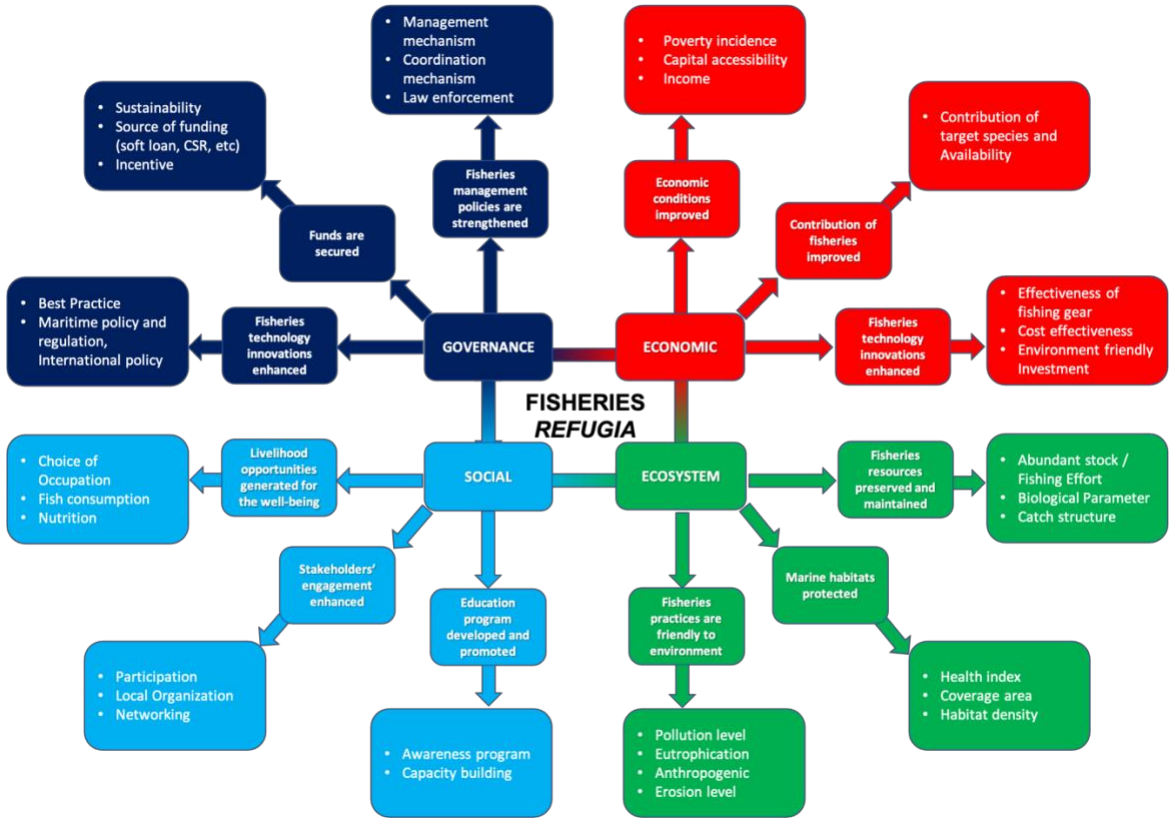

Figure 2: structural framework for sustainable management of fisheries refugia

V. EXPENDITURES AS OF 31 MARCH 2022

Table 2. shows a total of expenditures since project started in 2016 till the present, as of 31 March 2022. The cumulative expenditures is US$ 1,976,537.52. The balance as of 31 March 2022 is US$ 1,023,462.48.

Annex 13 - QUARTERLY EXPENDITURE STATEMENT and UNLIQUIDATED OBLIGATIONS REPORT (US$)*

Project title:	Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand
Project number:	
Project implementing agency/organization:	Southeast Asian Fisheries Development Center (SEAFDEC)
Project implementation period:	From: August. 2016 To: Dec. 2022
Reporting period:	From: 01-Jan-22 To: 31-Mar-22

UNEP Budget Line		UNEP approved budget		Actual expenditures incurred**							
		Total project budget	Current YEAR budget (in 2022)	Cumulative expenditures for current YEAR	Disbursements for current QUARTER	Unliquidated obligations for current QUARTER	Total expenditures for current QUARTER	Total expenditures for current YEAR	Cumulative expenditures for previous YEARS	Total cumulative expenditures to date	Cumulative unspent balance to-date
		A	B	C	D	E	F=D	G=C+F	H	I=G+H	J=A-I
1100	Project personnel	243,101.50	61,734.12		10,048.42		10,048.42	10,048.42	171,318.96	181,367.38	61,734.12
1200	Consultants	1,252,756.95	312,011.69		17,914.93		17,914.93	17,914.93	922,830.33	940,745.26	312,011.69
1300	Administrative support	-	-		-		-	-	-	-	-
1600	Travel on official business	278,545.64	41,140.15		517.60		517.60	517.60	236,887.89	237,405.49	41,140.15
2100	Sub-contracts (UN entities)	-	-		-		-	-	-	-	-
2200	Sub-contracts (supporting organizations)	294,785.36	155,306.54		900.00		900.00	900.00	138,578.82	139,478.82	155,306.54
2300	Sub-contracts (for commercial purposes)	80,888.46	26,013.30		-		-	-	54,875.16	54,875.16	26,013.30
3200	Group training	279,203.79	130,409.66		5,492.17		5,492.17	5,492.17	143,301.96	148,794.13	130,409.66
3300	Meetings/Conferences	374,251.43	193,183.57		3,710.36		3,710.36	3,710.36	177,357.50	181,067.86	193,183.57
4100	Expendable equipment	8,638.50	4,591.04		366.02		366.02	366.02	3,478.68	3,844.70	4,793.80
4200	Non-expendable equipment	43,883.83	-		377.00		377.00	377.00	43,709.59	44,086.59	(202.76)
4300	Premises	18,585.27	4,819.28		-		-	-	13,766.00	13,766.00	4,819.27
5100	Operation and maintenance of equipment	3,332.27	2,270.86		284.68		284.68	284.68	776.73	1,061.41	2,270.86
5200	Reporting costs	34,081.35	22,801.59		1,150.18		1,150.18	1,150.18	10,129.58	11,279.76	22,801.59
5300	Sundry	9,945.65	1,980.69		436.93		436.93	436.93	7,528.03	7,964.96	1,980.69
5400	Hospitality and entertainment	-	-		-		-	-	-	-	-
5500	Evaluation	78,000.00	67,200.00		7,200.00		7,200.00	7,200.00	3,600.00	10,800.00	67,200.00
99	GRAND TOTAL	3,000,000	1,023,462.49	-	48,398.29	-	48,398.29	48,398.29	1,928,139.23	1,976,537.52	1,023,462.48

Figure 3 shows the progress in percent by activities in each project component, as of 31 March 2022. The figure indicates the progress in % of the project component 1, 2, 3 and 4 as 67%, 62%, 69%, and 73%, respectively.

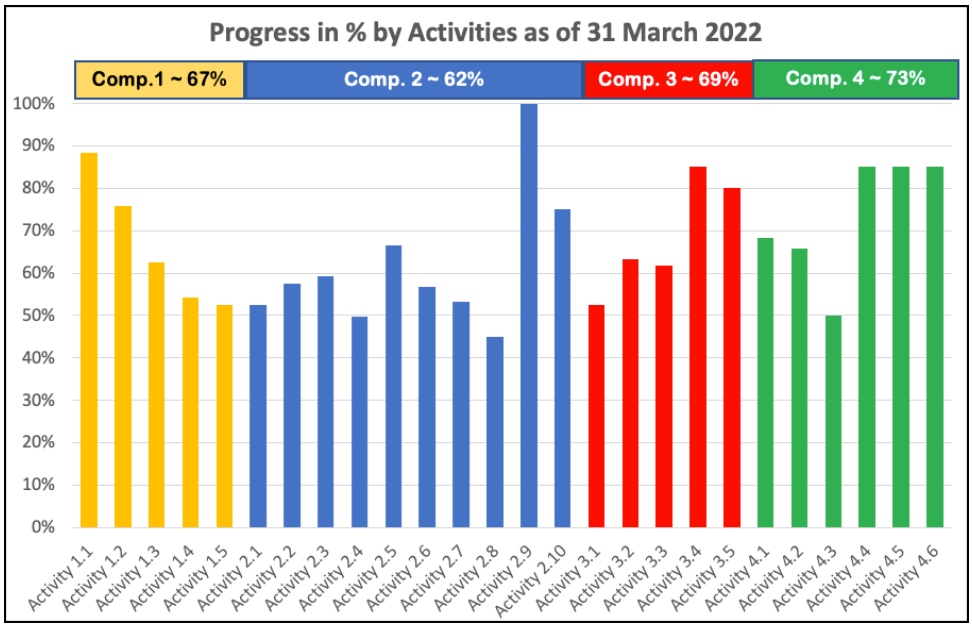

Figure 3: Progress in % by activities of each project component, as of 31 March 2022

Figure 4 shows the progress and spent budget in % by partners as of 31 March 2022. The ratios between spent budget and progress in % are 0.91 for Cambodia, 1.63 for Indonesia, 0.73 for Malaysia, 1.28 for Philippines, 0.84 for Thailand, 0 for Viet Nam, and 0.88 for Regional Program.

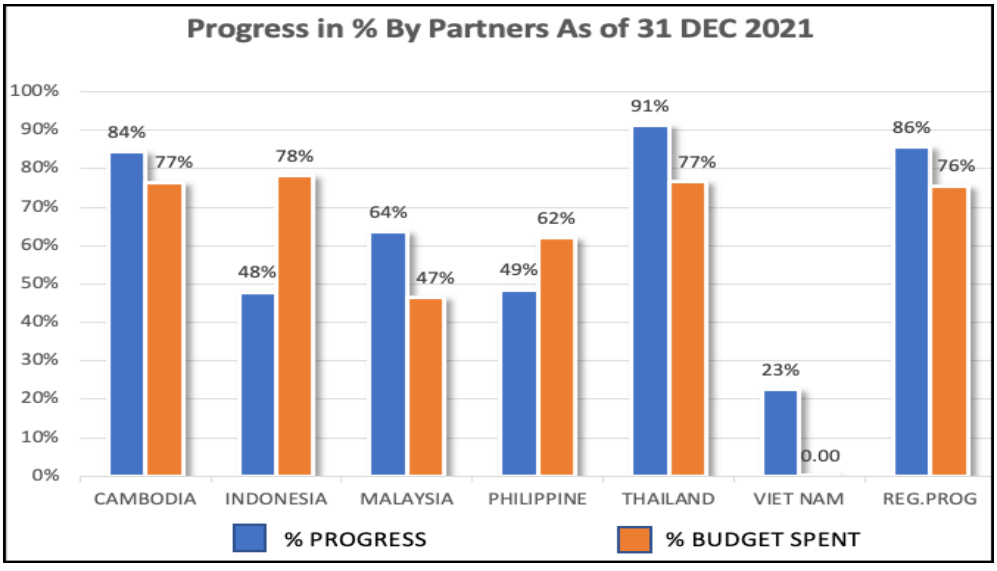

Figure 4: Progress and spent budget in percentage of partners as of 31 March 2022

VI. CO-FINANCING AS OF 31 MARCH 2022

The Co-financing from country partners and SEAFDEC as of 31 March 2022 is summarized as shown in Figure 5. The overall co-financing from 6 country partners is about 9.47 million USD consisted of 7.64 million USD In-kind and 1.83 million USD cash co-financing. The Co-financing from SEAFDEC as of 31 December 2021 is about 11.01 million USD representing of 6.88 million USD In-kind and 4.13 million USD cash co-financing.

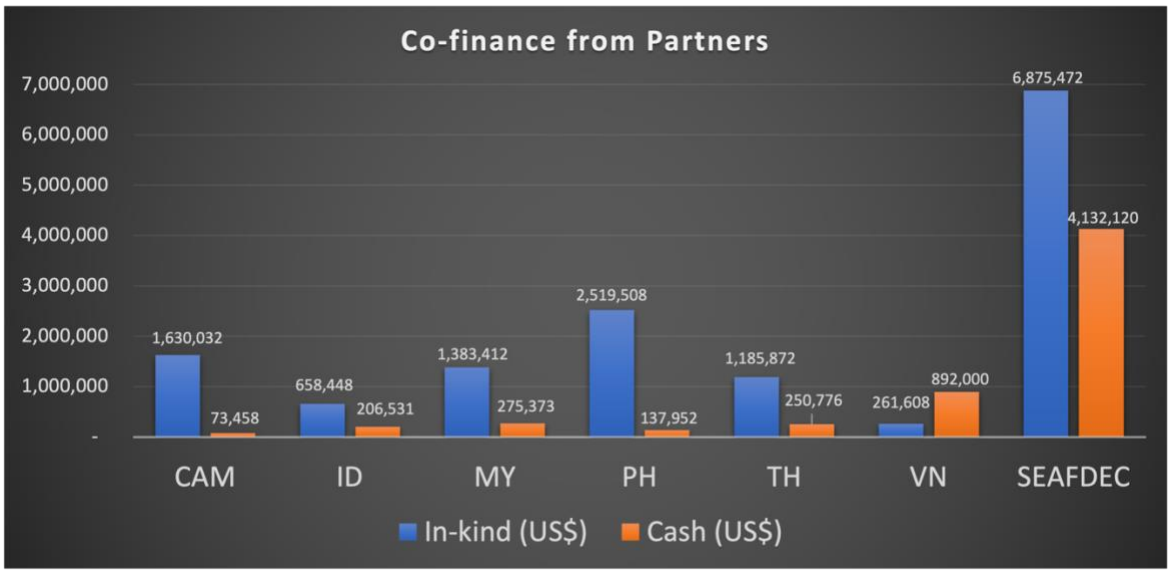

Figure 5: Co-financing from partners (6 countries and SEAFDEC) as of 31 March 2022.

VII. ACTIONS BY THE PROJECT STEERING COMMITTEE

- The committee is welcomed to provide comments on the highlights of project achievements as of 31 March 2022.

ANNEX 4: MID-TERM REVIEW REPORT

Final Report
Mid-Term Review UNEP/GEF 'Establishing and Operation of a Regional System of Fisheries *Refugia* in the South China Sea and Gulf of Thailand'
GEF ID 5401

Peter Whalley

February 2022

Project Identification Table

Table 1 - Project summary

GEF Project ID:	5401		
Implementing Agency:	UNEP	**Executing Agency:**	SEAFDEC
Relevant SDG(s) and indicator(s):	*SDG Target 14: Indicator 14.2, 14.4 and 14.a* *SDG Target 1: Indicator 1b* *SDG Target 2: Indicator 2.4* *SDG Target 12: Indicator 12.2*		
GEF Core Indicator Targets (identify these for projects approved prior to GEF-7)	Indicator 2.2 Marine protected areas under improved management effectiveness (target 269,500 ha; actual 382,400 ha) Indicator 7.1 Level of Transboundary Diagnostic Analysis and Strategic Action Programme (TDA/SAP) formulation and implementation (target '4') Indicator 7.2 Level of Regional Legal Agreements and Regional Management Institutions to support its implementation (Target '3') Indicator 7.3 Level of National/Local reforms and active participation of Inter-Ministerial Committees (Target '4') Indicator 7.4 Level of engagement in IWLEARN through participation and delivery of key products (Target '4')		
Sub-programme:	SP3 – EA321	**Expected Accomplishment(s):**	EA (a) The health and productivity of marine, freshwater and terrestrial ecosystems are institutionalized in education, monitoring and cross-sector and transboundary collaboration frameworks at the national and international levels
UNEP approval date:		**Programme of Work Output(s):**	Healthy and productive ecosystems
GEF approval date:	January 2016	**Project type:**	Full-Size Project
GEF Operational Programme #:	GEF-5	**Focal Area(s):**	International Waters Strategic
		GEF Strategic Priority:	Priority 2: Catalyze multi-state cooperation to rebuild marine fisheries
***Expected* start date:**	December 2016	**Actual start date:**	March 2016
***Planned* completion date:**	December 2020	**Actual operational completion date:**	December 2020 (Original) December 2022 (revised)
***Planned* project budget at approval:**	12,717,850	**Actual total expenditures reported as of 30 June 2021:**	PIR 1,696,032

GEF grant allocation:	3,000,000	**GEF grant expenditures reported as of September 2021:**	1,749,526
***Expected* co-financing:**	12,717,850	**Secured co-financing (December 2021):**	19,841,526
Date of first disbursement:	Aug 2016	**Planned date of financial closure:**	TBD
No. of formal project revisions:	3	**Date of last approved project revision:**	December 2021
No. of Steering Committee meetings:	6	**Date of last/next Steering Committee meeting:**	November 2021 / TBD
Mid-term Review/ Evaluation *(planned date):*	4th Quarter 2020 – 1st Quarter 2021	**Mid-term Review/ Evaluation (actual date):**	November 2021 – February 2022
Terminal Evaluation *(planned date):*	TBD	**Terminal Evaluation (actual date):**	TBD
Coverage - Country(ies):	Cambodia Indonesia Malaysia Philippines Thailand Viet Nam	**Coverage - Region(s):**	Asia - Pacific
Dates of previous project phases:	N/A	**Status of future project phases:**	TBD

Acknowledgements

This Mid-Term Review has been prepared by an independent consultant, Dr Peter Whalley and the views expressed are his own. The consultant is grateful for the comprehensive responses to many the questions by the Project Manager Dr Somboon Siriraksophon. The consultant is also grateful for the time taken by stakeholders to respond to questions and assist through remote interviews.

Contents

Abbreviations

ASEAN	The Association of Southeast Asian Nations
CEO	Chief Executive Officer [GEF]
COBSEA	Coordinating Body on the Seas of East Asia
COVID	Coronavirus
CSO	Civil Society Organisation
EA	Executing Agency [SEAFDEC]
FMO	[UNEP] Fund Management Officer
GEF	Global Environment Facility
GIS	Geographical Information System
IA	Implementing Agency
ICM	Integrated Coastal Management
IOC/WESTPAC	Inter-governmental Oceanography Commission for the Western Pacific
IUU	Illegal, Unreported and Unregulated [fishing methods]
IW	[GEF] International Waters
IW:LEARN	International Waters Learning Exchange & Resources Network
LME	Large Marine Ecosystem
M&E	Monitoring and Evaluation
MTR	Mid-Term Review
NFRC	National Fisheries *Refugia* Committees
NGO	Non-Governmental Organisation
PCU	Project Co-ordination Unit
PIR	Project Implementation Review [annual report]
PMC	Project Management Cost
PSC	Project Steering Committee
RSTC	Regional Scientific and Technical Committee
RWG-F	Regional Working Group on Fisheries
SAP	Strategic Action Programme
SDG	Sustainable Development Goal
SEAFDEC	Southeast Asian Fisheries Development Center
SMART	Specific, Measurable, Achievable, Relevant, Time-bound
TDA	Transboundary Diagnostic Analysis
TM	[UNEP] Task Manager
ToC	Theory of Change
ToR	Terms of Reference
UNEP	United Nations Environment Programme
USD	United States Dollar

Executive Summary

A Mid-Term Review of the SEAFDEC/UNEP/GEF Project: '*Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand*', has been undertaken, consistent with the requirements of the GEF and UNEP.

This report presents the background to the project, the findings from the Mid-Term Review together with conclusions, lessons and recommendations identified from the work of the project. The project started in December 2016 and was originally planned to end in December 2020. A two-year no cost extension was requested and approved by the Project Steering Committee. The current end-date is December 2022. This Mid-Term Review was conducted between November 2021 and February 2022.

The review is designed to inform stakeholders, including the GEF Agency and Executing Agency on the levels of achievement of the project towards the delivery of the planned outputs and outcomes and provide suggestions to the Project on key activities that would assist enable the achievement of the overall planned objective.

The project was designed to pilot aspects of the fishery management actions identified in the regionally endorsed South China Sea Strategic Action Programme (2008) through the testing of a *fisheries refugia* concept to manage coastal environments and key fish stocks. The pilots, undertaken in six countries (Cambodia, Indonesia, Malaysia, Philippines, Thailand and Viet Nam) were supported through regional capacity building and awareness programmes at the regional level.

Findings

The **Project has been assessed overall by this Mid-Term Review** as being **Moderately Satisfactory**. The Mid-Term Review acknowledges the **achievements** to-date of the project but considers that there is still a significant programme of work required to complete the project within the next year and rates the output delivery as **Moderately Satisfactory**. The project builds directly on the success of the Strategic Action Programme and is highly relevant to the countries of the region and the strategies of UNEP and the **Relevance** is considered to be **Highly Satisfactory.** The project has been **effective** in establishing 12 *refugia* sites and undertaking multiple workshops, capacity development and awareness raising activities, and has been rated as been rated as **Satisfactory**. The **efficiency** of project execution is rated as **Moderately Satisfactory** due to the delays associated with the change of project managers, the slow contracting of some countries to implement pilots and the inevitable delays resulting from COVID, resulting in a two-year no-cost extension. The overall **sustainability** of the project's activities is considered to be **Likely** through the support of an active regional fisheries organisation and strong support from the countries demonstrated by the endorsed Strategic Action Programme.

Conclusions

The fisheries *refugia* project is derived from actions in the regionally endorsed South China Sea Strategic Action Programme that identified the high pressure of fishing on the fish stock and related coastal ecosystems that was resulting in declining ecosystem services and affecting the socio-economic conditions of dependent communities. The Strategic Action Programme recommended the establishment of fisheries *refugia* to addresses these

problems by drawing on fisheries management concepts that are easily understood at the fishing community level, emphasising sustainable use rather than prohibition.

The development of the Project Document involved extensive engagement with coastal communities and national fisheries stakeholders that has assisted the regional acceptance of the concept of fisheries *refugia*.

The original Project Manager resigned shortly after the project's inception phase and there was a significant delay before appointing a replacement which led to a slow initiation of the project. The project also struggled to get final signed agreements with Indonesia and Viet Nam that has delayed further their progress in the project. As with all projects at present, the fisheries *refugia* project has had to work under varying COVID restrictions since early 2019, and has responded with appropriate adaptive management actions to ensure that meetings and other activities could be undertaken remotely where possible. However, these restrictions have clearly had a significant impact on progress. A two-year no-cost extension was identified by the Project Steering Committee in 2020 as a necessity and this was granted by UNEP with a revised end-date of December 2022.

The project has successfully launched pilots at 12 sites, with three more planned in Viet Nam to test community-based actions relating to fisheries *refugia*, complemented by significant capacity development and awareness raising actions, with ten management plans either developed or likely to be approved by 2022.

There have been significant changes (ca. 50% variation from the approved figures) to component 1 and 4 budgets that clearly represent changes of ambition to the expected component activities. These changes should be clearly explained and justified prior to the terminal evaluation.

Stakeholders interviewed have indicated their support for the project and shown their commitment to the concept of fisheries *refugia* which provides confidence to the Mid-Term Review in the sustainability of the project's actions that is reinforced with the previous national endorsement of the Strategic Action Programme with which this project is aligned.

The project has been successful at conveying the concept of fisheries *refugia* to coastal communities that have seen this approach as a viable alternative to 'no-catch' approaches such as Marine Protected Areas.

The Mid-Term Review considers that the current level of project output deliver (60%) and grant expenditure (58%) appears low given the remaining approved project extension. The Mid-Term Review considers that a further extension, working in close co-operation with the GEF/UNEP South China Sea Strategic Action Programme implementation project, should be considered.

Lessons Learned

Lesson 1 Importance of full involvement of stakeholders in the design, execution and management of project activities: The fisheries *refugia* project has adopted a very proactive approach to engaging stakeholders in the initial and subsequent implementation through the formation of National Science and Technical, and Management Committees. This has resulted in a high level of acceptance of the fisheries *refugia* approach. GEF IW projects involving pilot actions with communities should be encouraged to more actively engage local stakeholders, at the earlies opportunities, to gain acceptance for actions in a range of local and ministerial level stakeholders of novel concepts.

Lesson 2 Importance of Project Inception Reports and updating Project Results Framework: The fisheries *refugia* project had a detailed inception phase resulting in a wealth of documents

and other information that was presented at the inception meeting. Unfortunately, this information did not result in a formal project Inception Report presenting any changes to the project design, including the Results Framework. The Implementing Agency should ensure that all projects deliver an agreed Inception Report that includes any changes to the Results Framework for approval by the Project Steering Committee and/or Inception Meeting.

Lesson 3 Ensuring partners/countries fully understand the contractual arrangements planned for the implementation of the project: The project did ensure that there was a wide understanding of the technical aspects of the project that had been formulated in the Strategic Action Programme. However, it is clear that the modality of project execution was not fully understood, resulting in significant delays in initiating project activities in some countries. GEF International Waters projects involving pilot or country specific activities should also have the proposed arrangements for implementation fully explained.

Recommendations

Recommendation 1 To: Project Co-ordination Unit/Executing Agency: Should seek an additional project extension to complete the remaining work and utilise the budget to deliver expected activities, especially for the countries that have achieved 50% or less of expected outputs. The Mid-Term Review considers that a further one-year extension would enable the project to focus on the countries that have achieved less progress to ensure all countries and relevant coastal communities get the maximum benefits from pilot actions to test fisheries *refugia* approaches. The Project Co-ordination Unit should explore what resources could be available from the South China Sea Strategic Action Programme implementation project to enable the finalisation of the fisheries *refugia* project.

Recommendation 2 To: Project Co-ordination Unit/Executing Agency: Irrespective of Recommendation 1 being accepted, the Project Co-ordination Unit should revise workplan and Results Framework to ensure that these reflect the current situation and budgets to deliver all remaining expected activities and outputs to be achieved. There is an opportunity at the Mid-Term Review to present realistic deliverables that reflect the 10% reduction of unspent budgets that might have an impact on what can be achieved by the pilots at the national/local level. The Project Co-ordination Unit should also prepare a clear statement of the significant project component changes (from the Endorsed CEO Document) with justifications and an assessment of the impacts on the intended ambition of the project.

Recommendation 3 To: Project Co-ordination Unit: Collate and analyse disaggregated sex data of participants involved in project activities. the project has collected sex disaggregate information from workshops and meetings which is commendable. It would be beneficial to present this information in the next Project Implementation Review report and have the data analysed prior to the Terminal Evaluation.

Recommendation 4 To: Project Co-ordination Unit Develop a clear Exit Strategy for the regional and national sustainability and replication of the activities. The project has collected a wealth of experiences and information from the pilot sites and regional activities, much of which is presented on the website(s) and at various IW:LEARN and other organisations' events. The Mid-Term Review recommends that the project managers of this project and South China Sea Strategic Action Programme implementation project brainstorm shared approaches to address their project needs. The South China Sea project requires an update of the fishery aspects of the 2008 Strategic Action Programme and the fisheries *refugia* project needs to complete the project (e.g. Indonesia and Viet Nam) to the level of detail expected in the GEF CEO Endorsement Document.

Recommendation 5 To: Project Co-ordination Unit: Preparation of GEF IW:LEARN Experience Notes. GEF International Waters recommends the preparation of Experience Notes by projects based on practical lessons from the execution. This project has a number of key aspects that would merit sharing through this mechanism including stakeholder involvement in pilot locations (design, implementation and management), lessons from gaining acceptance to the fisheries *refugia* concept, coastal ecosystem management, etc.

Recommendation 6 To: UNEP and Executing Agency: Ensure regional and national staff (and any replacement staff) engaged in financial management are briefed on the requirements of IA and EA at the start of the project. Stakeholders and the UNEP Fund Management Officer identified that staff and consultants were not sufficiently familiar with the requirements of financial reporting. The Fund Management Officer suggested that a training session is provided at project inception meetings to act as an induction course on the approaches for complying with UNEP financial reporting and the expectation of the GEF as the donor.

Summary of Project Ratings

Criterion	Reviewer's Rating[1]
Attainment of project objectives and results (overall rating) Sub criteria (below)	**MS**
Achievement of outputs and activities	**MS**
Relevance	**HS**
Effectiveness	**S**
Efficiency	**MS**
Sustainability of Project outcomes (overall rating) Sub criteria (below)	**L**
Socio Political	**L**
Financial	**L**
Institutional framework	**HL**
Environmental	**L**
Catalytic Role	
Replication	**S**
Preparation and readiness	**S**
Country ownership	**S**
Stakeholders' participation and public awareness	**S**
Implementation approach and adaptive management	**S**
UNEP Supervision and backstopping	**S**
Financial planning and Management	**MU - MS**
Monitoring and Evaluation (overall rating) Sub criteria (below)	**MS**
M&E Design	**MS**
M&E Plan Implementation	**MS**
Overall Rating	**MS**

[1] Criteria are rated on a six-point scale as follows: Highly Satisfactory (HS); Satisfactory (S); Moderately Satisfactory (MS);Moderately Unsatisfactory (MU); Unsatisfactory (U); Highly Unsatisfactory (HU). **Sustainability** is rated from Highly Likely (HL) to Highly Unlikely (HU) on a four-point scale.

1 Evaluation Background

This Mid-Term Review (MTR) of the SEAFDEC/UNEP/GEF Project: '*Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand*' (Fisheries *Refugia* project), is consistent with the requirements of the GEF and UNEP. The purpose of the MTR is to enable the members of the Project Steering Committee, the Project Co-ordination Unit (PCU), the Executing Agency (SEAFDEC), the Implementing Agency (UNEP), and regional and national partners to assess progress to-date, to identify any corrective actions needed, and to learn lessons for future projects.

2 Context

The South China Sea is a semi-enclosed sea, which supports a number of unique habitats and ecosystems that are amongst the most biologically diverse shallow water marine ecosystems globally. The countries surrounding the South China Sea have undergone very rapid economic development and rapid population increase in coastal areas over the past two decades resulting in degradation and loss of coastal habitats and resources. Recognising that actions were urgently needed to halt degradation of the environment of this marine basin, the countries of the region sought and received the assistance of UNEP and the GEF in preparing a Transboundary Diagnostic Analysis (TDA) of the issues, problems and their root causes as the basis for development of a Strategic Action Programme (SAP).

The SAP acknowledged the high pressure from fishing on the fish stock and related coastal ecosystems resulting in their services declining impacting socio-economic condition. The regional fisheries *refugia* initiative addresses the present problems by drawing on fisheries management concepts that are easily understood by fishing communities, emphasising sustainable use rather than prohibition. This focuses on building fishing community support for spatial planning approaches to coastal and marine resource management.

The Fisheries *Refugia* project has been designed to implement the SAP fisheries objectives in six participating countries (Cambodia, Indonesia, Malaysia, Philippines, Thailand and Viet Nam) with an aim to establish a system of fisheries *refugia* that focuses on the critical links between fish stocks and their habitats. To develop a mechanism to facilitate this, the Regional Working Group on Fisheries (RWG-F) has been and has been collaborating with the Southeast Asian Fisheries Development Center (SEAFDEC) to implement the approach of fisheries *refugia* defined in the SAP as:

'*Spatially and geographically defined, marine or coastal areas in which specific management measures are applied to sustain important species during critical stages of their life cycle, for their sustainable use*.'

Fisheries *refugia* should:

- NOT be "no take zones",
- Have the objective of sustainable use for the benefit of present and future generations,
- Provide for some areas within *refugia* to be permanently closed due to their critical importance [essential contribution] to the life cycle of a species or group of species,
- Focus on areas of critical importance in the life cycle of fished species, including spawning, and nursery grounds, or areas of habitat.

- Have different characteristics according to their purposes and the species or species groups for which they are established and within which different management measures will apply.

Have management plans. Management measures that may be applied within fisheries *refugia* may be drawn from the following list:

- Exclusion of a fishing method (e.g. light luring, purse seine fishing),
- Restricted gears (e.g. mesh size),
- Prohibited gears (e.g. push nets, demersal trawls),
- Vessel size/engine capacity,
- Seasonal closures during critical periods,
- Seasonal restrictions (e.g. use of specific gear that may trap larvae),
- Limited access and use of rights-based approaches in small-scale fisheries.

3 Relevance to the GEF Programme

The project responds to the GEF V International Waters Strategic Objectives 2 (*Catalyze multi-state cooperation to rebuild marine fisheries and reduce pollution of coasts and Large Marine Ecosystems (LMEs) while considering climatic variability and change*) with the expected focal area Outcome 2.1 (*Implementation of agreed Strategic Action Programmes (SAPs) incorporates ecosystem-based approaches to management of LMEs, ICM principles, and policy/legal/ institutional reforms into national/local plans*) Outcome 2.3 (*Innovative solutions implemented for reduced pollution, rebuilding or protecting fish stocks with rights-based management, ICM, habitat (blue forest) restoration/conservation, and port management and produce measurable results*).

4 The Project

The GEF Chief Executive Officer (CEO) endorsed the project in January 2016 and implementation began in March 2016. It was anticipated that the project would end in December 2020 but has been extended with a revised completion date of December 2022. The project is implemented by UNEP and executed by the SEAFDEC in partnership with agencies and other stakeholders responsible for fisheries in Cambodia, Indonesia, Malaysia, Philippines, Thailand and Viet Nam.

The objective of the project is presented in the GEF CEO document as: '*To operate and expand the network of fisheries refugia in the South China Sea and Gulf of Thailand for the improved management of fisheries and critical marine habitats linkages in order to achieve the medium and longer-term goals of the fisheries component of the Strategic Action Programme for the South China Sea'*.

The project has four components designed to meet this objective:

- **Component 1**: Identification and management of fisheries and critical habitat linkages at priority fisheries *refugia* in the South China Sea and Gulf of Thailand;
- **Component 2**: Improving the management of critical habitats for fish stocks of transboundary significance via national and regional actions to strengthen the enabling environment and knowledgebase for fisheries *refugia* management in the South China Sea and Gulf of Thailand;

- **Component 3**: Information Management and Dissemination in support of national and regional-level implementation of the fisheries *refugia* concept in the South China Sea and Gulf of Thailand;
- **Component 4**: National and regional cooperation and coordination for integrated fish stock and critical habitat management in the South China Sea and Gulf of Thailand;

Associated with these components (and their outcomes) are a wide range of specific outputs that will be assessed in terms of their delivery and contributions to the project outcomes and objective.

5 Project Budget

The project budget presented in the Consultant Terms of Reference (ToR) reflects the GEF CEO Endorsement Document figures.

Project Component	Indicative Grant Amount ($)	Indicative Co Financing ($)
1. Identification and management of fisheries and critical habitat linkages at priority fisheries *refugia* in the South China Sea and Gulf of Thailand	1,304,900	3,989,523
2. Improving the management of critical habitats for fish stocks of transboundary significance via national and regional actions to strengthen the enabling environment and knowledgebase for fisheries *refugia* management in the South China Sea and Gulf of Thailand	746,000	5,313,217
3. Information Management and Dissemination in support of national and regional-level implementation of the fisheries *refugia* concept in the South China Sea and Gulf of Thailand	299,600	1,792,055
4. National and regional cooperation and coordination for integrated fish stock and critical habitat management in the South China Sea and Gulf of Thailand	499,500	1,423,055
Sub-Total	**2,850,000**	**12,517,850**
Project Management Cost (PMC)	**150,000**	**200,000**
Total	**3,000,000**	**12,717,850**

Table 2 – Budget per component (GEF CEO Endorsement Document)

6 Executing arrangements

The executing arrangements presented in the Project Document and the consultant's ToR is presented in Figure 1 (below).

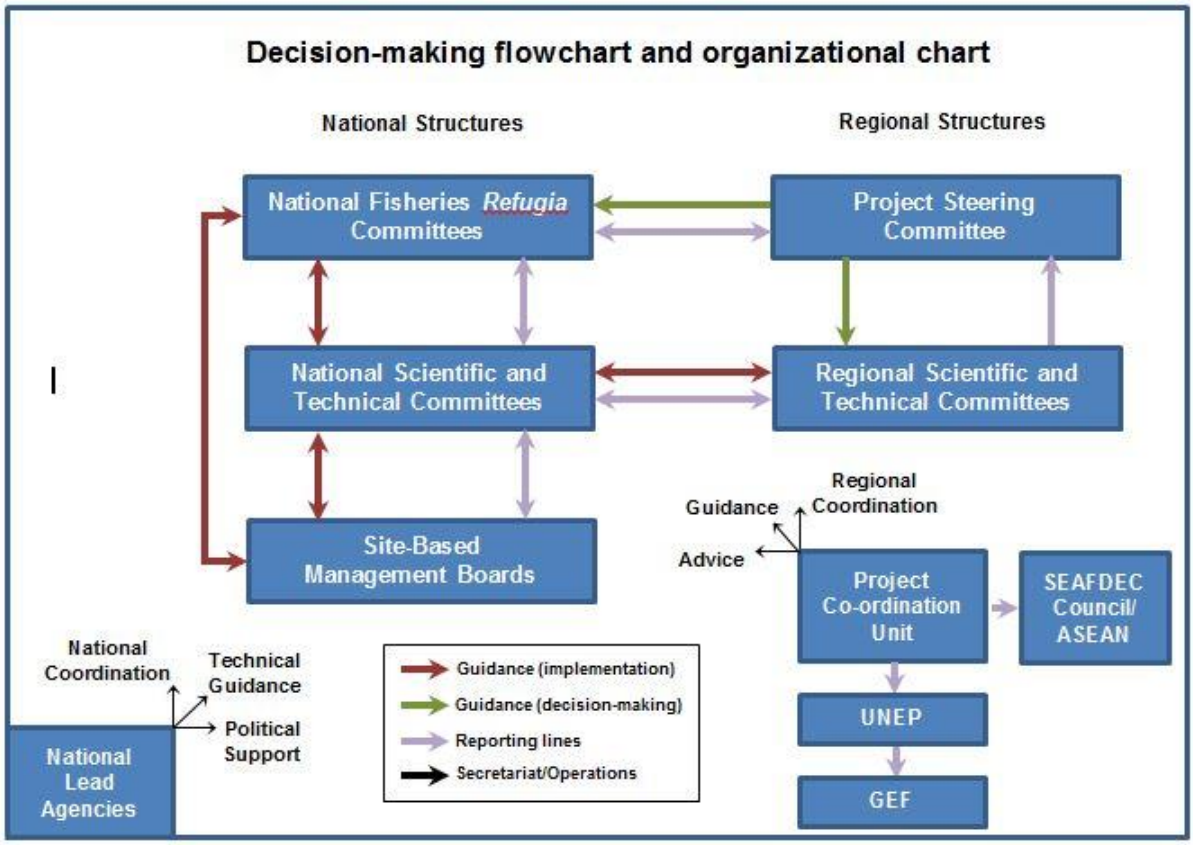

Figure 1 - Organisation and decision making arrangements (as presented in the Project Document and Consultant's ToR)

The project website describes the role of the governance structures as: '*To facilitate the achievement of the goals and objectives of the project entitled a Regional Scientific and Technical Committee (RSTC) will be established with responsibility for: overseeing the scientific and technical elements of the project; ensuring effective implementation of activities undertaken during project execution; and providing sound scientific and technical advice to the Project Steering Committee (PSC)'.*

The structures introduced at the regional level were mirrored by parallel advisory and supervisory bodies at the national level to manage the activities undertaken through the pilot actions. At the regional level, SEAFDEC has important links with the Association of Southeast Asian Nations (ASEAN).

7 Evaluation objectives, scope and methodology

The Terms of Reference (ToR) for this Mid-Term Review laid out clear elements to be completed by the reviewer and noted that due to COVID 19 restrictions, all information collection and interviews with stakeholders were to be conducted remotely.

8 Evaluation Objective and scope

The **objective of this MTR is** to assess the core criteria of *relevance, effectiveness, efficiency and sustainability* of the project's development and implementation and will seek views from a wide range of national and regional stakeholders. The **MTR's scope** will involve the project's GEF Implementing Agency (IA) and Executing Agency (EA) and addresses the design, implementation and management of the project. It will evaluate the efficiency of project management, including the delivery of outputs and activities in terms of quality, quantity, timeliness, and cost-efficiency. The scope will also cover how crisis (COVID 19) have impacted the performance of the project. **The purpose of the MTR** is to highlight the achievements of

project results and identify any remedial actions that will be necessary to ensure that the project achieves its planned outcomes by completion.

Box 1 Evaluation Criteria

- **Relevance** – the extent to which the activity is suited to local and national development priorities and organisational policies, including changes over time, as well as the extent to which the project is in line with the GEF Operational Programmes or the strategic priorities under which the project was funded.
- **Effectiveness** – the extent to which an objective has been achieved or how likely it is to be achieved.
- **Efficiency –** the extent to which results have been delivered with the least costly resources possible.
- **Sustainability** – the likely ability of an intervention to continue to deliver benefits for an extended period of time after completion. Projects need to be environmentally as well as financially and socially sustainable.

9 Methodology

Information gathering

The MTR information was gathered using:

- **Desk reviews** – including background documents (Project Documents, inception reports), progress reports (project website, PIRs, Project Steering Committee (PSC) minutes, technical project reports), etc. The Project Manager was provided with a list of required documents and these were uploaded to a shared folder.
- An **evaluation matrix** was developed in the MTR Inception Report to serve as a template for addressing the key criteria for this MTR as presented in the ToR (Annex 1). This matrix guided the desk review of available documents and the interviews with stakeholders.
- **Identification of stakeholders to participate in emailed questionnaire and remote interviews.** The Project Manager was guided by the consultant on stakeholder types to be contacted to give a range of stakeholders to be interviewed. A final list of approximately 25 stakeholders were approached to respond to a short questionnaire (Annex 4). These included Project Steering Committee members, Regional Scientific and Technical Committee members, representatives of National Fisheries bodies, consultants working on the project and civil society and private sector representatives UNEP, EA, the PCU and other relevant GEF projects in the region. Responses were received from 14 stakeholders (see Annex 2).
- **Analysis and review preparation**: A reconstructed Theory of Change (ToC) was presented in the Inception Report and assisted in assessing the progress towards the outcomes and longer-term impacts identified. The progress and achievements of the project's outputs have been reviewed based on interviews and documents received from the PCU including, review of Project Results Framework, delivery of outputs prepared by the PCU, financial reports, etc. A list of the documents and websites consulted are presented in Annex 3.

Cross-cutting issues: The evaluation also examined aspects of awareness raising, capacity development, civil society engagement (including gender issues) within the frame of the project's objective. These cross-cutting issues are included within the evaluation matrix agreed in the Inception Report and questions to stakeholders (Annex 4).

10 Limitations

A key **limitation** for this MTR, as a consequence of COVID 19 restrictions, has been that many stakeholders have not been at their normal workplace whilst the evaluation was being conducted and information was obtained remotely (through emails and/or remote interviews) that required adequate home internet connections.

An additional limitation impacting the level of details, are the time restrictions on completing the MTR between the November 2021 and February 2022 under 'remote' conditions.

11 Project Performance and Impact

12 Attainment of objectives and planned results

The project has been under implementation since 2016 and, due to COVID-19 and delays due to a change of project manager, is planned for completion in December 2022. The achievements of the project are well summarised in the annual PIR reports and the PCU has prepared a clear assessments on the delivery of outputs per country and per component for each PIR. The PCU updated the assessment of output progress for this MTR (as of September 2021). Due to the stagged start of the project, with the late agreements between the project and Indonesia and Viet Nam, there has been uneven progression in project delivery between Countries.

13 Achievement of outputs and activities

The PCU has prepared clear assessment of the progress of the project activities and outputs per country, together with progress on regional activities undertaken by the PCU each year to assist with the preparation of the PIRs. The analysis, performed for the MTR, was based on this project management information and complemented by additional material from the PIRs, Project Results Framework and comments received from stakeholders. The synthesis of this information is presented in Annex 7 and progress shown below in Figure 2. This should also be viewed with the expenditure summary provided by the PCU (Annex 6).

The graph shows significant differences in the delivery of the project in the six countries, with three countries having achieved 50% or less progress on the planned activities and outputs.

Early in the project execution the original project manager adjusted the endorsed UNEP budget lines, resulting in significant changes to Component 1 budget (from 1.3 M USD to 0.7 M USD) and increasing Component 4 budget (from 0.5 M USD to 1.1 MUSD); the reasoning for these changes is not clear to the MTR. Components 2 and 3 were also slightly reduced (see Annex 6). There were no changes made to the Project Results Framework resulting from theses significant budget changes and consequential changes to component ambitions. More discussion is presented in Section 30 (Financial Management) and Section 32 (Monitoring and Evaluation).

Overall, the project has delivered approximately 60% of planned activities (and 58% of the overall budget has been expended by September 2021) with 15 months remaining. The PCU reported the completion at the end of September 2021 for each country as: Cambodia 75%, Indonesia 30%, Malaysia 55%, Philippines 44%, Thailand 85% and Viet Nam 21%. An analysis of this information, with MTR comments and ratings at the output level, is provided in Annex 7.

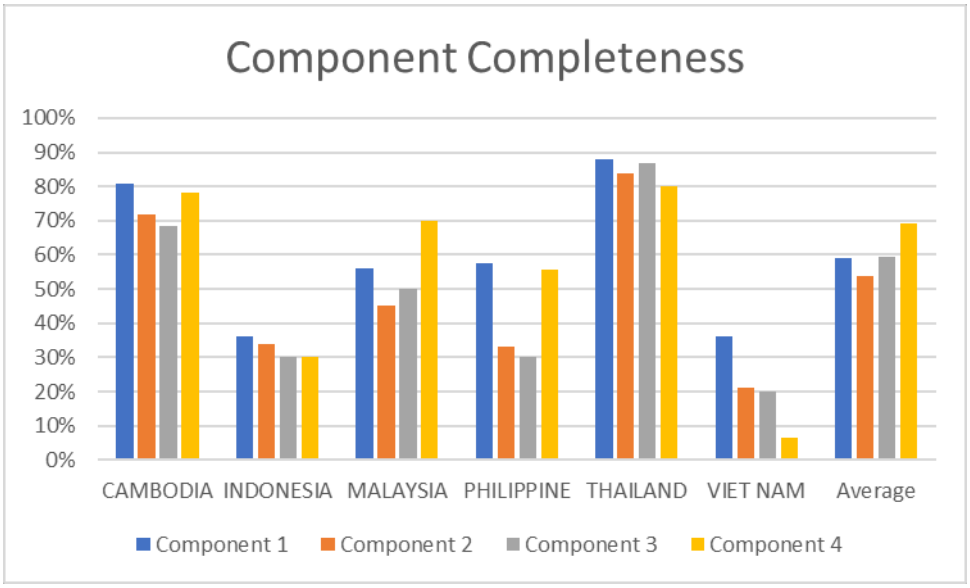

Figure 2 - Component completeness as of 30th September 2021 (provided by the PCU)

Component 1 – Identification and management of fisheries and critical habitat linkages at priority fisheries *refugia*

The PCU assessed the overall completeness of component 1 at 59% with 55% of the budget spent by September 2021. (Country progress: Cambodia 81%; Indonesia 36%; Malaysia 56%; Philippines 58%; Thailand 88%; Viet Nam 36%)

The project has established a total of 382,400 ha of fisheries *refugia* across the six countries with the agreement of national stakeholders, including specific *refugia* for Blue Swimming Crab, Short Mackerel, prawns and lobsters. The development of national site-specific management plans is on track for the 15 fisheries *refugia* sites and a Regional Action Plan for the Management of Transboundary Species (Short Mackerel) has been adopted by SEAFDEC for endorsement by relevant ASEAN ministries.

Cambodia and Thailand are well advance with the proposed network of management boards and are drafting National Management plans involving the lead national agency and local government partners. Enforcement programmes have been advanced in two countries with local capacity strengthened involving local working groups, however the other countries are indicated by the PCU as having significant work to be completed.

Progress on the development of operational partnerships with GEF the Small Grants Programme has been limited. Consultation has begun with all six countries during the last PSC meeting (November 2021). The expected target at mid-term was that suitable projects would be identified at all sites but the time remaining is clearly limited to achieve the expected contributions to the *refugia* management objectives.

The MTR rates **Component 1 as Moderately Satisfactory.** Significant work is needed in some countries with a year of the planned project extension remaining.

Component 2 - Improving the management of critical habitats for fish stocks of transboundary significance via national and regional actions to strengthen the enabling environment and knowledgebase for fisheries *refugia* management in the South China Sea and Gulf of Thailand

The PCU assessed the overall completeness of component 2 at 54% with 31% of the budget spent by September 2021. (Country progress: Cambodia 72%; Indonesia 34%; Malaysia 45%; Philippines 33%; Thailand 84%; Viet Nam 21%)

Component 2 aims to strengthen the management of habitats relevant for transboundary species. Progress at the regional level has been achieved but at the country level there is significant variation on the delivery of expected outputs as a result of the delayed start in some countries and the impacts from COVID.

National policies have been reviewed with relevance to fisheries *refugia* and reforms are in progress in Cambodia, Malaysia and Thailand with the preparation of national guidelines in most countries underway. At the regional level the PCU has identified best practices from the pilot sites and these will be published shortly.

Fishery information sources (databases, synthesis reports, GIS, etc.) are in preparation and in some cases, complete. The modelling system (Output 2.8) has been agreed by the Regional Scientific and Technical Committee, but further work is required to complete this important tool.

The MTR rates **Component** 2 as **Moderately Satisfactory.** Significant work is needed in some countries with a year of the planned project extension remaining.

Component 3 - Information Management and Dissemination in support of national and regional-level implementation of the fisheries *refugia* concept in the South China Sea and Gulf of Thailand

The PCU assessed the overall completeness of component 3 at 60% with 38% of the budget spent. (Country progress: Cambodia 68%; Indonesia 30%; Malaysia 50%; Philippines 30%; Thailand 87%; Viet Nam 20%)

The project has achieved a good mechanism of providing information at the national and regional levels to support fisheries staff (at all levels) utilise the results and best practices from the fish *refugia* pilot sites through national databases and portals (although in most countries more work is necessary).

A strength of this project has been the wide engagement with stakeholders (at all stages of the project development and implementation) that have been presented to the MTR. The detailed site-specific stakeholder consultation has ensured that local communities were engaged in the formulation of the pilots and involved in the management of activities engendering the acceptance of the fisheries *refugia* approaches.

At the regional level, the project has worked closely with SEAFDEC, acting as the EA and the regional body responsible for regional education in fisheries management), with strong links to ASEAN fishery ministries.

The MTR rates **Component 3** as **Satisfactory.**

Component 4 - National and regional cooperation and coordination for integrated fish stock and critical habitat management in the South China Sea and Gulf of Thailand

The PCU assessed the overall completeness of Component 4 at 69% with 85% of the budget spent. (Country progress: Cambodia 78%; Indonesia 30%; Malaysia 70%; Philippines 56%; Thailand 80%; Viet Nam 7%)

The project introduced a governance and management system that has worked effectively through national and regional bodies to facilitate and supervise the technical elements of the project's implementation.

National and regional bodies, the National Fisheries *Refugia* Committees (NFRC), and the National and Regional Scientific and Technical Committees (NTSC and RSTC) have ensured the full endorsement of technical and scientific experts and the involvement of communities and fisherfolk in the decision-making aspects of the project. The meetings were held very frequently (up to four times per year) and this was the main criticism raised to the MTR through stakeholder comments.

Minutes of the meetings of the PSC provide a good overview of the project. An observation from the MTR is that the PSC meetings would have provided a good opportunity for more frequent reviews of the Project Results Framework to ensure that additional outputs (e.g. 2.10) and the number of fisheries *refugia* sites (14 at proposal but 15 in execution) were modified. See Section 32 (Monitoring and Evaluation) for more details and analysis.
The MTR rates **Component** 4 as **Satisfactory.**
Overall, the MTR rates the **Achievement of outputs and activities** as **Moderately Satisfactory**. As emphasised in the introduction to this section, the project has been impacted by the delays in appointing the current project manager and significantly impacted at the national level for COVID restrictions. Despite the two-year project no-cost extension that has been granted by UNEP, the MTR is sceptical if all outputs as presented in the GEF CEO Endorsement Document can be delivered by December 2022 to the expected level given the current level of achievement.

14 Relevance

The SEAFDEC/UNEP/GEF Fisheries *Refugia* project is relevant to the countries of the region, fisheries organisations and other stakeholders, including coastal communities and fisherfolk. This project is derived from the 2008 South China Sea SAP's recommendations of introducing Fisheries *Refugia*, endorsed by the countries of the region. The Project Document states: '*The Ministers responsible for fisheries in the participating countries have endorsed, through the Intergovernmental SEAFDEC Council, the ASEAN-SEAFDEC Regional Guidelines on the Use of Fisheries Refugia for Sustainable Capture Fisheries Management in Southeast Asia as part of the ASEAN-SEAFDEC Regional Guidelines for Responsible Fisheries in Southeast Asia'.*
At the community level the concept of fisheries *refugia* has been largely accepted by coastal communities which is seen as being less restrictive than other no-catch mechanisms to protect habitats (e.g. Marine Protected Areas), although some stakeholders reported that some fisherfolk saw little difference from approaches used prior to the interventions of this project. The project has also been seen as beneficial to local communities through their involvement of the selection in sites and management of the activities, which strengthened local ownership of the fisheries *refugia* concept.
Stakeholders reported that national fisheries bodies responsible for managing fisheries appreciated the pilot projects and the capacity building exercises provided through the project, although several stakeholders considered the financial resources provided by the project for actions was too low at the country level. The approach of wide national engagement in the workplans was considered important by national stakeholders as ensuring the relevance of specific action undertaken in each country (see Section 29).
At a regional level, the project was also relevant to the work and objectives of SEAFDEC as a regional focus for sharing knowledge and experiences on fisheries and consistent with the ASEAN fisheries ministries goals, especially at developing regional management plans for important transboundary migratory species.
The project contributes to the Sustainable Development Goals (SDGs) of the countries. The Project Documents indicate that the project directly contributes to:

- SDG 14 Life Below Water (indicators 14.2, 14.4, 14.a, 14b and 14c)

The project also supports the following SDGs:

- SDG 1 No Poverty (Indicator 1b)
- SDG 2 Zero Hunger (indicator 2.4)

- SDG 12Responsible Consumption and Production (indicator 12.2)

The project is consistent with the GEF's objectives (see Section 3) and UNEP Mid-Term Strategy and Programme of Work (see Sections 35).
The Project contributes to UN Sustainable Development Cooperation Framework (UNSDCF), previously referred to as UN Development Assistance Framework UNDAF actions, specifically:

- Cambodia (2019-2023) – Outcome 3
- Indonesia (2016-2020) – Outcome 1& 3
- Malaysia - Eleventh Malaysia Plan 2016-2020 –Strategy 6
- Philippines (2019-2023) - Outcome 2
- Thailand (2017-2021) – Outcome 1
- Viet Nam (2017-2021) – Outcome 2

Key comments indicating the relevance from stakeholders include:

- *Co-operative work with a range of stakeholders has led to the Fishery Improvement Programme of the Blue Swimming Crab.*
- *The project had a strong relevance to my organisation which has a mandate to conduct research on fish resources enhancement, management and habitat conservation.*
- *The project is highly relevant to the national fisheries research organisation that will aid the development of policies and regulations for the conservation and management of the fisheries.*
- *The concept of fisheries refugia is new in the region. The concept is highly relevant as alternative management schemes requiring complete special closure. The approach complements the Ecosystem Approach to Fisheries Management (EAFM) which is institutionalised across the country.*

The **Relevance** of this project is rated as **Highly Satisfactory** by the MTR.

15 Effectiveness

The project has been effectively in applying the fisheries *refugia* concepts in 15 locations (12 are in operation and three are planned in Viet Nam) within six countries. The budget for this four-year project was limited given the regional and national expectations, but the project benefited from a strong and detailed Project Document, extensive planning in the Inception Phase, inclusive stakeholder discussions and involvement at the pilot site locations, an influential regional body as the Executing Agency and strong support from the countries having endorsed the regional 2008 SAP for the South China Sea. The project was designed with regional and national supervisory and advisory bodies that were well designed and implemented.
Activities noted in the 2021 PIR as significant achievements include:

- Development of a Regional Action Plan for Transboundary Species;
- Approval of two fisheries *refugia* sites in Cambodia;
- Best practices for Blue Swimming Crab;
- Linking science and management for Spiny Lobster;

Multiple stakeholders identified the effectiveness of the project's implementation in the organisation and content of the capacity development provided and the information made available through the websites/portals. This has capacity development and awareness raising has been well targeted for specific audiences from community to cabinet. Specific examples of awareness raising products are presented in Section 28 (Stakeholder participation and public awareness).
Key comments indicating the efficiency from stakeholders include:

- *The project implementation via a mechanism of management committee stakeholder consultation leading to acceptance of outputs delivered.*
- *Relevant local organisations were involved in the pilot project sites facilitating the work leading to good implementation.*
- *Involving communities to consider which species should be better managed.*
- *The project has effectively established fisher refugia approach to fish management through stock and habitat linkages. The concept of fisheries refugia, including regulation of fishing with a closed season and the protection of important habitats supports fisheries management.*
- *The project has been effective in delivering outputs that increased knowledge of critical habitats and fish stocks sustainability.*
- *The concept of fisheries refugia are being introduced at the local community and local Government Unit. At first there was a negative reaction as the concept regulates fishing activities, similar to marine protected areas restrictions. However, when fisheries refugia concept was better understood that the restrictions would apply to three days per month to support spawning and juveniles to was accepted leaving three days a month to repair nets and clean boats. This project also led to improved coordination between local communities and government bodies with responsibility of habitat protection.*
- *The project has been successful in the use of scientific information to support fisheries management.*
- *The project has promoted fisheries co-management at local levels.*

However, there were a few negative issues that were raised by stakeholders to-note including:

- *Too many documents/reports were requested by the project and too many 'details' of procedure where required by the project.*
- *In some cases, the concept of fisheries refugia was found to be ambiguous for local communities and indistinguishable from the existing management approaches in the country.*
- *The budget was considered limited for conducting activities at the pilot sites.*

The **Effectiveness** of this project is rated as **Satisfactory** by the MTR.

16 Efficiency

The project documentation (the CEO Endorsement) considered the project design as cost effective as it '*encompasses an integrated, cross-sectorial environmental and natural resource management approach that is ideally suited to the unique scale of challenges facing the South China Sea marine basin while simultaneously providing a cost-effective delivery mechanism in a rapidly developing region. Through the project management framework designed for this project, synergies with existing and emerging projects at regional, sub-regional, national and local levels can be achieved and a more cost-effective and expansive engagement with stakeholders assured.'*

The MTR supports this statement with the design of the project being was cost-effective with a modest GEF grant (to initiate SAP implementation of fisheries *refugia* in six countries) of 3 M USD and with planned co-financing contribution of over 12.7 M USD. The project design and implementation has had significant and active stakeholder engagement which has greatly assisted the understanding of the fisheries *refugia* concept that has aided the efficiency of execution.

Key milestones in the project development and implantation are summarised in Table 3.

Project milestone	Date
PIF Cleared	April 2013
GEF CEO Endorsement	January 2016
Project Start	March 2016
1st Disbursement	August 2016
Project Inception Meeting	November 2016
1st PSC	December 2018
2nd PSC	November 2019
3rd PSC (virtual)	June 2020
4th PSC (virtual)	October 2020
5th PSC (virtual)	September 2021
6th PSC (virtual)	November 2021
MTR	November 2021 – February 2022
Planned completion	December 2020
Revised completion	December 2022

Table 3 - Key project milestones

The project execution has suffered from significant delays, resulting in the PSC meeting in October 2020 (PSC4) approving for a two year no-cost extension (from December 2020 to December 2022). The delays have been attributed to the slow start of the project following the Inception Meeting (November 2016) and the resignation of the initial project manager. The current project manager was appointed in July 2018 with the first PSC meeting held in December 2018. The project has also faced delays with the finalisation of agreements with Indonesia and Viet Nam resulting in these countries only being able to start project activities in 2019. More critically, since March 2020, COVID has had a significant effect on the operation of the project, curtailing in-person workshops, capacity development activities and meetings,

including on-site visits to the pilot activities at 15 locations, where internet performance and reliability was limited for remote meetings.
Current expenditure is low (58% reported by the PCU at the end of September 2021 – See Annex 6) considering the duration of the project with one year of the agreed project extension remaining. However, the expenditure is in line with the PCU's estimate of the progress on outputs (see Annex 7). The project has reported that it has levered 18.32 M USD of co-financing exceeding the planned level anticipated at CEO Endorsement. (See Annex 6). The operational costs for the project during the two-year extension have been funded on a 10% reduction in the unspent budgets from the countries.
Key comments indicating the efficiency from stakeholders include:

- *The project implementation at a national level was slow due to the delay in the agreement signing process.*
- *All workshops, trainings, etc. were established and conducted efficiently*
- *The project duration is too limited to achieve all outputs expected in the workplan. Covid also presented a serious impact, limiting travel and in-person meetings.*
- *The project moved slowly and the project staff were not able to do all the activities on time. Additional training is needed to assist with, for example, the management of the national committee meetings.*
- *The project was delayed in the initial stages and due to covid that has affected site visits to collect data*.

The **Efficiency** of this project is rated as **Moderately Satisfactory** by the MTR.

17 Review of Theory of Change

A Theory of Change was not completed at the project design stage as it was not a requirement at that time. A reconstructed ToC has been prepared using information from the Project Documents and Results Framework. The reconnected ToC was submitted in draft form to the Implementing and Executing Agencies in the MTR Inception Report. No comments on this reconstructed ToC were received and it is presented in Annex 5.

18 Sustainability

19 Socio-political Sustainability

The project has adopted a comprehensive approach to involve local communities, Local Government Units, national fisheries organisations and other stakeholders in both the development of the project and its execution. The establishment of local committees to supervise the pilot sites, supported by awareness raising and capacity development, that increased knowledge of critical habitats and fish stocks sustainability, has gained support from fisherfolk as a sustainable approach to fisheries management with less restrictions than no-catch approaches.
The **Socio-Political Sustainability** of this project is rated as **Likely** by this MTR.

20 Financial Sustainability

The MTR has received multiple reports from National Focal Points from national fishery organisations that expressed support for fisheries *refugia* in their countries. Countries in the region have also endorsed the 2008 South China Sea SAP indicating strong national support for the establishment of fisheries *refugia.* The Philippines, for example will include fisheries *refugia* sites within local management boards which will assure the future of this approach. These observations suggest that there are national commitments to continue and expand the

approach as appropriate. The project should continue to support national activities to identify long-term financial support (from multiple sources including private sector, communities and governments) for the fisheries *refugia a*pproach.

The **Financial Sustainability** of this project is rated as **Likely** by the MTR.

21 Institutional Sustainability

Stakeholders reported that national fisheries authority have recognised the benefits of science-based, participatory and scalable to the management of fisheries. Stakeholders also noted that the project had strengthened fisheries management and were encouraging Local Government Units to consider developing fisheries *refugia* management plans within the overall frameworks adopted on Ecosystem Approach to Fisheries Management (EAFM).

At the regional level, the SEAFDEC are well placed as the Executing Agency for this project and as a regional organisation with expertise in fisheries to continue to support the approach of fisheries *refugia* in partnership with ministries responsible for fisheries within ASEAN countries.

The project websites is planned to be supported by the recent GEF South China Sea (SCS) SAP implementation project with the intention that the sites (regional and national) transferred to GEF IW:LEARN to ensure the long-term sustainability of their contents. The original expectation for the fisheries *refugia* and SCS SAP implementation that they would be executed in parallel and share resources. However, the SCS SAP project has only recently been initiated and is in the process of updating the 2008 SAP by undertaking an evaluation of all elements. This continuing work in the region, building on the results of the fisheries *refugia* project's experiences of implementing the fisheries aspects of the SAP, will further support the sustainability by ensuring national ministries and associated inter-ministerial committees continue to utilise results from this project. The MTR recommends that the project manager of the projects brainstorm means to deliver options to deliver expected activities relevant to each project where they can be mutual benefits (e.g. finalisation of work in Viet Nam and Indonesia through support for project technical management and undertaking an evaluation of the SAP fisheries actions).

The **Institutional Sustainability** of this project is rated as **Highly Likely** by the MTR.

22 Environmental Sustainability

The project is not expected to have any negative impacts on the environment. The project is aimed at strengthening the management of critical fisheries and biodiversity relevant coastal habitats. However, it is possible that climate change (and extreme weather events) could impact coastal habitats (e.g. mangroves, reefs, etc.) that are critical within fish life cycle.

The **Environmental Sustainability** of this project is rated as **Likely** by the MTR.

The **Overall Sustainability** of this project is rated as **Likely** by the MTR

23 Catalytic Role

The project is an integral element of the endorsed 2008 SAP for the South China Sea and this project was designed to test the fisheries *refugia* approach to management of these important socio-economic resources in 15 sites (12 fisheries *refugia* sites have been established and three in Viet Nam are anticipated in 2022). The lessons and results from these pilot sites will be documented and distributed across the region, and more widely, for upscaling. These results will also be integrated in the South China Sea SAP implementation project. The project should continue its activities to support the raising of awareness on fisheries *refugia* approaches to ensure that this can be replicated and upscaled across the region.

The project has also had specific catalytic impact on the countries involved in the project (as noted below in 24 – Replication)

24 Replication

The PCU reported the following specific replication actions:

- Malaysia has stated that Department of Fisheries plans to expand the *refugia* programme to cover other commercial fish species.
- Viet Nam developed plans for 46 fisheries management areas (*Refugia*) in their ten-year National Master Plan for Fisheries Development (expected to be approved by Government in mid-2022.
- Cambodia is in the process of scaling-up the program for other target species in Sihanoukville Province.
- Thailand has implemented the r*efugia* approach since the first phase on Short Mackerel, this is being expanded to the Andaman Sea to protect the spawners from 1 April to 30 June every year.

Stakeholders interviewed also made reference to countries considering using the experiences from the pilot sites as important references to replicate the approaches at other sites to expand the fisheries *refugia* approach introduced through the 2008 SAP and tested in this project.

The **Catalytic Role** and **Replication** of this project is rated as **Satisfactory** by the MTR.

25 Processes affecting attainment of project results

26 Preparation and readiness

The project was developed in response to the endorsed 2008 South China Sea SAP that recommended the establishment of fisheries *refugia* as an appropriate measure to safeguard the coastal habitats and local fisheries dependent on these for community livelihoods. The approach recommended by the SAP is summarised in Section 4 (the 'Project').

The Project Document is detailed and clearly written. However, this did not include a gender strategy nor a communication plan for the project's implementation as these were not a requirement at the time of submission. As indicated in Section 17, a Theory of Change was also not required when the documents were submitted for endorsement.

The Project Results Framework is detailed, but as discussed in Section 32 would not be considered 'SMART[2]' by current requirements, lacking in particular quantifiable indicators/targets.

The project inception phase led to the development of a significant volume of information on the planned pilot sites and the activities to be undertaken, culminating in an Inception Meeting to present and discuss the approach. Unfortunately, an Inception Meeting Report was not prepared and any recommendations for changes to the planned approach were not captured. It is usually an expectation that the Inception Report provides additional clarity and highlights any changes needed to the project since the original Project Documents were prepared.

The project design also greatly benefited from the active and supportive role of SEAFDEC that aided the credibility of the approach with country stakeholders from fishery ministries and their support provides a good guide to long-term sustainability of the fisheries *refugia* approach.

The **Preparation and Readiness** of this project is rated as **Satisfactory** by the MTR.

[2] Specific, Measurable, Achievable, Relevant, Time-bound

27 Implementation approach and adaptive management

The approach planned for the implementation of the project is described in Section 6, and this has been followed during execution. A particular strength of the planned approach has been the active involvement of local stakeholders in identifying sites, providing national technical guidance and supervision (through the National Scientific and Technical Committee and Site Management Boards respectively). Whilst this has placed a burden from frequent meetings it has been beneficial in achieving country ownership and acceptance of the fisheries *refugia* approach from coastal communities.

The PCU identified a number of challenges that have been addressed by the project, including:

- The changes to designated persons at the national level with responsibility for the project and the time required by project staff to explain the UNEP/GEF project. The project has assisted with building capacity in the lead agencies (e.g. in Thailand, Indonesia and Viet Nam);
- Changes in country policy on grants for national implementation has resulted in delays in signing agreements between SEAFDEC and the countries.
- Lead agency financial regulations on currency exchange rates which impacted actual expenditure reported at year-end;
- Delays in quarterly fund transfers from UNEP to SEAFDEC and PCU/countries resulting in the pragmatic approach by the Task Manger of transferring funds to cover two quarters

Since the appointment of the current Project Manager, progress reports have been delivered as requested but the timing of financial reports has been uneven (see Section 30 and comments from the UNEP Fund Management Officer).

The delays in the project execution, resulting from a slow start following inception, the appointment of the current Project Manager and impacts of COVID (see Section 16) has resulted in an agreed no-cost extension to the project (from December 2020 to December 2022). The PCU and Executing Agency agreed with the countries to reduce their unspent budgets by 10% to cover the regional co-ordination costs of the project extension. This innovative approach to supporting the project co-ordinations during a prolongation to the activities is reported by the PCU to have no impact on the deliverables expected from the countries and will have no impact on the Project Results Framework targets. The MTR considers that the ability to reduce the remaining budget and not have an impact on deliverables as unusual, and for clarity this should be fully documented to ensure stakeholders and the GEF are fully aware of the impacts of budget reductions.

Impacts from COVID

As with all current projects, COVID has had a significant impact on the activities necessitating adaptive management changes. Stakeholders clearly stated that COVID had impacted almost all aspects of the project, reducing in-person meetings, increasing desk studies and reducing site visits that are considered essential for effective execution of projects. Stakeholders noted that a potential benefit of these restrictions has been the use of additional local/national universities and other institutions.

Adaptive management actions

The PCU identified the following examples of adaptive management undertaken by the project.

- The project has used an ocean modelling system from IOC/WESTPAC (Inter-governmental Oceanography Commission for the Western Pacific) rather than use project resources to develop their own model (Output 2.8) as it was agreed to be more cost-efficient.
- Embedding the fisheries *refugia* project in national fishery programmes to enhance implementation. This enabled improved access to data and information obtained from survey vessels from national co-financed resources.
- Additional co-operation with SEAFDEC's programme on gender to assist with mainstreaming in partner countries.

The **Implementation Approach and Adaptive Management** of this project is rated as **Satisfactory** by the MTR.

28 Stakeholder participation and public awareness

The project development and execution has been undertaken with extensive stakeholder involvement and consultation which has resulted in an effective uptake of the concept of the fisheries *refugia* approach. This acceptance of these concepts will greatly aid the sustainability and replication of the approach and the replication within the region, supporting the goals of the 2008 South China Sea SAP.

The project has identified over 100 stakeholder groups that have an interest in fisheries including: fisheries and environmental agencies, tourism organisations, public bodies, national navies and coastguards, NGOs, CSOs, academia, research bodies, local government, fishing communities, private sector, etc.

The project developed an extensive website, following the IW:LEARN guidance, and linked this to national portals that support pilot site activities and present reports of national meetings and summaries of achievements. As indicated above, the project websites will be transferred to the South China Sea (SCS) SAP implementation project which will ensure the long-term support through IW:LEARN for the contents. The SCS SAP implantation project will also assist with other communication prepared by the fisheries *refugia* project.

Five countries have prepared social media or issued press releases. The project has not yet prepared IW:LEARN Experience Notes but has participated in a range of IW:LEARN and other sponsored events, including:

- GEF IW:LEARN
  - IW 9 Conference in Marrakesh in 2018
  - EAS Congress/ GEF IW/LME:LEARN Partnership Hub LMEs: An Engine for Achieving SDG 14 Track 4: Governance and Partnerships. Philippines (27 Nov. 2018
- GEF LME:LEARN sponsored events:
  - 2nd Annual Asia-Pacific Regional Network Meeting Viet Nam (18 February 2019)
  - LMEs 21: Building Partnerships around LMEs in support of the 2030 SDGs.
  - The Asian Regional Workshop on Data and Information Management, 3-5 December 2019
- Other events

- Regional Workshop on the Implementation of Aichi Target 11 in the ASEAN Region and the Meeting on Target Setting for the ASEAN Strategic Plan on Environment 2016-2025, (2018) Philippines
- Mangrove for the future: Regional Dialogue on Gender Dimension in Coastal and Fisheries Resources Management in South Asia and Southeast Asia: Opportunities and Challenges
- Twelfth Intergovernmental Session of the IOC Sub- Commission for the Western Pacific (WESTPAC-XII), the Philippines, 2019;
- Twenty-fourth Intergovernmental Meeting of the Coordinating Body on the Seas of East Asia (COBSEA) Indonesia, 2019
- Regional Consultative and Planning Workshop towards the UN. Decade of Ocean Science for Sustainable Development (2021-2030)

Recent stakeholder engagement (as reported in the 2021 PIR) includes:

- Capacity building on the concept of fisheries *refugia* and the objectives for setting fisheries *refugia* in the community sea area.
- Support to socio-economic survey and study conducted by local partners (CSOs, institutions) and central government
- Identification of threats and solutions to protect marine ecosystem, and to protect the priority species under the *refugia* concept
- Selection and demarcation of fisheries *refugia* area, which is based on the scientific-based findings presented by national scientific and technical committee.
- Engagement in the formulation of management measures at fisheries *refugia* sites
- Support to the monitoring and enforcement at fisheries *refugia* sites under the Provincial's fisheries management Order.

The project has supported the strengthening of the Regional Education and Awareness Centre within SEAFDEC's training department which acts as a mechanism to share experiences from the project with all ASEAN including the six countries participating in this project. The project has produced and shared many guidance documents and lessons through its website and via SEAFDEC's channels including:

- Fisheries *refugia* concepts[3]
- Novel approaches to achieve healthy ecosystems - fisheries *refugia*[4]
- Coastal zone management in the context of fisheries *refugia*[5].
- Expert discussions for establishing the spiny lobster and tiger prawn *refugia* in Malaysia[6]
- Managing transboundary fisheries[7]

[3] Fisheries refugia concept in the Gulf of Thailand
[4] Fisheries Refugia – a Novel Approach to Achieve Healthy Ecosystems
[5] https://fisheries-refugia.org/242-integrated-coastal-zone-management-in-the-context-of-fisheries-refugia-approach
[6] https://fisheries-refugia.org/244-final-round-discussion-among-experts-for-setting-the-spiny-lobster-and-tiger-prawn-refugia-in-malaysia
[7] https://fisheries-refugia.org/233-managing-transboundary-setting

- Ocean forecasting systems[8]
- Changing attitudes to achieve the restoration of the Blue Swimming Crab[9].

Comments received from stakeholders include:

- *The project has engaged a high number of stakeholders. The project has strengthened, engaged and increased awareness in a wide range of interested stakeholders from government fisheries ministries, academics, NGOs, local fisher communities, etc. A beneficial example of stakeholder involvement includes the Regional Plan for Management of short-mackerel*
- *Collaboration with Local Government Units was good with the local communities being very co-operative with support to the project. This good involvement and collaboration between Local Government Units has facilitated the acceptance of the fisheries refugia of local government unit and coastal communities and this has been valued by all involved.*
- *Stakeholder participation has provided local knowledge on critical life stages and habitats that are the subject of the interventions in the fisheries refugia.*
- *Stakeholder consultation have been beneficial to specific areas – e.g. the Regional Plan for Management of Short-mackerel that has been developed and agreed.*

The **Stakeholder Involvement** of this project is rated as **Satisfactory** by the MTR.

29 Country Ownership

Country ownership, engagement and ownership in the fisheries *refugia* concept has been very high throughout the project cycle. The endorsement by the countries of the 2008 South China Sea SAP provided the framework and clear justification for this project. The project has a clear objective of supporting national/regional fisheries and associated habitats which translates into clear socio-economic benefits for coastal communities.

The project development phase engaged widely with countries from local communities to ministries to ensure the pilots and their intended programmes met the needs of stakeholders. However, there were significant delays in finalising agreements with two countries (Indonesia and Viet Nam) following GEF and UNEP approval of the project. This has been attributed by the PCU to requiring more time to explain the formal aspects of the GEF and UNEP agreements. A key lesson is that whilst the project fully explained the purpose of the project and the activities to be undertaken during the PPG phase, more attention should have been paid to the understanding of the GEF/UNEP process associated with in-country activities.

Further benefits to countries also are derived through the support the project delivers to regional organisations objectives (SEAFDEC and ASEAN) and through facilitating national progress on delivering key SDG targets (see Section Relevance14 -Relevance).

The **Country Ownership** of this project is rated as **Satisfactory** by the MTR.

30 Financial planning and management

The project was approved (by UNEP and the GEF) with a detailed budget presented in the Project Documents. The project's proposed budgets and expenditure reports were presented and approved by the PSC meetings. These budgets followed the UNEP agreed budget lines.

[8] https://fisheries-refugia.org/232-apply-the-ocean-forecasting-system-in-the-south-china-sea-and-the-gulf-of-thailand
[9] https://fisheries-refugia.org/210-restoration-bsc-thailand

The Project's expenditure per year and per component is presented in Annex 6. This shows that at the end of September 2021, the overall project expenditure was 58% of the total budget, with the revised end-date of December 2022, indicating that significant project activities are still to be completed (consistent with the overall completeness of the project's outputs shown in Figure 2).

The figures presented in Annex 6 for component 1 and component 4 budgets show significant changes between CEO Endorsement and the current PCU figures. Component 1 was reduced by approximated 45% and Component 4 increased by over 50%. The current Project Manager explained that the previous manager had adjusted the original detailed UNEP budget-lines, endorsed by the GEF, without a detailed review of the impacts on specific project component budget, resulting in the current significant changes to the planned costs per component and presumably their ambitions. The PCU has closely followed the UNEP financial reporting but unfortunately did not reformulate these into specific project component budgets.

At CEO endorsement the project anticipated that the co-financing was in excess of 12.7 M USD, and the current (September 2021) figure indicates that 18.32 M USD of co-financing has been delivered by the partners. The MTR notes that the co-financing reports provided by the PCU indicate that the planned amount was 12.46 M USD (not the 12.7 M USD presented in the CEO document) – this should be clarified in future reports (NB: If this is a real change rather than a reporting error, this may also be an issue that could have been addressed in an agreed Inception Report which provides an opportunity to present updated information to the approved CEO/Project Documents).

The UNEP Fund Management Officer (FMO) reported some delays early in the project but with the provision of financial reports, but currently these are delivered on-time. The project was established under an earlier UNEP financial management system with differing reporting requirements. The FMO has assisted with the migration to current reporting, although some aspects (e.g. project management costs) were still in progress or being addressed.

The project has been audited annually at the regional and national levels and consolidated audit reports provided. No significant issues were identified in the latest audit reviewed for this MTR (to December 2019). The 2020 audit has recently been finalised and being sent to the UNEP FMO.

The project has undergone three budget revisions (September 2019, June 2020 and December 2021) following approval by the PSC.

Project stakeholders interviewed, including the FMO, identified that staff engaged at national and regional levels would benefit from a deeper understanding of the requirements of UNEP financial management. The FMO suggested that detailed briefings should be an element of the project Inception Meeting to ensure all engaged have a good appreciation of the requirements to ensure more effective and efficient delivery of the project components.

The FMO also recommended that all project inception meetings should include financial staff from the project/partners to receive a briefing from the UNEP FMO to ensure that from the start of the project all relevant personnel have an appreciation of the requirements and approach for efficient and effective financial management and reporting.

The **Financial Planning and Management** of this project is rated as **Moderately Unsatisfactory to Moderately Satisfactory** by the MTR, specifically related to the significant changes to component budgets (and presumably ambition) with limited explanation of justification available.

31 UNEP supervision and backstopping

The UNEP Task Manager and Fund Management Officer have provided guidance and advice when required to help ensure the progress and financial reports have been delivered. The Task Manager attends the PSC meetings (recently, due to COVID through remote internet meetings).

The Project Manager should continue to seek advice and guidance on UNEP and GEF expectations on technical and financial reporting from the UNEP Task Manager and Fund Management Officer to ensure the effective implementation of the project.

The **UNEP Supervision and Backstopping** of this project is rated as **Satisfactory** by the MTR.

32 Monitoring and Evaluation

33 M&E design

A detailed and costed M&E plan was presented in the Project Document and the GEF CEO Endorsement submission. The plan included all expected and necessary progress (quarterly, annual, inception, workplans, etc.) and financial (quarterly and certified annual) reports, PIRs, PSC meetings and made provisions for the MTR and Terminal Evaluation (TE). With the exception of the TE, all reports are the responsibility of the EA and the PCU, to be delivered to the IA and the PSC.

At the time of endorsement, the GEF IW tracking tool was in operation but has been replaced by the GEF 7 core indicators. There was an expectation in the Project Document that the Tracking Tool would be update at mid-term. The Project Manager should confirm with the Task Manger if this is still required. As required in the Project Identification Table (Table 1), the consultant has tentatively suggested GEF 7 Core Indicators that would be relevant to this project. These are:

- Indicator 2.2 Marine protected areas under improved management effectiveness (target 269,500 ha; actual 382,400 ha)
- Indicator 7.1 Level of Transboundary Diagnostic Analysis and Strategic Action Programme (TDA/SAP) formulation and implementation (target ‘4’)
- Indicator 7.2 Level of Regional Legal Agreements and Regional Management Institutions to support its implementation (Target ‘3’)
- Indicator 7.3 Level of National/Local reforms and active participation of Inter-Ministerial Committees (Target ‘4’)
- Indicator 7.4 Level of engagement in IWLEARN through participation and delivery of key products (Target ‘4’)

A detailed Project Results Framework was approved at CEO endorsement. The indicators and targets are very generally formulated and are not ‘SMART’ by current standards. Few indicators are quantifiable and would merit review before the project reaches the final evaluation.

The budget for Evaluation (shown in the overall regional budget Excel sheet as submitted for CEO endorsement) indicated all costs associated with the mid-term and terminal evaluation (100,000 USD) were included in component 4 costs. There is no clear summary of costs associated with inception or PSC meetings in the Project Document or the CEO Endorsement Document.

The **M&E at design** is rated as **Moderately Satisfactory**.

34 M&E implementation

As mentioned previously, the Inception Meeting, held in Bangkok in November 2016, was supported with multiple documents summarising the concept of fisheries *refugia*, status and trends of habitats, purpose of the project, management framework, budgets, etc. The MTR considers this to be a very detailed and informative meeting. However, an Inception Report, summarising the Project Document and any changes since this was prepared was not developed and there are no minutes of the Inception Meeting, again summarising any changes or agreements reached by the participants.

The project has prepared PIRs (except in 2017) and quarterly reports as planned. Project Steering Committee meetings were held as indicated in Table 3 - Key project milestones, and minutes of these meetings are available. The minutes of the PSC meetings are very detailed and informative, and stakeholders complimented the project on these summaries.

The project prepares a detailed assessment of the achievement of each output at the regional and country level. This detail at the country level is an example of good practice that should be encouraged within all GEF IW regional projects.

At the start of the project, the original Project Manager made significant changes to the structure of the UNEP budget that was passed to the current Project Manager resulting in approximately 50% changes in budgets for Component 1 and 4. This should have resulted in changes to the Project Results Framework to reflect the change of ambition. There have been no changes to the Project Results Framework since CEO endorsement.

- The project has included an additional output (4.10) to assist Cambodia to identify best practices on fishing gear (originally planned for 2020, but due to COVID delayed until 2022).
- The project has also identified 15 sites to implement pilot activities on fisheries *refugia*, not 14 as planned.
- Output 1.4 indicator (*Increase in the proportion of target community members [minimum of 30 percent women] participating in refugia management, including enforcement, at the site level)* and mid-term target (*Enforcement programmes at 14 fisheries refugia sites, including participatory activities for monitoring, control and surveillance*) do not seem to be well aligned.
- The PCU's assessment of the delivery of expected outputs (in particular from Indonesia and Viet Nam) show that significant work is still required for completion. The MTR offers a good opportunity to review outstanding activities (in the event a further project extension is not requested) and to reflect the realistic targets in a revised Project Results Framework.
- The PCU reported that the recent reduction of the national budgets to cover the PCU costs of the 2-year extension, will not result in any changes to expected deliverables. This should be reconfirmed.

These changes or clarifications have not yet been made in the Project Results Framework and the MTR considers that ensuring that the Results Framework correctly reflects the project is a high priority.

The **M&E Implementation** is rated as **Moderately Satisfactory**.

35 Complementarity with UNEP programmes and strategies

The project design is consistent with the Healthy and Productive Ecosystems, Subprogramme 3 of Programme of Work (2020-2021 and earlier), and with the UNEP Mid-Term Strategy (MTS) covering the project's execution, through a focus on coastal fisheries and sustainable livelihoods.

36 Alignment with the Bali Strategic Plan (BSP)

The Bali Strategic Plan for Technology Support and Capacity Building (BSP) is an inter-governmentally agreed framework for strengthening the capacity of governments in developing countries and countries with economies in transition to coherently address their needs, priorities and obligations in the field of the environment.

The project has endeavoured to build capacity on fisheries management within the region and to share the experiences between the six countries involved in this project. The project is consistent with the goals of the BSP.

37 Gender

The project was not designed with a gender strategy or plan, but the project is following the established SEAFDEC's gender policies. A regional Experts Consultation Workshop on Guidance to Monitoring and Evaluation of Gender Equity and Social Well-being in Fisheries Communities was convened in August 2018 in Bangkok, and the Workshop was attended by several project partners, NGOs, CSOs and inter-governmental organisations (including, SEAFDEC's Gender Working Team and the ASEAN), etc.

Involvement of women and women's groups are mentioned in the Project Document. Output 1.4 (*Empowered fishing communities, particularly artisanal fishermen and women involved in inshore gleaning and processing, for enforcement of agreed management rules at 14 priority refugia sites in the South China Sea and Gulf of Thailand*) identifies women as a target for involvement with a minimum of 30% of women participate in *refugia* management and enforcement at the site level, although information is not currently available to assess how this indicator has progressed.

The 2021 PIR indicates that gender information *will* be collected in the Philippines in the 3rd quarter of 2021 through *'Data collection on gender dimension in the value chain of small-scale fisheries and aquaculture*'. The results from activities in Philippines *will* be shared with all countries. To-date this information has not been shared. The fisheries *refugia* project has, so far, supported only one country (Cambodia) to a 'training to trainer' workshop on Gender Mainstreaming in Fisheries *Refugia* Management in 2019.

The PCU has collected sex disaggregated information from all national and regional programmes, but this information has not been analysed or reported yet. It is essential that information is reported and information shared before project completion.

38 South-South Co-operation

The project is within the regional GEF International Waters programme. Lessons and experiences are shared within the South China Sea and Gulf of Thailand region and more widely through the GEF IW:LEARN project which addresses the global GEF IW community of projects.

SEAFDEC (the Executing Agency and regional body with a responsibility on fisheries management and training) further encourages involvement with the ASEAN ministries of fisheries.

Stakeholders have remarked that the project has enhanced capacity of the local communities across the countries involved in managing fisheries resources, and this has been achieved through good co-operation and sharing of information across the region.

39 Conclusions and Recommendations

Table 4 - Summary of Ratings

Criterion	Reviewer's Summary Comments	Reviewer's Rating[10]
Attainment of project objectives and results (overall rating) **Sub criteria (below)**	The project has achieved good acceptance from a range of stakeholders of the benefits of fisheries *refugia* concepts in line with the expectations of the 2008 SAP	**MS**
Achievement of outputs and activities	There is a wide level of achievement of outputs between countries due to the delayed start in some cases. The MTR notes the significant reduction in Component 1 budget compared to CEO and this should be fully explained/justified. However, there are clear and important achievements and good local community involvement in the pilot activities	**MS**
Relevance	The project responds to the regionally endorsed SAP and has support of fishing communities and government officials.	**HS**
Effectiveness	The project has achieved a 60% deliver of outputs and has been effectively organised with regional and national/local management committees	**S**
Efficiency	The project has been very delayed due to COVID, the change of project managers and the slow involvement of two countries. Despite the two-year extension the MTR considers that completing the remaining activities and outputs consistent with the GEF endorsed document is very challenging in 12 months.	**MS**
Sustainability of Project outcomes (overall rating) **Sub criteria (below)**	The MTR considers the prospect of the fisheries *refugia* concepts and approaches tested by this project to have the support of a wide range of national and regional stakeholders	**L**
Socio Political	The project benefits from good political support (derived from the SAP) and strong engagement by the project of communities in the development and management/ implementation of the pilot activities.	**L**
Financial	National and regional support is strong given the commitment to the SAP and the recognition of the importance of coastal habitats and fisheries for local communities.	**L**
Institutional framework	There is a very strong fisheries organisation that is well established (SEAFDEC) with good connections to ASEAN ministries responsible for fisheries.	**HL**
Environmental	The project is designed to strengthen coastal management of habitats and fisheries.	**L**
Catalytic Role		

[10] Criteria are rated on a six-point scale as follows: Highly Satisfactory (HS); Satisfactory (S); Moderately Satisfactory (MS);Moderately Unsatisfactory (MU); Unsatisfactory (U); Highly Unsatisfactory (HU). **Sustainability** is rated from Highly Likely (HL) to Highly Unlikely (HU) on a four-point scale.

Criterion	Reviewer's Summary Comments	Reviewer's Rating[10]
Replication	The project has tested the establishment of fisheries *refugia* at 15 sites and has document the experiences and guidance to encourage further uptake and replication of the approaches	**S**
Preparation and readiness	The SAP provided a significant justification for the project and this was further supported by the countries being further engaged in the development of the activities. A very detailed inception phase that further refined the activities supported the implementation. Although, disappointingly, an Inception Report was not prepared that refined the Project Documents and summarised changes.	**S**
Country ownership	Support for the SAP assisted with the countries' acceptance and ownership of this project.	**S**
Stakeholders' participation and public awareness	Throughout the project there has been a high engagement of stakeholders from 'community to cabinet'	**S**
Implementation approach and adaptive management	The project has been challenged by COVID which has undoubtedly impacted the execution and the ability to share experiences.	**S**
UNEP Supervision and backstopping	There has been regular contact between the UNEP TM and the Project Manager. The Project Manager should be encouraged to request clarification on GEF and financing requirements from the TM and FMO.	**S**
Financial planning and Management	Changes to the budgets prior to the appointment of the current project manager led to significant deviations in component budgets (up to 50% changes) and presumably ambitions. These changes should be explained for the terminal evaluation. The project has undergone 3 budget revisions and an approved project extension that has adopted an innovative approach of reducing national unspent budgets by 10% to finance the project to cover the continuing functions of the regional project.	**MU - MS**
Monitoring and Evaluation (overall rating) **Sub criteria (below)**	Most of the requirements have been undertaken. The MTR offers an opportunity to review and update the Results Framework that has not occurred since the project was endorsed by the GEF.	**MS**
M&E Design	Whilst there is an extensive Results Framework there are few quantifiable indicators/targets	**MS**
M&E Plan Implementation	The Results Framework should be reviewed in the light of the budget changes approved and the initial changes that made significant adjustments to the component budgets and ambitions. Where possible the sex disaggregated information	**MS**

Criterion	Reviewer's Summary Comments	Reviewer's Rating[10]
	that is collected by the PCU on participants should be included in the Results Framework and reported in the PIRs	
Overall Rating		**MS**

40 Conclusions

The SEAFDEC/UNEP/GEF fisheries *refugia* project is a planned series of actions in the regionally endorsed 2008 South China Sea SAP. The TDA and SAP identified the high pressure of fishing on the fish stock and related coastal ecosystems that impacted socio-economic conditions through declining ecosystem services. The SAP recommended the establishment of fishery *refugia* to addresses the problems by drawing on fisheries management concepts that are easily understood at the fishing community level, emphasising sustainable use rather than prohibition.

The development of the Project Document involved extensive engagement with coastal communities and national fisheries stakeholders that has assisted the regional acceptance of the concept of fisheries *refugia*. The project has been executed through SEAFDEC as an appropriate regional body within the ASEAN involved in the project with significant competencies in fisheries management.

SEAFDEC recruited a Project Co-ordination Unit based in their offices in Thailand. The original Project Manager resigned shortly after the project's inception phase and there was a significant delay before appointing a replacement which led to a slow initiation of the project. The project also struggled to get final signed agreements with Indonesia and Viet Nam, due to questions over contracting arrangements, that has delayed further their progress in the project. As with all projects at present, the fisheries *refugia* project has had to work under varying COVID restrictions since early 2019, and has responded with appropriate adaptive management actions to ensure that meetings and other activities could be undertaken remotely where possible. However, these restrictions have clearly had a significant impact on progress. A two-year no-cost extension was identified by the PSC in 2020 as a necessity and this was granted by UNEP with a revised end-date of December 2022.

The project has successfully launched pilots at 12 sites, with three more planned in Viet Nam to test community-based actions relating to fisheries *refugia*, complemented by significant capacity development and awareness raising actions, with ten management plans either developed or likely to be approved by 2022. These were well supported through regional and national websites/portals to serve regional and global audiences including local communities. Guidance documents and press releases have been prepared to further engage interested stakeholders.

The project seems to have been very successful at ensuring the concept of fisheries *refugia* approaches, for protecting coastal ecosystems and fisheries, was accepted by the countries and importantly, by coastal communities dependent on fishing for their livelihoods.

Project governance was through a regional Project Steering Committee composed of national focal points, Implementing and Executing Agencies that met regularly as planned (albeit 'virtually' for the last 18 months). Technical guidance was through a Regional Scientific and Technical Committee. These management bodies were mirrored nationally through appropriate committees and advisors.

There have been significant changes to component 1 and 4 budgets that clearly represent changes of ambition to the expected component activities. These changes should be clearly explained and justified prior to the terminal evaluation.

The project has an approved M&E plan at endorsement and whilst the Result Framework is not considered SMART by current standards by this MTR it has been adhered to during execution. The MTR offers the opportunity to update the Results Framework (this has not occurred since CEO endorsement) to ensures that it presents a good reflection of what can be achieved in the remaining time of the project and to address minor changes that have occurred to-date. The project has prepared the necessary management (technical and financial) reports as required.

Stakeholders interviewed have indicated their support for the project and shown their commitment to the concept of fisheries *refugia* which provides confidence to the MTR in the sustainability of the project's actions that is reinforced with the previous national endorsement of the SAP with which this project is aligned. The project has been successful at conveying the concept of fisheries *refugia* to coastal communities that have seen this approach as a viable alternative to 'no-catch' approaches such as Marine Protected Areas.

The PCU had estimated that, at the end of September 2021, the project outputs were approximately 60% delivered, consistent with the overall project budget spent (see Annex 6). Whilst this shows a high level of completeness in some countries, for example Thailand and Cambodia other countries (notably Indonesia and Viet Nam) are significantly behind in the delivery of expected outputs. In addition, the approved project extension has been required that countries unspent budgets were reduced by 10% to cover the regional operation of the project. While the PCU is confident that all planned activities and outputs can be delivered with the reduced budgets, the MTR considers it prudent to carefully reassess the workplan, including the relatively low-level of the output delivery in some cases, when updating the Results Framework. It would also be beneficial to summarises changes to country activities as a consequence of the national budget reductions to ensure that stakeholders and the GEF are fully aware that budget reductions have material impacts on projects.

The fisheries *refugia* project was expected to be implemented in parallel to the GEF South China Sea SAP implementation project, that was addressing other elements of the 2008 SAP and recommending updates to the original SAP. The results from the fisheries *refugia* project will play an important role in guiding the fishery elements of the SAP updates and it will be beneficial if a review and evaluation of the SAP could be formulated as part of the project's exit strategy. It is understood that the SCS SAP implementation project has resources available to facilitate the updating of the fisheries aspects of the SAP and this should be explored by the PCU.

The MTR considers that the current level of project output deliver (60%) and grant expenditure (58%) appears low given the remaining approved project extension. The MTR considers that a further extension, working in close co-operation with the GEF/UNEP South China Sea SAP implementation project, should be considered.

41 Lessons learned

Table 5 – Summary of lessons

Lesson 1	**Importance of full involvement of stakeholders in the design, execution and management of project activities**
Project Context	The fisheries *refugia* project has adopted a very proactive approach to engaging stakeholders in the initial design (building on the achievements of the 2008 South China Sea SAP) and subsequent implementation through the formation of

	National Science and Technical, and Management Committees to guide the pilots in 15 sites. This has resulted in a high level of acceptance of the fisheries *refugia* approach which is viewed as less restrictive than alternative 'no catch' approaches to marine ecosystem protection.
Application of lesson in similar projects	GEF IW projects involving pilot actions with communities should be encouraged to more actively engage local stakeholders at the earlies opportunities to gain acceptance for actions in a range of local and ministerial level stakeholders of novel concepts.
Lesson 2	**Importance of Project Inception Reports and updating Project Results Framework.**
Project Context	The fisheries *refugia* project had a detailed inception phase resulting in a wealth of documents and other information that was presented at the inception meeting. Unfortunately this information did not result in a formal project Inception Report that was recognised by the PSC or Inception Meeting as presenting any minor changes to the project design including the Results Framework. The current MTR is using material that was developed 7-8 years ago, including the Results Framework which has also not been updated since CEO endorsement despite two budget revisions and a project extension. The Project Results Framework would benefit from a review of indicators and targets to include more quantifiable indicators.
Application of lesson in similar projects	The Implementing Agency should ensure that all projects deliver an agreed Inception Report that includes any changes to the Results Framework for approval by the PSC and/or Inception Meeting.
Lesson 3	**Ensuring partners/countries fully understand the contractual arrangements planned for the implementation of the project**
Project Context	As indicated in the above lesson, the project did ensure that there was a wide understanding of the technical aspects of the project that had been formulated in the SAP. However, it is clear that the modality of project execution (e.g. contractual arrangements between the IA, EA and the organisations in-countries executing site-based activities) was not fully understood, resulting in significant delays in initiating project activities in some countries. Stakeholders also raised issues that the country-based staff did not always understand the financial reporting requirements that were required and that further training should have been provided to ease the reporting effort.
Application of lesson in similar projects	GEF IW projects involving pilot or country specific activities should also have the proposed arrangements for implementation fully explained.

42 Recommendations

Table 6 – Summary of recommendations

Recommendation 1 To: PCU	**Seek an additional project extension to complete the remaining work and utilise the budget to deliver expected activities, especially for the countries that have achieved 50% or less of expected outputs**
Context and Justification	Despite a two-year extension the project has only achieved 60% of outputs to the expected level and expended 58% of the available budget. Delays deriving from changes in Project Manager, slow signing of arrangements by countries and COVID have had a significant impact. The MTR considers that a further one-year extension would enable the project to focus on the countries that have achieved less progress to ensure all countries and relevant coastal communities get the

	maximum benefits from pilot actions to test fisheries *refugia* approaches. The PCU should explore what resources could be available from the SCS SAP implementation project to enable the finalisation of the fisheries *refugia* project, e.g. evaluating the need to update the fisheries elements of the 2008 SAP. This could enable the PCU to continue to complete the work in Viet Nam and Indonesia whilst ensuring information required by the SCS SAP implementation project is analysed. This could be a component of the project's exit strategy documentation (see below)
Responsible	PCU/EA to seek approval from PSC
Timeline	As soon as possible
Recommendation 2 To: PCU	**Irrespective of Recommendation 1 being accepted, the PCU should revise workplan and Results Framework to ensure that these reflect the current situation and budgets to deliver all remaining expected activities and outputs to be achieved**

Context and Justification	The Project Results Framework has not been revised since the CEO document was endorsed, and lacks quantifiable indicators that would be relevant to assessing the achievements of the project, especially being able to demonstrate the level of gender balance of those benefiting from project activities.
	There is an opportunity at the MTR to present realistic deliverables that reflect the 10% reduction of unspent budgets to fund the current project extension that the MTR consultant believes might have an impact on what can be achieved by the pilots at the national/local level.
	The PCU should also prepare a clear statement of the project component changes (from the Endorsed CEO Document) with justifications and an assessment of the impacts on the intended ambition of the project.
	In summary the PCU should:
	• Review changes from CEO endorsement for:
	  ○ Component budgets/ambition
	  ○ PMC budget
	• Ensure that the reallocation of the 10% unspent national budgets to project co-ordination does not increase overall management costs.
	• Update Results Framework
	  ○ Ensure activities/outputs still relevant
	  ○ Where possible, increase the metrics in indicators/targets
	  ○ Include sex disaggregated information where it is already collected.
	• Seek guidance and assistance where needed from the UNEP TM and FMO on budgets, Results Framework, etc.

Responsible	PCU/EA to seek approval of the PSC
Timeline	In the first quarter of 2022

Recommendation 3 To: PCU	**Collate and analyse disaggregated sex data of participants involved in project activities**
Context and Justification	Although the project design did not define specific targets for the participation of women and girls in the activities, the project has collected sex disaggregate information from workshops and meetings which is commendable. It would be beneficial to present this information in the next PIR and have the data analysed prior to the Terminal Evaluation.
Responsible	PCU
Timeline	Before PIR submission
Recommendation 4 To: PCU	**Develop a clear Exit Strategy for the regional and national sustainability and replication of the activities**
Context and Justification	The project has collected a wealth of experiences and information from the pilot sites and regional activities, much of which is presented on the website(s) and at various IW:LEARN and other organisations' events. The exit strategy could also assist the SCS SAP implantation project by evaluating the need to update fisheries elements in the 2008 SAP (currently a responsibility of the SCS project). The two projects have common countries involved and are both addressing aspects of the 2008 SAP. An exit strategy would assist the countries and other stakeholders appreciate the value of this information and offer suggestions about the sustainability and upscaling of pilot actions within ASEAN. Presenting this information in a single publication, web location or considering a final workshop to highlight the achievements of the fisheries *refugia* project would be beneficial and provide a tangible linkage with the new South China Sea SAP implantation project to further replicate good practices in ecosystem management. The MTR recommends that the project managers of this project and SCS SAP implementation project brainstorm shared approaches to address their project needs. The SCS project requires an update of the fishery aspects of the 2008 SAP and the fisheries *refugia* project needs to complete the project (e.g. Indonesia and Viet Nam) to the level of detail expected in the GEF CEO Endorsement Document.
Responsible	PCU, EA and UNEP
Timeline	Before the end of the project execution
Recommendation 5 To: PCU	**Preparation of GEF IW:LEARN Experience Notes**
Context and Justification	GEF IW recommends the preparation of Experience Notes by projects based on practical lessons from the execution. This project has a number of key aspects that would merit sharing through this mechanism including stakeholder involvement in pilot locations (design, implementation and management), lessons from gaining acceptance to the fisheries *refugia* concept, coastal ecosystem management, etc.
Responsible	PCU and UNEP

Timeline	Before the end of the project execution
Recommendation 6 To: UNEP and EA	**Ensure regional and national staff (and any replacement staff) engaged in financial management are briefed on the requirements of IA and EA at the start of the project.**
Context and Justification	Stakeholders and the UNEP Fund Management Officer (FMO) identified that staff and consultants were not sufficiently familiar with the requirements of financial reporting. The FMO suggested that a training session is provided at project inception meetings to act as an induction course on the approaches for complying with UNEP financial reporting and the expectation of the GEF as the donor.
Responsible	UNEP TM and FMO, EA finance officers.
Timeline	At the start (e.g. Inception Meeting) of future regional projects.

Annex 1 MTR Terms of Reference

TERMS OF REFERENCE

Mid-term Review of the SEAFDEC/UNEP/GEF PROJECT: "Establishment and Operation of a Regional System of Fisheries *Refugia* In the South China Sea and Gulf of Thailand" (GEF ID 5401)

(*Adopted by PSC5 Meeting*)

INTRODUCTION

This Terms of Reference (TOR) is for the Mid-Term Review (MTR) of the UNEP/GEF-SEAFDEC project on "Establishment and Operation of a Regional System of Fisheries *Refugia* in the South China Sea and Gulf of Thailand", hereafter called "*FR project*". The purpose of the Mid-Term Review (MTR) is to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way.

SECTION 1: PROJECT BACKGROUND AND OVERVIEW

1. Project General Information (Table 1)

Table 1: General information of the FR Project

Identification		*GEF ID.: 5401*	*Insert Umoja no.:*
Project Number + Project Title		*Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand*	
Duration	*Planned*	*48 months*	
months	*Extension(s)*	*January 2021*	*December 2022*
Division(s) Implementing the project		*DEPI GEF International Waters*	
Name of co-implementing Agency		*UNEP*	
Executing Agency(ies)		*Southeast Asian Fisheries Development Center (SEAFDEC)*	
Names of Other Project Partners		*Fisheries Administration (FIA), Cambodia*	
		The Agency for Marine and Fisheries Research and Human Resources (, MMAF, Republic of Indonesia	

		Department of Fisheries (DOF), Malaysia
		National Fisheries Research and Development Institute (NFRDI), Department of Agriculture
		Department of Fisheries (DOF), Thailand
		Directorate of Fisheries (D-Fish), Ministry of Agriculture and Rural Development, Viet Nam
Project Type		*Full Size Project (FSP)*
Project Scope		*Regional: South East Asia*
Region *(delete as appropriate)*		*Asia Pacific*
Names of Beneficiary Countries		*Cambodia, Indonesia, Malaysia, Philippines, Thailand and Viet Nam*
Programme of Work		*Healthy and productive ecosystems*
GEF Focal Area(s)		*International Waters*
UNDAF linkages		*Cambodia (2016-2018) – Outcome 1* *Indonesia (2016-2020) – Outcome 1& 3* *Malaysia - *Eleventh Malaysia Plan 2016-2020 –Strategy 6* *Philippines (2012-2018) - Outcome 1& 3* *Thailand (2017-2021) – Outcome 1* *Viet Nam (2017-2021) – Outcome 2*
Link to relevant SDG target(s) and SDG indicator(s)		*SDG Target 14: Indicator 14.2, 14.4 and 14.a* *SDG Target 1: Indicator 1b* *SDG Target 2: Indicator 2.4* *SDG Target 12: Indicator 12.2*
GEF financing amount		*US$3,000,000*
Co-financing amount		*US$12,717,850*
Date of CEO Endorsement		*January 12, 2016*
Start of Implementation		*March 21, 2016*
Date of first disbursement		*August 25, 2016*
Total disbursement as of 31 Dec 20		*US$1,819,035*
Total expenditure as of 31 Dec 20		*US$ 1,613,844*
Expected Mid-Term Date		*4th Quarter 2020 – 1st Quarter 2021*
Completion Date	*Planned*	*December 31, 2020*
	Revised	*December 31, 2022*
Expected Terminal Evaluation Date		*TBD*
Expected Financial Closure Date		*TBD*

2. Project Rationale

1) The South China Sea is a global center of shallow water marine biological diversity that supports significant fisheries that are important to the food security and export income of Southeast Asian countries. These fisheries are characterized by high levels of fishing effort from the small-scale sector. Accordingly, all inshore waters of the South China Sea basin are subject to intense fishing pressure. This situation of high small-scale fishing pressure and declining fisheries resources has contributed to the adoption of unsustainable fishing methods to maintain catch and increase incomes in the short-term. These include the use of destructive fishing gear and practices, such as the operation of demersal trawls and push nets in seagrass areas, and the detonation of explosives and release of fish poisons in coral reef areas. Small-scale inshore fishing pressure has therefore been identified as a significant cause of the degradation and loss of coastal habitats in the South China Sea.

2) Although action aimed at reducing the rate of loss of coastal habitats has been implemented by countries bordering the South China Sea, the decadal rate of loss of such habitats remains high, e.g., seagrass beds (30 percent), mangroves (16 percent), and coral reefs (16 percent). This continued decline in the total area of habitats critical to the life cycles of most aquatic species, combined with the high levels of coastal community dependence on fish, has raised serious concerns for the long-term sustainability of small-scale fisheries in the region. With fish production being intrinsically linked to the quality and area of habitats and the heightened dependence of coastal communities on fish, a need exists to improve the integration of fish habitat considerations and fisheries management in the region. This project entitled "Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand" has been developed to meet this need via implementation of the fisheries component of the Strategic Action Program for the South China Sea. Executed regionally by the Southeast Asian Fisheries Development Center in partnership with the government agencies responsible for fisheries in the 6 participating countries, the project is comprised of the following 4 project components.

3) Component 1 will result in the establishment of operational management at 14 priority fisheries refugia, with community-based refugia management plans being key outputs. Supporting activities include consultative processes to facilitate agreement among stakeholders on the boundaries of fisheries refugia, identification of key threats to refugia sites, recording of fishing community views regarding appropriate fisheries and habitat management measures, and eliciting stakeholder inputs to management plan review. Refugia management plans will provide rules inter alia on operating requirements for the use of particular classes of fishing vessels or fishing gear within refugia, procedures for adjusting management measures over time, and mechanisms for enforcement. Specific direction is given to drafting of regulations and ordinances required in support of plan implementation.

4) Component 2 focuses on strengthening the enabling environment for the formal designation and operational management of refugia. Preparatory activities include legal

reviews to identify, inter alia: legal terminology for describing refugia; formal procedures for demarcating boundaries of spatial management areas such as refugia, including requirements for assessing the socioeconomic impacts of management measures and stakeholder consultation; and provisions for decentralizing refugia management to the community level via development of co-management and rights-based approaches. These national reviews are aimed at informing the drafting of required policy and legislative amendments for adoption by competent authorities. This component will also build the national and site-level science and information base required to inform the monitoring and evaluation of the effectiveness of individual refugia and the regional network of sites.

5) Component 3 focuses on strengthening information management and dissemination aimed at enhancing the national uptake of best practices in integrating fisheries management and biodiversity conservation, and in improving community acceptance of area-based approaches to fisheries and coastal environmental management. Supporting activities involve the development of national knowledge management systems on the use of fisheries refugia in capture fisheries management, and the establishment of a Regional Education and Awareness Centre that will operate as a facility for the production and sharing of information and education materials on fisheries and critical habitat linkages in the South China Sea. Importantly, Component 3 will support the development of indicators to monitor the effectiveness of coastal fisheries management systems established for priority fisheries refugia. A regional program for the compilation of standardized fisheries statistics for use in identifying and managing fisheries refugia will also be developed to support longer-term management.

6) At the national-level, Component 4 will strengthen cross-sectorial coordination for integrated fisheries and environmental management and will harness the national scientific and technical expertise and knowledge required to inform the policy, legal and institutional reforms for fisheries refugia management in the participating countries. Local community action and strengthened 'community to cabinet' linkages will be facilitated via establishment and operation of site-based management boards for fisheries refugia at the 14 priority locations in the South China Sea. Regionally, Component 4 will foster regional cooperation in: the establishment and operation of a regional system of fisheries refugia; and in the integration of scientific knowledge and research outputs with management and policy making. This component also includes project coordination and management activities aimed at: ensuring the timely and cost-effective implementation of regional and national-level activities; and satisfying the reporting requirements of UNEP and the GEF.

7) The longer-term goals of this project are to contribute to: improved integration of habitat and biodiversity conservation considerations in the management of fisheries in the South China Sea and Gulf of Thailand; improved national management of the threats to fish stock and critical habitat linkages within fisheries refugia; and enhanced uptake of good practice in integrating fisheries management and biodiversity conservation in the design and implementation of regional and national fisheries management systems. The medium-term objectives align with those of the fisheries component of the Strategic Action Program for the South China Sea which are to: build the resilience of Southeast Asian fisheries to the effects of high and increasing levels of fishing effort; improve the

understanding among stakeholders, including fisherfolk, scientists, policymakers, and fisheries managers, of ecosystem and fishery linkages as a basis for integrated fisheries and ecosystem/habitat management; and build the capacity of fisheries departments/ministries to engage in meaningful dialogue with the environment sector regarding the improvement of fisheries and management of interactions between fisheries and critical marine habitats. Related end of project targets are:

a. by 2022, to have established a regional system of a minimum of fourteen refugia for the management of priority transboundary, fish stocks and endangered species; and

b. by 2022, to have prepared and implemented fisheries management systems in the identified priority refugia based on and consistent with, the ASEAN SEAFDEC Regional Guidelines for Responsible Fisheries in Southeast Asia.

8) Given the limited integration of the work of fisheries and environment ministries observed in Southeast Asia and many other parts of the world, the establishment and operation of the regional system of fisheries refugia provides an opportunity to learn from a regional fishery sector led initiative to collaborate with the environment sector on integrating fisheries and coastal habitat management. It is anticipated that the experience gained in the South China Sea region through this project will be suitable for application in other marine areas such as the Yellow Sea where over-fishing and the use of inappropriate fishing gear are significant impediments to more sustainable exploitation of fisheries resources and the use of coastal habitats.

3. Project Results Framework

9) The objective of this project is to operate and expand the network of fisheries refugia in the South China Sea and the Gulf of Thailand for the improved management of fisheries and critical marine habitats linkages to achieve the medium and longer-term goals of the fisheries component of the Strategic Action Program for the South China Sea. The project has four components as listed in **Table 2-5** below with associated expected outcomes and outputs.

Table 2: FR Project Results Framework: Component 1.

Component 1:	Outcomes	Targets End of Project
1. Identification and management of fisheries and critical habitat linkages at priority fisheries *refugia* in	***1. Reduced stress*** *on fish stocks and coastal habitats via improved national management of key anthropogenic threats to fisheries and critical habitat linkages in the South China Sea and Gulf of Thailand*	*Effective management of key 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*
the South China Sea and Gulf of Thailand	1.1 Fisheries and critical habitat linkages at 14 priority sites in the South China Sea and Gulf of Thailand safeguarded via the delineation of fisheries *refugia* boundaries and the setting of priorities for *refugia* management	Agreement among stakeholders on the boundaries of fisheries *refugia,* key threats to *refugia*, and priority management interventions for 14 sites in the South China Sea and Gulf of Thailand

	1.2 Amelioration of key threats to fish stock and critical habitat linkages via the adoption and implementation of community-based *refugia* management plans at 14 sites	Community-based *refugia* management plans that are consistent with the FAO and ASEAN-SEAFDEC Guidelines for Responsible Fisheries developed, adopted, and under implementation at 14 fisheries *refugia* sites
	1.3 Catalysed community action for fisheries *refugia* management at 14 sites	Networks of management boards and community-based fisheries and habitat management volunteers for *refugia* management established at 14 fisheries *refugia* sites
	1.4 Empowered fishing communities, particularly artisanal fishermen and women involved in inshore gleaning and processing, for enforcement of agreed management rules at 14 priority *refugia* sites in the South China Sea and Gulf of Thailand	Enforcement programmes at 14 fisheries *refugia* sites, including participatory activities for monitoring, control and surveillance
	1.5 Strengthened civil society and community organisation participation in fisheries *refugia* management	Operational partnership with the GEF Small Grants Programme to strengthen civil society and community organisation participation in the management of fisheries *refugia* at 14 sites

10) The component 1 aligns with the GEF theory of change framework via implementing strategies, i.e., application of fisheries refugia to significantly reduce stress on fish stocks and coastal habitats. Specifically, component 1 will result in 269,500 ha of fish refugia habitat will be conserved/effectively managed as well as a 50% reduction in fishing pressure within sites at times critical to the life-cycles of fished species of transboundary significance.

Table 3: FR Project Results Framework: Component 2.

Component 2:	Outcomes	Targets End of Project
2. Improving the management of critical habitats for fish stocks of transboundary significance via national and regional actions to strengthen the enabling environment and knowledgebase for fisheries *refugia* management in the South China	***2. 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*	*National and regional policy, legal and planning frameworks for demarcating boundaries and managing fisheries refugia, resulting in, inter alia, a 20 percent increase in small-scale fishing vessels using fishing gear and practices designed to safeguard fish stock and critical habitat linkages at priority sites*
	2.1 Strengthened enabling environments for the effective management of the effects of fishing on fisheries and critical habitat linkages in the South China Sea and Gulf of Thailand	Measures for the fisheries sector's sustainable use of fish habitats and biodiversity, and based on site-level models of ecosystem carrying capacity, incorporated in the fisheries policies of participating countries

Sea and Gulf of Thailand	2.2 Cross-sectorial agreement on national guidelines for the use of fisheries *refugia* for integrated fisheries and habitat management	National guidelines on the use of fisheries *refugia* in integrating fisheries and habitat management developed and endorsed by heads of national government departments responsible for fisheries and environment in the participating countries
	2.3 Endorsed policy, legal, and planning frameworks, both and national and regional levels, for the establishment and management of fisheries *refugia*, including the reduced use of destructive fishing gear and practices in areas of critical habitats	National policy, legal and planning frameworks for demarcating boundaries and managing *refugia* assessed and required reforms endorsed in the participating countries and reflected in an updated regional action plan
	2.4 Enhanced access to information relating to status and trends in fish stocks and their habitats in waters of the SCS	Annual synthesis reports of new and additional information and data relating to the stocks of priority fish, crustaceans and molluscs and their habitats published in each country and disseminated at national and regional levels
	2.5 Improved national and regional-level management and sharing of information and data on fish early life history in the waters of the SCS	Establishment and population of 6 online national databases, and 1 regional database, of fish egg and larvae distribution and abundance in national waters and the SCS basin
	2.6 Enhanced access to information relating to the locations and status of coastal habitats and management areas in the SCS and GoT	National and regional online Geographical Information Systems on fisheries and marine biodiversity featuring information on locations and management status of coastal habitats, fisheries *refugia*, MPAs, and critical habitats for threatened and endangered species
	2.7 Strengthened information base for the planning, monitoring and evaluation of management at priority fisheries r*efugia* sites in the South China Sea and GoT.	Fisheries and habitat data collection programmes operational to characterise 14 priority *refugia* sites in the South China Sea and Gulf of Thailand
	2.8 Improved basin-wide understanding of linkages between ocean circulation patterns, nutrient/chlorophyll concentrations, and sources and sinks of fish larvae in the South China Sea	Modelling system linking oceanographic, biochemical, and fish early life history information developed applied to improve regional understanding of fish early life history and links to critical habitats
	2.9 Regionally and locally appropriate best practices generated to address the effects of trawl and motorised push net[1] fishing on seagrass habitat, and the capture of juveniles, pre-recruits and fish in spawning condition	Best practice fishing methods and practices to address key threats to fish stock and critical habitat linkages demonstrated at priority *refugi*a

11) The component 2 aligns with the GEF theory of change framework through strengthening institutional capacity via reform of policy, regulatory and planning frameworks aimed at enabling improved integration of fisheries and environmental management. Additionally, the component will lead to considerable stress reduction. Specifically, the demonstrations

of best practice fishing methods and practices aimed at addressing key threats to fish stock and critical habitat linkages, and the adoption of supporting laws, will result in a 20% increase in vessels applying improved gear/techniques to safeguard fish stock and critical habitat linkages.

Table 4: FR Project Results Framework: Component 3.

Component 3:	Outcomes	Targets End of Project
3. Information Management and Dissemination in support of national and regional-level implementation of the fisheries *refugia* concept in the South China Sea and Gulf of Thailand	***3. 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*	*National and regional systems for knowledge management and sharing, including the development of indicator sets and standardized statistics to guide the replication, scaling-up and mainstreaming of good practices in the use of fisheries refugia as a spatial planning tool*
	3.1 Enhanced uptake of best practices in integrating fisheries management and biodiversity conservation, in the design and implementation of fisheries management systems	Best practice approaches and measures for integrated fisheries and habitat management captured, documented and communicated nationally and regionally
	3.2 Improved community acceptance of area based approaches to fisheries and coastal environmental management	Public awareness and outreach programme to promote local social, economic and environmental benefits of fisheries *refugia* implemented at 14 priority locations in the South China Sea and Gulf of Thailand
	3.3 Knowledge generated and experiences from establishing and operating fisheries *refugia,* captured and shared nationally, regionally, and globally	National knowledge management systems on the use of fisheries *refugia* in capture fisheries management established and operational
	3.4 Information and Education Campaigns for small-scale fisherfolk on the links between fisheries, habitats and biodiversity coordinated regionally through a Regional Education and Awareness Centre	Regional Education and Awareness Centre on fisheries and critical habitats established and operating as a facility for the production and sharing of information and education materials for *refugia* management
	3.5 Standardised methods for collection and analysis of information and data, for use in assessing the impacts of *refugia* and in the design appropriate indicators for the longer-term operation of the regional system of fisheries *refugia*	Regional agreement on standardised information and data collection procedures in support of longer-term operation of a regional system of fisheries *refugia*, including design of stress reduction and environmental state indicators for managed *refugia*

12) The component 3 aligns with the GEF theory of change framework through knowledge and information activities aimed at improving information sharing and access, awareness raising, skills building, and monitoring and evaluation.

Table 5: FR Project Results Framework: Component 4

Component 4:	Outcomes	Targets End of Project
4. National and regional cooperation and coordination for integrated fish stock and critical habitat management in the South China Sea and Gulf of Thailand	***Cost-effective and efficient** coordination of national and regional level cooperation for integrated fisheries and environmental management*	*Effective multi-lateral and intergovernmental communication and joint decision-making, including the use of a consensual knowledgebase in planning ecologically and costeffective management actions*
	4.1 Strengthened cross-sectorial coordination in the establishment and operation of fisheries *refugia* in the participating countries	National Fisheries *Refugia* Committees (NFRC) established in 6 countries, functional and advising national decision-makers and regional *fora*
	4.2 National scientific and technical expertise and knowledge harnessed to inform policy, legal and institutional reforms for fisheries *refugia* management in the participating countries	National Technical and Scientific Committees (NTSC) established in 6 countries, functional and advising site-level management boards, the NFRC and the Regional Scientific and Technical Committee
	4.3 Community-led planning of fisheries *refugia* management at priority locations	Local community action catalysed via establishment and operation of site-based
	in the South China Sea and Gulf of Thailand	management boards for fisheries *refugia* at 14 locations in the South China Sea and Gulf of Thailand
	4.4 Regional cooperation in the integration of scientific knowledge and research outputs with management and policy making	Regional Scientific and Technical Committee (RSTC) established and functioning as a bridge between the scientific community and decision-makers for operation of a regional system of fisheries *refugia* [biannual meetings]
	4.5 Regional cooperation in the establishment and operation of a regional system of fisheries *refugia*	Project Steering Committee established and functioning to oversee and act as a principal decision-making body for the project
	4.6 Effective coordination of regional and national-level activities and reporting requirements of UNEP and GEF satisfied	Functioning regional Project Coordinating Unit (PCU) supporting the coordination of regional and national level activities associated with the establishment and operation of regional system of fisheries *refugia* and meeting reporting requirements of UNEP and the GEF

4. FR Project Executing Arrangements

13) UN Environment Programme is the GEF Implementing Agency for the FR project. The project is executed regionally by the Southeast Asian Fisheries Development Center (SEAFDEC) in partnership with the government agencies responsible for fisheries in the six participating countries, namely Cambodia, Indonesia, Malaysia, Philippines, Thailand, and Viet Nam.

14) The Project Coordinating Unit (PCU) locates within the Training Department of SEAFDEC in Samut Prakan Province, Thailand.

15) The national lead partners are as follows:

I. Fisheries Administration (FiA), CAMBODIA
II. Agency for Marine and Fisheries Research and Human Resources (AMFRHR), Indonesia
III. Department of Fisheries (DOF), MALAYSIA
IV. National Fisheries Research and Development Institute (NFRDi) in collaboration with Bureau of Fisheries and Aquatic Resources (BFAR), Department of Agriculture (DA), the PHILIPPINES
V. Department of Fisheries (DOF), THAILAND
VI. Directorate of Fisheries (D-Fish), Ministry of Agriculture and Rural Department (MARD), VIET NAM

16) A Project Steering Committee was established and operated to oversee and act as a principal decision-making body for the project. The PSC's role is to provide managerial and governance advice to the project, and to guide the Project Coordination Unit (PCU) of the Southeast Asian Fisheries Development Centre (SEAFDEC) in the implementation and monitoring of the overall regional project.

17) At national level, National Fisheries Refugia Committees (NFRCs) was established and operated to strengthen cross-sectorial coordination in the establishment and management of fisheries refugia. The NFRC's will assume overarching responsibility for the execution of national level activities of the project and will, inter alia: receive, review, and approve reports from the management boards of refugia sites; consider advice from the National Scientific and Technical Committees in decision-making.

18) A regional Project Co-ordinating Unit (PCU) was established within SEAFDEC and being led by a Project Director with support from SEAFDEC'S policy, technical and financial units. The PCU will be responsible for: overall leadership, management and technical oversight of the fisheries refugia project; regional project governance, monitoring and reporting; policy/technical advice and advocacy; regional and national coordination, including the establishment of partnerships and networking; and external communications.

19) The management framework for this project is depicted in Figure 1. SEAFDEC's linkages with ASEAN through the ASEAN-SEAFDEC Strategic Partnership is depicted in Figure 2.

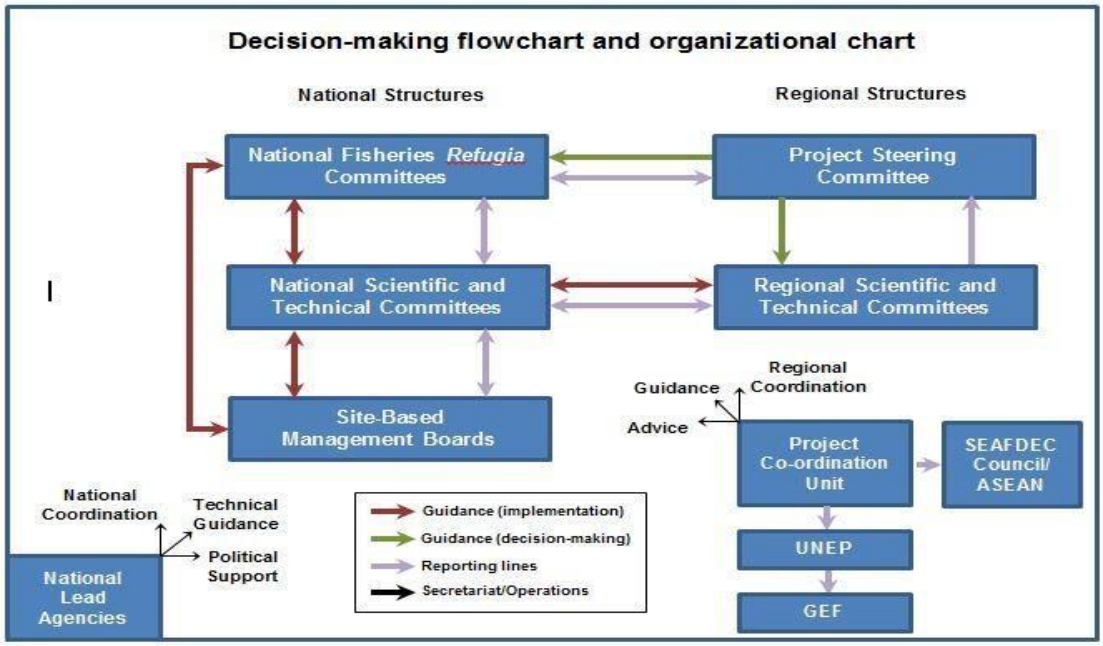

Figure 1: Project management framework for the FR Project

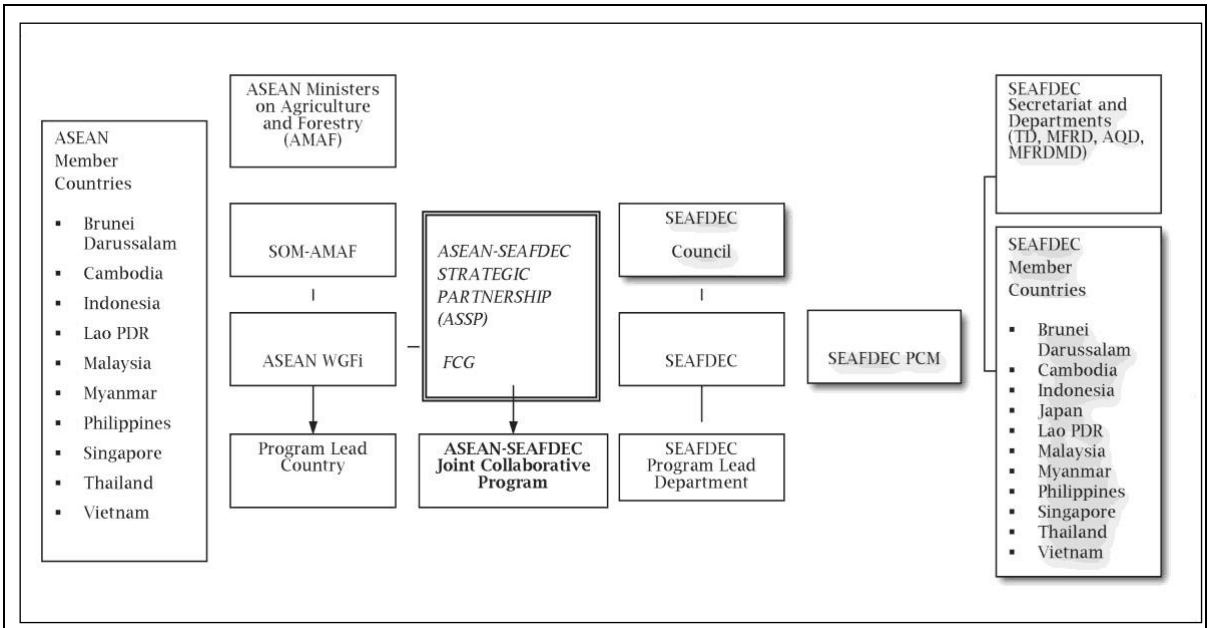

Figure 2: SEAFDEC's linkages with ASEAN

5. Project Cost and Financing

20) The total cost of the FR project planned at $15,717,850 with co-financing of $12,717,850 and cost to the GEF Trust Fund of $3,000,000. Table 6 provides an overview of sources of co-financing and Table 7 of cost per project component.

Table 6: an overview of sources of co-financing

Sources of Cofinancing	Name of Co-financier (source)	Type of Cofinancing	Co-financing Amount ($)
National Governments	Ministries responsible for fisheries in Cambodia, Indonesia, Malaysia, Philippines, Malaysia, Thailand, and Viet Nam	Cash	1,148,644
National Governments	Ministries responsible for fisheries in Cambodia, Indonesia, Malaysia, Philippines, Malaysia, Thailand, and Viet Nam	In-kind	5,036,806
Multilateral Agencies	Southeast Asian Fisheries Development Centre	Cash	3,876,400
Multilateral Agencies	Southeast Asian Fisheries Development Centre	In-kind	2,456,000
GEF Agency	UNEP	In-kind	200,000
		Total Co-financing	12,717,850

Table 7: Cost per Project Component

Project Component	Indicative Grant Amount ($)	Indicative Co Financing ($)
1. Identification and management of fisheries and critical habitat linkages at priority fisheries *refugia* in the South China Sea and Gulf of Thailand	1,304,900	3,989,523
2. Improving the management of critical habitats for fish stocks of transboundary significance via national and regional actions to strengthen the enabling environment and knowledgebase for fisheries *refugia* management in the South China Sea and Gulf of Thailand	746,000	5,313,217
3. Information Management and Dissemination in support of national and regional-level implementation of the fisheries *refugia* concept in the South China Sea and Gulf of Thailand	299,600	1,792,055
4. National and regional cooperation and coordination for integrated fish stock and critical habitat management in the South China Sea and Gulf of Thailand	499,500	1,423,055
Sub-Total	**2,850,000**	**12,517,850**
Project Management Cost (PMC)	**150,000**	**200,000**
Total	**3,000,000**	**12,717,850**

6. Project Implementation Issues

21) Changing of the key government officers create problems on delay submission for work progress and financing report.

22) Delay of the project implementation due to the government policy changes in two participating countries affected on achieving the Mid-term evaluation and End of Project Targets. All participating countries, therefore, requested two years of project extension without an extra budget. The Mid-term evaluation and the end of project evaluation will be conducted by the end of 2020 and 2022, respectively.

SECTION 2: OBJECTIVE AND SCOPE OF THE MID-TERM REVIEW

7. Objective of the Mid-Term Review

23) Objective of the Mid-term Review is to determine the progress, performance, and achievement of objectives and outcomes of the project following five years of implementation from 2016-2020. **8. Scope of the Mid-Term Review**

24) The scope of the mid-term evaluation will cover all activities undertaken in the framework of the project. The evaluator will compare planned outputs of the project to actual outcomes and assess the actual results to determine their contribution to attaining the project objectives. The evaluation will diagnose problems and suggest any necessary corrections and adjustments. It will evaluate the efficiency of project management, including the delivery of outputs and activities in terms of quality, quantity, timeliness, and cost-efficiency. The evaluation will also determine the project's likely outcomes and impact concerning the project's specified goals and objectives.

SECTION 3: MID-TERM REVIEW APPROACH, METHODS AND DELIVERABLES

9. Approach and Methods

25) The Mid-term Review of the FR projects will be in-depth evaluations using a participatory approach whereby key stakeholders are kept informed and consulted throughout the evaluation process. Both quantitative and qualitative evaluation methods will be used as appropriate to determine project achievements against the expected outputs, outcomes and impacts of the projects. It is highly recommended that the consultant maintains close communication with the project teams and promotes information exchange throughout the evaluation implementation phase in order to increase their (and other stakeholder) ownership of the evaluation findings.

26) The findings of the evaluation will be based on the following:

i. Desk review of the project document, outputs, monitoring reports (such as quarterly progress reports, mission reports, and the GEF annual Project Implementation Review reports, minutes of meetings, and relevant correspondences.

ii. Review of specific products including datasets, management, and action plans, publications, and other material and reports.

iii. Interviews with the Project Director, the Project Task Manager, the Project Participating Countries, the Project Collaborative Partners (if required), and other project staff. iv. Consultations with relevant SEAFDEC/SEC and SEAFDEC/TD staff.

v. Consultations and interviews with relevant stakeholders involved, including government representatives, local communities, NGOs, private sector, donors, and other UN agencies and international /regional organizations.

vi. Survey, as deemed appropriate of associated agencies of the FR Project

vii. Country partner and project sites visits, are not deemed likely due to Covid-19 related travel restrictions, but if appropriated.

10. Deliverables

26) Under the overall supervision of the Project Task Manager and the TOR's Committee, SEAFDEC Secretary-General, relevant SEAFDEC/TD Division, and the overall guidance of the Project Director of the SEAFDEC Project Coordinating Unit, the evaluator shall undertake a MTR of the FR project during the period **October 15th, 2021 to 30th January, 2022.**

27) The evaluation will comprise the following elements.

27.1 A summary evaluation of the project and its major components are undertaken to date and determine progress towards achieving its overall objectives.

27.2 Evaluate project performance with the indicators, assumptions, and risks specified in the logical framework matrix and the Project Document. Determine the usefulness of the indicators defined.

27.3 An assessment of the scope, quality, and significance of the project outputs produced to date with expected results.

27.4 Analysis of the extent of cooperation engendered and synergy created by the project in each of its component activities, between national and regional level activities, and the nature and extent of commitment among the countries involved.

27.5 An assessment of the functionality of the institutional structure established and the role of the Steering Committee, the Regional Scientific and Technical Committee, and national committees and working groups.

27.6 Identification and, to the extent possible, quantification of any additional outputs and outcomes beyond those specified in the Project Document.

27.7 An evaluation of the timetable of activities and allocating financial resources to project activities, and determining their consistency with the Project Document. Where activities or outputs have been delayed, the cause of the delay should be identified, and where appropriate remedial actions proposed.

27.8 Identification of the programmatic, financial variance, and adjustments made during the first five years (2016-2020) project and assessing their conformity with decisions

of the Steering Committee Group and their appropriateness in terms of the overall objectives of the project.

27.9 An evaluation of project coordination, management, and administration provided by the Project Coordinating Unit. This evaluation should include specific reference to:

i. Organizational/institutional arrangements for collaboration among the various agencies and institutions involved in project arrangements and execution;

ii. Project management effectiveness in terms of assignment and execution of project activities, and flexibility of management in terms of responsiveness to the need for changes in financial allocations, the timing of activities, or mode of operation;

iii. The effectiveness of the monitoring mechanisms currently employed by the Project

Coordinating Unit in monitoring on a day to day basis, progress in project execution; iv. Administrative, operational, or technical problems and constraints that influenced the effective implementation of the project and present recommendations for any necessary functional changes; and

v. Financial management of the project in relation to those on the achievement of substantive outputs.

27.10 A qualified assessment of the extent to which project outputs to date have scientific credibility.

27.11 Assessment of the extent to which scientific and technical information and knowledge have influenced the execution of the project activities.

27.12 An evaluation of the strategy and approaches adopted by the Project Steering Committee and PCU regarding the raising of co-financing support to ensure financial sustainability.

27.13 Specification of any deficiencies in project performance, administration, and management that warrant correction with associated recommendations.

27.14 Prognosis of the degree to which the project's overall objectives and expected outcomes are likely to be met (see **Annex 1**: Rating project success).

27.15 Lessons learned during project implementation and Recommendations regarding any necessary corrections and adjustments to the overall project work plan and timetable to enhance project objectives and outcomes.

11 Consultant for Conduct of the Mid-term Review

28) Consultant shall undertake the evaluation working concurrently and in consultation from 15 **October 2021 to 30 January 2022** (three and a half months).

29) Consultant qualification for the Mid-Term Review requires at least a Master's Degree in the field of natural resources management/environmental management or related fields,

a minimum of 10 years of professional experience with at least five years of experience related to Monitoring and Evaluation in regional/international context. Experience with evaluation of GEF projects and with cross sectoral management of fisheries resources will be considered assets for the consultancy.

30) Consultant shall, at the commencement of the work, agree with SEAFDEC Committee responsible for the conduct of mid-term review, hereafter "TOR's Committee". Members of the Committee shall include the Project Director serve as the Secretary of the TOR's Committee and the Project Task Manager as a member of the TOR's Committee. The procedure for establishment of the TOR's Committee shall follow the SEAFDEC's Guidelines on Procurement of Products and Services including procedure and method of operating to complete all sections of the report. Work plan of the mid-term review will include:

    i. Tentative proposals for the attendance of consultant at parts or all of the meetings convened during the period of the mid-term review.

    ii. Proposals for any country visits that shall be deemed appropriate.

    iii. A delivery schedule for a draft report for comment by the SEAFDEC TOR's Committee, the
    Project Task Manager, Secretary-General or representatives and the Project
    Director; and iv. a timetable of the periods each Consultant will work from the Project
    Co-ordinating Unit for Fisheries Refugia Project at SEAFDEC/TD in Samut Prakan
    Province, Thailand.

31) Regarding the last of these requirements, the SEAFDEC/PCU undertakes to provide office space and internet access to the Consultant (s) during the said period.

32) Consultant shall create Workplan constitutes the basis of the agreement between the SEAFDEC and the Consultant.

33) The consultant shall attend, if practical, the Regional Scientific and Technical Committee Meeting and/or Project Steering Committee Meeting to be convened during the conduct of evaluation.

34) Consultant’s responsibility to arrange for their visas and immunizations.

12 Reporting Format

35) The Mid-Term Review report shall comprise:

    i. A concise summary, prepared by consultant, not exceeding five pages, including findings and recommendations

    ii. A detailed mid-term review report covers items 27.1 - 27.15 of the Terms of Reference above with attention to lessons learned and recommendations. The detailed report without annexes should not exceed 35 pages.

iii. Annexes prepared by the consultant on specific topics deemed appropriate by the consultant. The annexes should correspond to and amplify the contents of the sections of the main report.

36) The report together with the annexes, shall be written in English and presented electronically in MS Word format (see **Annex 2**: Tools, Templates and Guidance Notes for use in the Mid-Term Review).

13 Schedule of the Mid-term Review

37) The table below presents the tentative schedule for the Mid-term Review. *Table 8. Tentative schedule for the mid-term review*

Milestone	Tentative Dates
Mid-term Review Initiation Meeting	Starting from 15th October 2021
Inception Report	October 2021
E-based interviews, surveys etc.	November 2021
PowerPoint/presentation on preliminary findings and recommendations	TBD
Draft Main MTR Report to SEAFDEC TOR's Committee, Project Task Manager, SEAFDEC Sec-Gen, the Project Director, and other concerned Partners	20 December 2021
Subject to the receipt by the consultant of comments on the draft report from SEAFDEC TOR's Committee, Project Task Manager, SEAFDEC Sec-Gen, the Project Director, and other concerned Partners	15 January 2022
Final Main Mid-term Review Report	30 January 2022

14 Contractual Arrangements

38) The Mid-term Review consultant will be selected and recruited by the SEAFDEC under an individual Special Service Agreement (SSA) on a “fees only” basis (see below). By signing the service contract with SEAFDEC, the consultant certify that he/she has not been associated with the design and implementation of the FR Project in any way which may jeopardize his or her independence and impartiality towards project achievements and project partner performance. In addition, the consultant will not have any future interests (within six months after completion of the contract) with the projects’ executing or implementing units.

39) Fees will be paid on an instalment basis, paid on acceptance by the SEAFDEC and Project Task Manager of expected key deliverables. The schedule of payment is as follows:

Schedule of Payment for the Mid-term Review Consultant:

Deliverable	**Percentage Payment**
Approved FR Inception Report (as per annex 2)	20%
Approved FR Draft Main MTR Report (as per annex 2)	40%
Approved FR Final Main MTR Report	40%

40) Fees only contracts: Note that during the COVID-19 pandemic travel remains unlikely and therefore purchase of air tickets and Daily Subsistence Allowance for authorized travel mission are not applied

41) In case the consultant is not able to provide the deliverables in accordance with these guidelines, and in line with the expected quality standards by the SEAFDEC and acceptance by Project Task Manager, payment may be withheld at the discretion of the SEAFDEC until the consultant has improved the deliverables to meet UNEP's quality standards.

42) If the consultant fails to submit a satisfactory final product to SEAFDEC Committee in a timely manner, i.e., before the end date of his/her contract, the Project Task Manager reserves the right to employ additional human resources to finalize the reports, and to reduce the consultant's fee by an amount equal to the additional costs borne by SEAFDEC to bring the reports up to standard.

15 SEAFDEC and UNEP Contact Persons

1. **Mr. Isara Charnrachakij**
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   SEAFDEC Training Department
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3. **Dr. Somboon Siriraksophon**,
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Fax1: +66 2425-6100
Email: somboon@seafdec.org

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Annex 1: Rating Project Success

- For this rating, the Consultant, may consider the level of implementation of the activity, such as regional and national levels, and the number of countries involved in each component, action, or output.
- The Consultant may also consider the form of the rating used in the International Waters Program Monitoring Questionnaire prepared by the GEF Monitoring and Evaluation Unit.
- The evaluation will rate the project's success on a scale from 1 to 5, with 1 being the highest (most successful) rating and 5 being the lowest. The following items should be considered for rating purposes:

  ○ Achievement of objectives and planned

  results ○ Attainment of outputs and activities

  ○ Cost-effectiveness ○ Impact ○ Sustainability

  ○ Stakeholders participation ○ Country

  ownership ○ Implementation approach ○

  Financial planning ○ Replicability ○

  Monitoring and evaluation

- Each item should be rated separately with comments and then an overall rating is given. The following rating system is to be applied:

1=Excellent	>>>	90%-100% achievement
2=Very Good	>>>	75%-89%
3=Good	>>>	60%-74%)
4=Satisfactory	>>>	50%-59%)
5=Unsatisfactory	>>>	49 % and below

Annex 2: Tools, Templates and Guidance Notes for use in the Mid-Term Review

The tools, templates and guidance notes listed in the table below, and available from the SEAFDEC, are intended to help Consultant to produce evaluation products that are consistent with each other, and which can be compiled into a biennial Evaluation Synthesis Report. The biennial summary is used to provide an overview of progress to UN Environment Programme and the UN Environment Assembly.

This suite of documents is also intended to make the evaluation process as transparent as possible so that all those involved in the process can participate on an informed basis. It is recognized that the evaluation needs of projects and portfolio vary and adjustments may be necessary so that the purpose of the evaluation process (broadly, accountability and lesson learning), can be met. Such adjustments should be decided between the SEAFDEC Committee and the Consultant in order to produce mid-term review reports that are both useful to project implementers and that produce credible findings.

ADVICE TO CONSULTANTS: As our tools, templates and guidance notes are updated on a continuous basis, kindly download documents from the link in SharePoint will be shared by the SEAFDEC/PCU during the Inception Phase and use those versions throughout the evaluation.

List of tools, templates and guidance notes available at:

: https://www.unep.org/about-un-environment-programme/evaluation-office/our-evaluationhttps://www.unep.org/about-un-environment-programme/evaluation-office/our-evaluation-approach**approach**

Document	Name
1	Evaluation Process Guidelines for Consultants
2	Evaluation Consultants Team Roles (Principal Evaluator and Evaluation Specialist)
3	List of documents required in the evaluation process
4	Evaluation Criteria (summary of descriptions, as in these terms of reference)
5	Evaluation Ratings Table (only)
6	Matrix Describing Ratings by Criteria
7	Weighting of Ratings (excel)
8	Project Identification Tables
9	Structure and Contents of the Inception Report
10a	Template for the Assessment of the Quality of Project Design (Word template)
10b	Template for the Assessment of the Quality of Project Design (Excel tool)
11	Guidance on Stakeholder Analysis
12	Gender Note for Evaluation Consultants
13	Use of Theory of Change in Project Evaluations

14	Assessment of the Likelihood of Impact Decision Tree (Excel)
15	Possible Evaluation Questions
16	Structure and Contents of the Main Evaluation Report
17	Cover Page, Prelims and Style Sheet for Main Evaluation Report
18	Financial Tables
19	Template for the Assessment of the Quality of the Evaluation Report

Annex 2 Stakeholders involved in the Mid-Term Review

Stakeholders responding to MTR questions

Name	Country/Organisation/function
Iswari Ratna Astuti	Indonesia/PSC Member
Joeren S. Yleana	Philippines/PSC Member
Praulai Nootmorn	Thailand/PSC Member/RSTC Member
Chuanpid Chantharawarapit	Thailand/National Fisheries Staff
Nguyen Thi Trang Nhung	Viet Nam/National Fisheries Staff
Weerasak Yingyoud	SEAFDEC/EA
Isara Charnrachkij	SEAFDEC/EA
Worawit Wanchana	SEAFDEC/EA
Somboon Siriraksophon	Project Manager
Noel Barut	Philippines/Consultant
Isabelle Vanderbeck	UNEP/Task Manager
Pooja Bhimjiani	UNEP/Fund Management Officer
Isabelle Vanderbeck	UNEP/Task Manger
Virginie Hart	Project Manager/ South China Sea SAP implementation

Annex 3 Documents Reviewed

1. PIF
2. Project Document and appendices
3. CEO Endorsement
4. Inception meeting documents
5. ToRs for lead agencies, PCU, NSTC, RSTC, site committees etc.
6. PSC Meeting minutes
7. RSTC Meeting minutes
8. PIRs
9. Financial reports
10. Audits
11. Co-financing reports
12. Project website (including regional portals)
13. Project publications (guidance documents, press releases, etc.)
14. Stakeholder lists

Annex 4 Interview Questions sent Stakeholders

Mid-Term Review of the UNEP/GEF Fisheries Refugia Project

Please only respond to the questions that are most relevant to you and your work with the project with short comments or give answers as bullets.

1. What was your involvement with the fisheries refugia project?

2. How has the work of the project been relevant to your organisation's activities? Please give some examples.

3. How has the project interacted with other environmental actions in your country? Can you give some examples?

4. In your view, what have been the main achievements and lessons (positive and negative) of the project? Can you give some examples?

5. How has the project assisted with strengthening fisheries management? Please give some examples if possible

6. Do you think that the project has been effective in delivering the outputs you expected? What has been the most and least effective from your perspective?

7. Could you comment on the relevance, timeliness and quality of the (i) workshops, (ii) training, (iii) reports, and (iv) communications delivered by the project, (v) pilot site initiatives, (vi) other activities to your work.

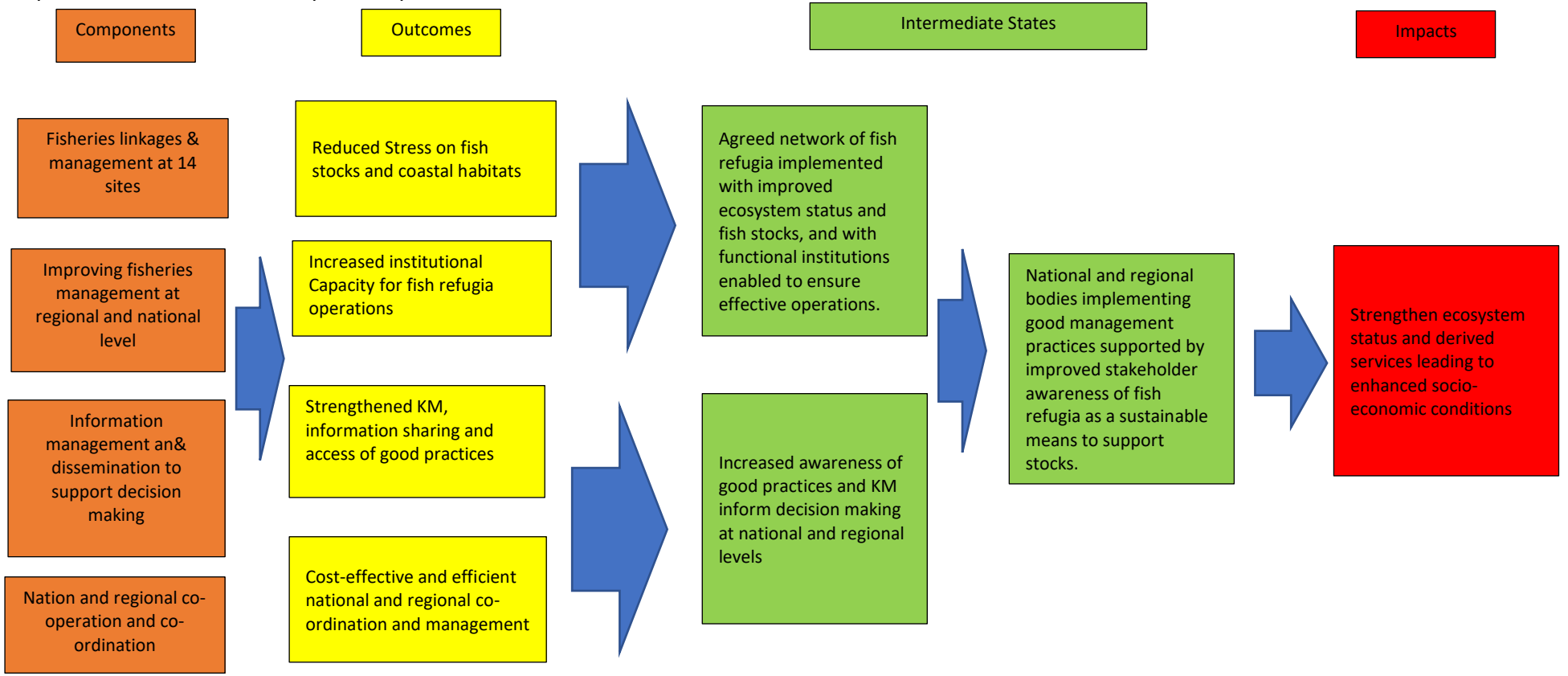
8. What was good/less good in the collaboration with the pilot project sites or other activities in the project?

9. How has the project responded to the impacts from COVID 19? What more could have been done under these circumstances?

10. Are there any other points you would like to highlight?

Annex 5 Reconstructed Theory of Change

As presented in the MTR Inception Report



Drivers: -
Pressure on coastal ecosystem
Pressure on fish stocks
Regional endorsed SAP recommending *fisheries* refugia supported by countries
Strong support from coastal communities through engagement in design and management

Assumptions:
COVID impacts
Countries complete pilots in allocated time
Recommendations adopted for introduction of *fisheries* refugia by national and regional fisheries bodies

Annex 6 Project costs and co-financing tables

Project expenditure per component and year

(summarised by the PCU)

Project Component	Total Budget (at CEO Endorsement) USD	Total Budget (PCU figures)	Expenditure 2016	Expenditure 2017	Expenditure 2018	Expenditure 2019	Expenditure 2020	Expenditure 2021 (until 30th Sept)	Total Expenditure	%age spent (vs. PCU figures)
1	1,304,900.00	742,900.00	-	35,798.00	91,668.00	135,878.00	82,466.00	65,955.60	**411,765.60**	55.43
2	746,000. 00	733,000.00	-	4,011.00	905.00	65,963.00	114,837.00	42,686.03	**228,402.03**	31.16
3	299,600. 00	278,600.00	5,730.00	9,819.00	14,729.00	39,932.00	17,223.00	18,175.02	**105,608.02**	37.91
4	499,500. 00	1,127,000.00	85,636.00	203,517.00	197,141.00	239,498.00	221,070.00	8,682.47	**955,544.47**	84.79
PMC	150,000.00	118,500.00	13,532.00	9,099.00	6,000.00	3,595.00	2,774.00	14,220.94	**49,220.94**	41.54
Totals	**3,000,000.** 00	**3,000,000.00**	**104,898.00**	**262,244.00**	**310,443.00**	**484,866.00**	**438,370.00**	**149,720.06**	**1,750,541.06**	**58.35**

Highlighted figures represent significant component budget changes.

Project Co-financing

(Abstracted from the 2021 3rd quarter co-financing report)

Co-financing (type/source)	UNEP own financing (mill. US$)		Government (mill. US$)		Partner Agency (mill. US$)		Total (mill. US$)	
	Planned	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**
Grants	3.88	3.66	1.08	1.56			4.96	5.22
Loans								
In-kind	2.46	6.38	5.04	6.72			7.50	13.10
Other								
Totals	**6.34**	**10.04**	**6.12**	**8.28**			**12.46**	**18.32**

NB: The planed co-financing presented in the CEO Endorsement was 12,717,850 USD

Annex 7 Achievements of Output

As reported by PCU to MTR at 30/09/21 (with supporting information from 2021 PIR

	Outputs that are 50% or less complete as reported in the PIR – with 12 months of project left.

Component 1 - Identification and management of fisheries and critical habitat linkages at priority fisheries refugia

Outputs	Indicator	Mid-term target	CAM-BODIA	INDON-ESIA	MALAY-SIA	PHILI-PPINE	THAI-LAND	VIET NAM	PCU	Average	MTR summary of activity	MTR rating
1.1: Formal agreement among stakeholders on the boundaries of fisheries refugia	Status of boundary delineation and agreement on proposed management interventions	RSTC4 Meeting Report	95%	60%	100%	100%	100%	50%	N/A	84%	The mid-term target has been achieved. A total of 382,400 ha of fisheries refugia have been established across the six countries with the agreement of national stakeholders [reported in 2021 PIR], including specific refugia for Blue Swimming Crab, Short Mackerel, prawns and lobsters. The PCU assessment indicates that this activity is well on target to be finalised.	S
1.2: 14 * community-based refugia management plans	Status of adoption and implementation of the management plans, total area of fisheries refugia (ha) under management	Key threats to fisheries refugia sites identified	80%	30%	100%	50%	100%	50%	N/A	68%	The mid-term target has been achieved. A regional Action Plan for Management of Transboundary (on Short Mackerel) has been adopted by SEAFDEC for endorsement by relevant ASEAN ministries. Currently there are 15 locations identified – this should be revised in the Project Results Framework.	S
1.3: Networks of management boards and	Status and effectiveness of the management board		70%	25%	30%	38%	80%	30%	N/A	45%	No mid-term target Only Cambodia and Thailand have progressed this activity significantly and	MS

Outputs	Indicator	Mid-term target	CAM-BODIA	INDON-ESIA	MALAY-SIA	PHILI-PPINE	THAI-LAND	VIET NAM	PCU	Average	MTR summary of activity	MTR rating
community-based fisheries and habitat management	and volunteer networks										are drafting National Action plans involving the lead national agency and local government partners.	
1.4: Operational enforcement programmes at 14 fisheries refugia sites	Increase in the proportion of target community members [minimum of 30 percent women] participating in refugia management, including enforcement, at the site level	Stakeholder capacity for participation in mgmt. benchmarked	75%	25%	50%	25%	80%	30%	N/A	48%	Mid-term target achieved Fisheries Refugia Working Groups established and local capacity has been strengthened. Data should be collated from the capacity development actions to report number of individuals involved (disaggregated by sex)	S
1.5: Operational partnership with the GEF Small Grants Programme	. Number of GEF Small Grants Programme projects commissioned and implemented in support of refugia management objectives	Suitable GEF SGP proponent identified at 14 sites	85%	40%	0%	75%	80%	20%	N/A	50%	Mid-term target not achieved. Consultation has begun with all six countries and further discussed during the last PSC meeting (November 2021). There remains little time to establish the SGP projects and to integrate into the work of the fisheries refugia project.	MU
Average %			**81%**	**36%**	**56%**	**58%**	**88%**	**36%**		**59%**		**MS**

Component 2 - Improving the management of critical habitats for fish stocks of transboundary significance

Outputs	Indicator	Mid-term target	CAM-BODIA	INDON-ESIA	MALAY-SIA	PHILI-PPINE	THAI-LAND	VIET NAM	PCU	Average	MTR summary of activity	MTR rating
2.1 Measures for the fisheries sector's sustainable use of fish habitats and biodiversity	Status of policy revision and endorsement	Proposed policy and legal reforms for promotion of responsible fishing at priority sites formulated Consultations with fishing industry initiated	80%	50%	40%	25%	100%	0%	N/A	49%	Unclear if mid-term target achieved in all countries 2021 PIR indicates progress on legal reforms and development of plans initiated in Cambodia, Malaysia and Thailand	MS
2.2: National guidelines on the use of fisheries refugia in integrating fisheries and habitat management endorsed	Status of endorsement of national guidelines	Guidelines drafted National and local consultative process initiated	80%	40%	30%	10%	100%	50%	N/A	52%	Mid-term target achieved 5 out of 6 countries have initiated the drafting of national guidelines	S
2.3: (a) National reports on policy, legal and institutional aspects of refugia establishment and management published; (b) policies and executive orders,	Status of endorsement of national fisheries refugia policies, enactment of supporting laws, and plan implementation	Consultations on required policy & legal reforms for refugia demarcation and management initiated	80%	0%	40%	45%	80%	50%	N/A	49%	Mid-term target achieved The regional action plan has been endorsed by all 6 countries. 2 countries have nationally endorsed plans	S

Outputs	Indicator	Mid-term target	CAM-BODIA	INDON-ESIA	MALAY-SIA	PHILI-PPINE	THAI-LAND	VIET NAM	PCU	Average	MTR summary of activity	MTR rating
provincial/local ordinances and by-laws for refugia management developed and endorsed; and (c) 6 endorsed National Action Plans												
2.4 Annual synthesis reports of new and additional information and data relating to the stocks of priority fish, crustaceans and molluscs and their habitats	Volume of new and additional information compiled on: biomass trends; recruitment; fish size; fish habitat area and quality; and volume and value of landings by fishing area and fishing gear use	First annual synthesis reports published	75%	40%	50%	25%	100%	20%	N/A	52%	Mid-term target achieved Information from the SEAFDEC network has been analysed	S
2.5: 6 online national databases, and 1 regional database	Status of national and regional databases and the number of datasets contained therein	National and regional inventories of fish egg and samples prepared First annual status report on fish early life history research prepared	50%	60%	100%	60%	80%	20%	N/A	62%	Mid-term target not achieved Not all countries have prepared inventories National and regional databases in preparation	MS

Outputs	Indicator	Mid-term target	CAM-BODIA	INDON-ESIA	MALAY-SIA	PHILI-PPINE	THAI-LAND	VIET NAM	PCU	Average	MTR summary of activity	MTR rating
2.6: 6 national and 1 regional online Geographical Information Systems	Status of the national and regional GIS and the number of sites presented and characterised	Regional GIS prepared for online	90%	60%	10%	50%	80%	10%	N/A	50%	Mid-term target not achieved The regional GIS development is in progress. Updated information will be uploaded every quarter from countries	MS
2.7 Fisheries and habitat data collection programmes operational to characterise 14 priority refugia sites	Completeness of site characterisations for 14 priority refugia	Site characterisation templates prepared and agreed by NSTC and RSTC	70%	10%	40%	25%	80%	10%	N/A	39%	Mid-term target achieved Not all countries have published refugia profiles (6 out of 15 sites have updated templates)	MS
2.8: Modelling system linking oceanographic, biochemical, and fish early life history information developed	Status of modelling system and extent of its use in decision-making and planning	Scope of work for model development prepared and agreed by NSTC and RSTC	50%	10%	50%	25%	50%	10%	N/A	33%	Mid-term target achieved. The model has been agreed by the National and Regional Scientific and Technical Committees	MS
2.9: Best practice fishing methods and practices	Status of demonstration activities	Threats from fishing to fish stock and critical habitat links identified at 14 priority sites	N/A	N/A	N/A	N/A	N/A	N/A	100%	100%	Mid-term target achieved The project will publish best practices from 15 sites in early 2022.	S
Activity 2.10 – Best practice fishing gears (Cambodia)			N/A	N/A	N/A	N/A	N/A	N/A	75%%	75%%		
Average %			72%	34%	45%	33%	84%	21%	100%	54%		

Component 3 - Information Management & Dissemination in support of national-level implementation of fisheries refugia concept

Outputs	Indicator	Mid-term target	CAM-BODIA	INDON-ESIA	MALAY-SIA	PHILI-PPINE	THAI-LAND	VIET NAM	PCU	Average	MTR summary of activity	MTR rating
3.1: Best practice approaches and measures for integrated fisheries and habitat management	Number of best practice approaches and measures tested and codified Number, scope and reach of communications to share best practices Demonstrable use of best practices in policy and planning	Online database for cataloguing best practice examples accessible via project website	50%	25%	60%	10%	80%	20%	N/A	41%	Mid-term target achieved Website has a number of best practices (strengthening regional co-operation for the management of transboundary species; Best practices of Blue Swimming Crab; Linking science and management for spiny lobster; Regional plan of action for transboundary species	S
3.2: Public awareness and outreach programme	Extent of community acceptance of the use of fisheries refugia in coastal fisheries management	Community acceptance of refugia approach in project Yr 1 benchmarked	85%	40%	80%	40%	100%	20%	N/A	61%	Mid-term target achieved 12 out of 15 sites have completed stakeholder consultation (3 sites in Viet Nam are still planned)	S
3.3: National knowledge management systems	Status of national web portals Status of publication of GEF IW experience notes	Web portal for the exchange of knowledge on refugia approach accessible online	70%	25%	10%	40%	80%	20%	N/A	41%	Mid-term target achieved One national portal linked to the regional project site operational. Other portals in progress. 5 articles prepared for release through IW:LEARN	S
3.4: Regional Education and Awareness Centre	Status of the Regional Education and Awareness Centre at SEAFDEC	none	N/A	N/A	N/A	N/A	N/A	N/A	80%	80%	No mid-term target SEARFTEC and the project work closely and information shared and published.	S

Outputs	Indicator	Mid-term target	CAM-BODIA	INDON-ESIA	MALAY-SIA	PHILI-PPINE	THAI-LAND	VIET NAM	PCU	Average	MTR summary of activity	MTR rating
	Volume of information and education material compiled, produced and made accessible											
3.5: Regional agreement on standardised information and data collection procedures	Status of regional agreements Extent of demonstrated use of the agreed procedures in operation of site-level information and data collection programmes	none	N/A	N/A	N/A	N/A	N/A	N/A	75%	75%	No mid-term target Draft guidelines are in progress and will be completed in 2022	S
Average %			68%	30%	50%	30%	87%	20%	78%	60%		

Component 4 - National and Regional coordination for integrated fish stock and critical habitat management

Outputs	Indicator	Mid-term target	CAM-BODIA	INDON-ESIA	MALAY-SIA	PHILI-PPINE	THAI-LAND	VIET NAM	PCU	Average	MTR summary of activity	MTR rating
4.1 National Fisheries Refugia Committees (NFRC) established in 6 countries	Extent and continuity of national government agency participation in National Fisheries Refugia Committee meetings	Quarterly meetings of NFRCs	75%	35.00%	100%	50%	80%	20%	N/A	60%	Mid-term target achieved All countries have established a NFRC	S
4.2 National Technical and Scientific Committees (NTSC) established in 6 countries	Status of the NTSC's and the uptake of the scientific and technical advice they provide	Biannual meetings of NTSCs	85%	15%	100%	50%	80%	0%	N/A	55%	Mid-term target achieved All countries have established a NFRC	S
4.3: Local community action catalysed	Continuity of participation of community stakeholders in the planning, monitoring and evaluation of fisheries refugia management	Quarterly meetings of Site-Based Management Boards	75%	40%	10%	67%	80%	0%	N/A	45%	Mid-term target achieved All countries have established site management Boards	S
4.4: Regional Scientific and Technical Committee (RSTC) established	Status of the RSTC and the uptake of the scientific and technical advice it provides Continuity of participation of	Biannual meetings of the RSTC	N/A	N/A	N/A	N/A	N/A	N/A	85%	85%	Mid-term target achieved	S

Outputs	Indicator	Mid-term target	CAM-BODIA	INDON-ESIA	MALAY-SIA	PHILI-PPINE	THAI-LAND	VIET NAM	PCU	Average	MTR summary of activity	MTR rating
	members in annual meetings											
4.5: Project Steering Committee established	Status of the PSC and Continuity of participation of members in annual meetings	Annual meetings of the PSC Completion of Annual Project Implementation Reviews	N/A	N/A	N/A	N/A	N/A	N/A	85%	85%	Mid-term target achieved	S
4.6: Functioning regional Project Coordinating Unit			N/A	N/A	N/A	N/A	N/A	N/A	85%	85%		S
Average %			78%	30%	70%	56%	80%	7%	85%	69%		

Annex 8 Brief CV of MTR Consultants

Dr Peter Whalley is a physical chemist who has been working in water and environment management for over 25 years. He has extensive experience of developing appropriate water monitoring networks, nutrient management plans, implementing training programmes and providing trans-boundary support in a range of countries. He has been involved with the development, implementation and compliance checking of the EU Water Framework Directive. For the last fifteen years he has worked on over 20 GEF funded International Waters projects.

These include technical/project management roles: the Danube Regional Project, Tisza River integrated land-water management, Lake Prespa Strategic Action Programme (SAP), Caribbean Large Marine Ecosystem SAP, Amazon, Nubian Aquifer SAP. In addition, he has assisted with project preparation (development of project documents) and, mid-term and terminal evaluations for a for IW, BD and multi-focal area projects for UNDP, UNEP, IDB and the World Bank. He has also been a part of the team evaluating the global and regional UNDP Human Development Reports taking the lead on relevant reports relating to water and climate change. He was also involved for four years assisting UNDP IEO to perform quality assurance checks on terminal evaluations. Specifically, he has been involved in evaluations for GEF International Waters and the Biodiversity Focal Areas including: UNDP Orange River, UNEP/LOICZ Target Research Project, UNEP IWCAM (Caribbean), UNEP/UNDP Pacific IWRM, UNEP Amazon, UNEP Upper Yangtze Biodiversity, UNEP Amazon, UNDP Albania, UNDP Chu Talas River, Marine Protected Areas, UNEP TWAP, UNEP Floods and Drought, UNDP Kura River Basin, etc.

Annex 9 Response to comments on the draft MTR

Suggested edits have been integrated. There are no outstanding comments or concerns presented to the Consultant on the MTR report for the UNEP/GEF Fisheries *Refugia* Project.

ANNEX 5: AMENDMENT OF THE MTR REPORT'S ANNEX 9

Refers to the MTR Report

(Amendment) Annex 9 Response to comments on the draft MTR

There are two issues; SEAFDEC as an executing agency and the Project Coordination Unit (PCU) wants the responses to MTR Recommendations and Comments for recording in the PSC7 Ad-hoc report as follows:

1) Concerning the MTR Recommendation #2 directs the PCU and Executing Agency to revise the workplan and the resulting framework to ensure that these reflect the current situation and budgets to deliver all remaining expected activities and outputs as shown on page 10 of the MTR report. The evaluator links MTR Recommendation #2 to sub-Chapter 2.1.1 on Page 18 of the MTR report because the evaluator considers significant changes to Component 1 budget (from 1.3 M USD to 0.7 M USD) and increasing Component 4 budget (from 0.5 M USD to 1.1 M USD) as shown in Annex 6 (Page 70 of the report). The evaluator also further discusses these issues in Section 2.5.5 related to Financial Management on Page 32 of the report.

In response to the MTR Recommendation #2 mentioned above, the SEAFDEC EA and PCU refer to the Project Coordination Agreement (PCA) between SEAFDEC and UNEP, and all PCA documents, notably the Costed Work Plan for all executed countries and SEAFDEC in Appendix 1&2 (**REF-1**) in excel file format attached to PRODOC endorsed by the GEF/CEO. Appendix 1&2-link-budget comprises 36 worksheets mainly concerned with the detailed budget by component and budget line of six countries and regional programs. Look at worksheet #2 (**REF-2**), entitled: "Reconciliation between GEF activity-based budget and UNEP Budget by Expenditure Code," which summarizes the total implementing budget for Components 1, 2, 3, and 4 are 0.754, 0.746, 0.299, and 1.199 million USD, respectively (see worksheet #2). Regarding this, the PCU reported expenditures referencing the activity-based budget in each component by year as of 30 September 2021, as shown in **Table-1**. Without adjusting the original budget and without changing the Result framework, the cumulative expenditures by components as of 30 September 2021 are less than the planned budget.

Table-1: Expenditures as of 30 Sept 2021 compared with Planned Budget approved by GEF/CEO in worksheet#2 of the Appendix 1&2

Project Component	Total Budget endorsed by CEO (WS-02) USD	Expenditure 2016	Expenditure 2017	Expenditure 2018	Expenditure 2019	Expenditure 2020	Expenditure 2021 (As of 30 Sep 2021)	Total Expenditure	Balance (As of 30 Sept. 2021)
1	754,900.00	-	35,798.00	91,668.00	135,878.00	82,466.00	65,955.60	411,765.60	343,134.40
2	746,000.00	-	4,011.00	905.00	65,963.00	114,837.00	42,686.03	228,402.03	517,597.97
3	299,600.00	5,730.00	9,819.00	14,729.00	39,932.00	17,223.00	18,175.02	105,608.02	193,991.98
4	1,199,500.00	99,168.00	212,616.00	203,141.00	243,093.00	223,844.00	22,903.41	1,004,765.41	194,734.59
Totals	3,000,000.00	104,898.00	262,244.00	310,443.00	484,866.00	438,370.00	149,720.06	1,750,541.06	1,249,458.94

Considering the GEF/CEO endorsed Worksheet #1 of Appendix 1&2, entitled "Over cost outlines for each activity per project component," (**REF-3**) in which the original project design intends inclusion of the Project Management Cost (PMC) and Monitoring & Evaluation (M&E) costs from the Component 4-Regional budget to record in Component 1 as described by the UNEP Task Manager during the PSC7 Ad-hoc Meeting. The SEAFDEC/PCU finds the budget for Component 1 and Component 4 is 1.455 and 0.499 million USD, respectively, which are different from worksheet #2. Following the budget design, the PCU moves some budget related to the PMC and M&E from Component 4 to record in Component 1, as shown in Table-2. Table-2 shows the cumulative expenditures by component as of 30 September 2021, compared with overall cost outlines from worksheet#1, which are not over the planned budget.

Table-2: Expenditures as of 30 Sept 2021 compared with overall cost outlines from worksheet#1 of the Appendix 1&2 endorsed by the GEF/CEO

Project Component	Overall Cost (CEO-approval) (Worksheet #1)	Expenditure 2016	Expenditure 2017	Expenditure 2018	Expenditure 2019	Expenditure 2020	Expenditure (Q1-Q3/2021)	Total Expenditure (As of 30 Sep.22)
1	1,304,900	60,534	211,395	212,405	285,347	241,794	65,956	1,077,431
2	746,000	-	4,011	905	65,963	115,177	42,686	228,742
3	299,600	5,730	9,819	14,729	39,932	17,223	18,175	105,608
4	499,500	25,102	8,247	61,245	71,862	43,738	8,682	218,876
PMC	150,000	13,532	28,772	21,159	21,762	20,438	14,221	119,884
Totals	3,000,000	104,898	262,244	310,443	484,866	438,370	149,720	1,750,541
Comp 1 (+ PMC)	1,454,900	74,066	240,167	233,564	307,109	262,232	80,177	1,197,315

In conclusion, SEAFDEC/PCU has managed the project budget referencing the GEF/CEO endorsement as shown in worksheet #2 and worksheet#1 of the PCA appendix 1&2. The expenditures as of 30 September 2021 are not over the planned budget. Accordingly, the SEAFDEC/PCU has not adjusted or changed the project budget as mentioned in the TMR report. In addition, the MTR evaluator also did not fully comprehend and thought that the project had reduced the budget of component 1. **The SEAFDEC and PCU ignore MTR Recommendation#2, particularly on the proposed revision of the Project Results Framework** (Refers to Page 10, Page 32, Page 70, etc.).

2) There are error values on the co-financing in Annex 6 (Co-financing, page 71). In response to this issue, the PCU did not include the planned co-finance from UNEP, which is an amount of USD 200,000, in the calculation. In addition, mis-typing value of the Grant planned co-finance from Government. The corrected value is 1.15 to replace 1.08 million USD. After correction, the total planned co-financing is 12.72 million USD, with the GEF/CEO approval as shown in Table-3.

Table 3: Co-financing

Co financing (Type/Source)		IA own Financing (million US$)		Government (million US$)		Private Sector (million US$)		Other Sources* (million US$)		Total Financing (million US$)		Total Disbursement (million US$)	
		Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grant		3.88	3.66	1.15	1.56					5.03	5.22	1.82	1.70
Credits													
Loans													
Equity													
In-kind	SEAFDEC	2.45	6.38	5.04	6.72					7.49	13.10		
	UNEP	0.20	-							0.20	-		
Non-grant Instruments													
Other Types													
TOTAL		6.53	10.04	6.19	8.28	-	-	-	-	12.72	18.32	1.82	1.70

REF-01: Appendix 1&2

A	B
Appendix 1 & 2: GEF and CF Budget by project components and UN	
	Table of Contents
1	Full-sized project costed outline including both GEF and co-financing resources
2	Reconciliation of GEF activity-based budget and UNEP budget by expenditure code (overall project budget)
3	Cambodia: National reconciliation of GEF activity-based budget and UNEP budget by expenditure code
4	Indonesia: National reconciliation of GEF activity-based budget and UNEP budget by expenditure code
5	Malaysia: National reconciliation of GEF activity-based budget and UNEP budget by expenditure code
6	Philippines: National reconciliation of GEF activity-based budget and UNEP budget by expenditure code
7	Thailand: National reconciliation of GEF activity-based budget and UNEP budget by expenditure code
8	Vietnam: National reconciliation of GEF activity-based budget and UNEP budget by expenditure code
9	Regional Activities: Reconciliation of GEF activity-based budget and UNEP budget by expenditure code
CAMC1	Cambodia national budget for project component 1
CAMC2	Cambodia national budget for project component 2
CAMC3	Cambodia national budget for project component 3
CAMC4	Cambodia national budget for project component 4
INDC1	Indonesia national budget for project component 1
INDC2	Indonesia national budget for project component 2
INDC3	Indonesia national budget for project component 3
INDC4	Indonesia national budget for project component4
MALC1	Malaysia national budget for project component 1
MALC2	Malaysia national budget for project component 2
MALC3	Malaysia national budget for project component 3
MALC4	Malaysia national budget for project component4
PHIC1	Philippines national budget for project component 1
PHIC2	Philippines national budget for project component 2
PHIC3	Philippines national budget for project component 3
PHIC4	Philippines national budget for project component 4
THAC1	Thailand national budget for project component 1
THAC2	Thailand national budget for project component 2
THAC3	Thailand national budget for project component 3
THAC4	Thailand national budget for project component 4
VIEC1	Vietnam national budget for project component 1
VIEC2	Vietnam national budget for project component 2
VIEC3	Vietnam national budget for project component 3
VIEC4	Vietnam national budget for project component 4
REGC2	Budget for regional activities of project component 2
REGC3	Budget for regional activities of project component 3
REGC4	Budget for regional activities of project component 4

REF-2: Worksheet #2

RECONCILIATION BETWEEN GEF ACTIVITY BASED BUDGET AND UNEP BUDGET BY EXPENDITURE CODE (GEF FINANCE ONLY) - OVERALL

Project No: 5401 (GEF_ID)

Project Name: Establishing and Operating a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand

Executing Agency: Southeast Asian Fisheries Development Center

Funding Source: GEF Trust Fund (International Waters)

		BUDGET ALLOCATION PER PROJECT COMPONENT				ALLOCATION BY CALENDAR YEAR				
		I	II	III	IV	Year 1	Year 2	Year 3	Year 4	Total
	UNEP BUDGET LINE/OBJECT OF EXPENDITURE	US$	US$	US$	US$	US$	US$	US$	US$	US$
10	**PROJECT PERSONNEL COMPONENT**									
1100	**Project Personnel w/m**									
1101	C1 - Identification and management of fisheries refugia	84,800	-	-	-	57,500	21,900	2,700	2,700	84,800
1102	C2 - Strengthening the enabling environment & knowledge base for management	-	105,000	-	-	27,000	44,000	23,000	11,000	105,000
1103	C3 - Information management and dissemination	-	-	57,600	-	14,400	14,400	14,400	14,400	57,600
1104	C4 - National and Regional Coordination and Cooperation	-	-	-	-	-	-	-	-	-
1199	Sub-Total	84,800	105,000	57,600	-	98,900	80,300	40,100	28,100	247,400
1200	**Consultants w/m**									
1201	C1 - Identification and management of fisheries refugia	118,500	-	-	-	59,000	46,000	13,500	-	118,500
1202	C2 - Strengthening the enabling environment & knowledge base for management	-	153,000	-	-	39,000	54,000	60,000	-	153,000
1203	C3 - Information management and dissemination	-	-	40,000	-	-	20,000	20,000	-	40,000
1204	C4 - National and Regional Coordination and Cooperation	-	-	-	500,000	125,000	125,000	125,000	125,000	500,000
1299	Sub-Total	118,500	153,000	40,000	500,000	223,000	245,000	218,500	125,000	811,500
1600	**Travel on official business (above staff)**	-	-	-	-	-	-	-	-	
1601	C1 - Identification and management of fisheries refugia	64,000	-	-	-	18,800	34,400	8,100	2,700	64,000
1602	C2 - Strengthening the enabling environment & knowledge base for management	-	12,000	-	-	-	6,000	6,000	-	12,000
1603	C3 - Information management and dissemination	-	-	-	-	-	-	-	-	-
1604	C4 - National and Regional Coordination and Cooperation	-	-	-	120,000	30,000	30,000	30,000	30,000	120,000
1699	Sub-Total	64,000	12,000	-	120,000	48,800	70,400	44,100	32,700	196,000
	Component Total	**267,300**	**270,000**	**97,600**	**620,000**	**370,700**	**395,700**	**302,700**	**185,800**	**1,254,900**
20	**SUB-CONTRACT COMPONENT**									
2100	**Sub-contracts (MoU's/LA's for UN cooperating agencies)**									
2101	N/A	-	-	-	-	-	-	-	-	-
2199	Sub-Total	-	-	-	-	-	-	-	-	-
2200	**Sub-contracts (MoU's/LA's for non-profit supporting organizations)**									
2201	C1 - Identification and management of fisheries refugia	335,000	-	-	-	16,000	28,000	146,500	144,500	335,000
2202	C2 - Strengthening the enabling environment & knowledge base for management	-	331,000	-	-	60,000	104,000	113,000	54,000	331,000
2203	C3 - Information management and dissemination	-	-	83,000	-	12,000	30,000	21,000	20,000	83,000
2204	C4 - National and Regional Coordination and Cooperation	-	-	-	-	-	-	-	-	-
2299	Sub-Total	335,000	331,000	83,000	-	88,000	162,000	280,500	218,500	749,000
2300	**Sub-contracts (commercial purposes)**									
2301	C1 - Identification and management of fisheries refugia	-	-	-	-	-	-	-	-	-
2302	C2 - Strengthening the enabling environment & knowledge base for management	-	-	-	-	-	-	-	-	-
2303	C3 - Information management and dissemination	-	-	75,000	-	24,000	12,000	19,500	19,500	75,000
2304	C4 - National and Regional Coordination and Cooperation	-	-	-	100,000	25,000	25,000	25,000	25,000	100,000
2399	Sub-Total	-	-	75,000	100,000	49,000	37,000	44,500	44,500	175,000
	Component Total	**335,000**	**331,000**	**158,000**	**100,000**	**137,000**	**199,000**	**325,000**	**263,000**	**924,000**
30	**TRAINING COMPONENT**									
3200	**Group training (study tours, field trips, workshops, seminars, etc) (give title)**									
3201	C1 - Identification and management of fisheries refugia	108,800	-	-	-	72,800	25,000	5,000	6,000	108,800
3202	C2 - Strengthening the enabling environment & knowledge base for management	-	73,000	-	-	-	46,000	24,000	3,000	73,000
3203	C3 - Information management and dissemination	-	-	24,000	-	-	12,000	6,000	6,000	24,000
3204	C4 - National and Regional Coordination and Cooperation	-	-	-	-	-	-	-	-	-
3299	Sub-Total	108,800	73,000	24,000	-	72,800	83,000	35,000	15,000	205,800
3300	**Meetings/conferences (give title)**									
3301	C1 - Identification and management of fisheries refugia	30,000	-	-	-	6,000	16,000	8,000	-	30,000
3302	C2 - Strengthening the enabling environment & knowledge base for management	-	60,000	-	-	3,000	33,000	21,000	3,000	60,000
3303	C3 - Information management and dissemination	-	-	20,000	-	-	-	20,000	-	20,000
3304	C4 - National and Regional Coordination and Cooperation	-	-	-	289,500	73,000	72,500	72,500	71,500	289,500
3399	Sub-Total	30,000	60,000	20,000	289,500	82,000	121,500	121,500	74,500	399,500
	Component Total	**138,800**	**133,000**	**44,000**	**289,500**	**154,800**	**204,500**	**156,500**	**89,500**	**605,300**
40	**EQUIPMENT & PREMISES COMPONENT**									
4100	**Expendable equipment (items under $1,500 each, for example)**									
4101		-	-	-	-	-	-	-	-	-
4199	Sub-Total	-	-	-	-	-	-	-	-	-
4200	**Non-expendable equipment (computers, office equip, etc)**									
4201	C1 - Identification and management of fisheries refugia	-	-	-	-	-	-	-	-	-
4202	C2 - Strengthening the enabling environment & knowledge base for management	-	-	-	-	-	-	-	-	-
4203	C3 - Information management and dissemination	-	-	-	-	-	-	-	-	-
4204	C4 - National and Regional Coordination and Cooperation	-	-	-	50,000	20,000	10,000	10,000	10,000	50,000
4299	Sub-Total	-	-	-	50,000	20,000	10,000	10,000	10,000	50,000
4300	**Premises (office rent, maintenance of premises, etc)**									
4301		-	-	-	-	-	-	-	-	-
4399	Sub-Total	-	-	-	-	-	-	-	-	-
	Component Total	**-**	**-**	**-**	**50,000**	**20,000**	**10,000**	**10,000**	**10,000**	**50,000**
50	**MISCELLANEOUS COMPONENT**									
5100	**Operation and maintenance of equip.**									
5101		-	-	-	-	-	-	-	-	-
5199	Sub-Total	-	-	-	-	-	-	-	-	-
5200	**Reporting costs (publications, maps, newsletters, printing, etc)**	-	-	-	-	-	-	-	-	
5201	C1 - Identification and management of fisheries refugia	13,800	-	-	-	-	2,800	11,000	-	13,800
5202	C2 - Strengthening the enabling environment & knowledge base for management	-	12,000	-	-	-	12,000	-	-	12,000
5203	C3 - Information management and dissemination	-	-	-	-	-	-	-	-	-
5204	C4 - National and Regional Coordination and Cooperation	-	-	-	40,000	10,000	10,000	10,000	10,000	40,000
5299	Sub-Total	13,800	12,000	-	40,000	10,000	24,800	21,000	10,000	65,800
5300	**Sundry (communications, postage, freight, clearance charges, etc)**									
5301		-	-	-	-	-	-	-	-	-
5399	Sub-Total	-	-	-	-	-	-	-	-	-
5400	**Hospitality and entertainment**									
5401		-	-	-	-	-	-	-	-	-
5499	Sub-Total	-	-	-	-	-	-	-	-	-
5500	**Evaluation (consultants fees/travel/DSA, admin support, etc. internal projects)**									
5501	C1 - Identification and management of fisheries refugia	-	-	-	-	-	-	-	-	-
5502	C2 - Strengthening the enabling environment & knowledge base for management	-	-	-	-	-	-	-	-	-
5503	C3 - Information management and dissemination	-	-	-	-	-	-	-	-	-
5504	C4 - National and Regional Coordination and Cooperation	-	-	-	100,000	-	40,000	-	60,000	100,000
5599	Sub-Total	-	-	-	100,000	-	40,000	-	60,000	100,000
	Component Total	**13,800**	**12,000**	**-**	**140,000**	**10,000**	**64,800**	**21,000**	**70,000**	**165,800**
		-	-	-	-	-	-	-	-	-
	TOTAL COSTS	**754,900**	**746,000**	**299,600**	**1,199,500**	**692,500**	**874,000**	**815,200**	**618,300**	**3,000,000**

REF-3: Worksheet #1:

Budget per Component - Summary Table - Fisheries Refugia FSP - Regional

	Project Components/Activities/Sub-activities	GEF Funding	Co-Financing	Total Project Cost
Component 1	**Identification and management of fisheries and critical habitat linkages at priority fisheries refugia in the South China Sea**	**1,454,900**	**3,989,523**	**5,444,423**
Activity 1.1	**Developing fisheries and coastal habitat information and data collection programmes for 14 priority fisheries refugia sites**	**110,600**	**704,167**	**814,767**
Sub-Activity 1.1.1	Review existing information and data on fisheries and coastal habitats at 14 sites, including identification of management needs	28,000	82,673	110,673
Sub-Activity 1.1.2	National consultation workshops to secure community and fisherfolk support in information & data collection	18,200	96,004	114,204
Sub-Activity 1.1.3	Design and conduct site-based surveys to produce fisheries and habitat profile report for 14 sites	32,400	61,643	94,043
Sub-Activity 1.1.4	Design and conduct fisheries surveys at the 14 sites and submit data to national & regional online databases	32,000	463,848	495,848
Activity 1.2	**Facilitating agreement among stakeholders on the boundaries of fisheries refugia at 14 priority fisheries refugia sites**	**455,800**	**566,437**	**1,022,237**
Sub-Activity 1.2.1	Conduct consultations (including at-sea) to draft maps of fisheries refugia for priority species	85,800	174,629	260,429
Sub-Activity 1.2.2	Prepare maps for 14 refugia and elicit fisherfolk input to boundary delineation through consultation	127,200	132,988	260,188
Sub-Activity 1.2.3	Conduct assessment of environmental and social impacts of designation of sites as refugia	116,000	169,346	285,346
Sub-Activity 1.2.4	Secure formal municipal/local government designation of site as fisheries refugia	126,800	89,474	216,274
Activity 1.3	**Developing Community-Based Management Plans for 14 priority fisheries refugia sites**	**369,300**	**863,184**	**1,232,484**
Sub-Activity 1.3.1	Consultations to identify key threats to fisheries refugia sites and identify management measures	44,400	172,646	217,046
Sub-Activity 1.3.2	Management plans for 14 sites developed through community-based consultations	69,000	181,502	250,502
Sub-Activity 1.3.3	Regulations/rules required for refugia management drafted with fisherfolk and local authorities	131,500	271,495	402,995
Sub-Activity 1.3.4	Management plans adopted by local authorities and regulatory reforms enacted	124,400	237,540	361,940
Activity 1.4	**Establishing operational management for 14 priority fisheries refugia sites**	**497,800**	**1,628,408**	**2,126,208**
Sub-Activity 1.4.1	Establish management teams and site-based volunteer networks at 14 sites	48,000	215,940	263,940
Sub-Activity 1.4.2	Conduct project capacity building programme for management volunteers at 14 sites	56,400	279,972	336,372
Sub-Activity 1.4.3	Coordinate monthly training and awareness activities at 14 sites, including pilot mgmt activities	80,000	326,756	406,756
Sub-Activity 1.4.4	Develop and implement collaborative observer and enforcement programmes for management plan implementation at 14 sites	313,400	805,740	1,119,140
Activity 1.5	**Strengthening civil society and community organization participation in the management of 14 fisheries refugia sites**	**21,400**	**227,326**	**248,726**
Sub-Activity 1.5.1	Support local GEF Small Grant Programme proponents in design and execution of projects	16,000	114,948	130,948
Sub-Activity 1.5.2	Document and share examples of best practice at regional and national levels in the 6 countries (share with IWLEARN)	5,400	112,378	117,778
Component 2	**Improving the management of critical habitats for fish stocks of transboundary significance via national and regional actions to strengthen the enabling environment and knowledge-base for fisheries refugia management in the South China Sea**	**746,000**	**5,313,217**	**6,059,217**
Activity 2.1	**Enhancing policy guidance for improved management of the effects of fishing on critical habitats in the 6 participating countries**	**84,000**	**675,558**	**759,558**
Sub-Activity 2.1.1	Identify and document key threats from fishing and the environment to fish stock and critical habitat linkages at 14 priority sites in the 6 participating countries	18,000	147,920	165,920
Sub-Activity 2.1.2	Formulate recommendations on policy and legal reforms to support promotion of responsible fishing at 14 priority sites in the 6 participating countries	12,000	261,609	273,609
Sub-Activity 2.1.3	Facilitate consultations with fisheries industry and competent authorities on policy reforms for responsible fishing gear and practices in the participating countries	42,000	138,520	180,520
Sub-Activity 2.1.4	National policy reform to promote fisheries sector's sustainable use of fish habitats and biodiversity	12,000	127,509	139,509
Activity 2.2	**Defining the policy and legal basis for formal designation and establishment of fisheries refugia in the 6 participating countries**	**42,000**	**331,734**	**373,734**
Sub-Activity 2.2.1	Reviews of policy and legal aspects on refugia (terminology, procedures, recommended reforms) in the 6 participating countries	30,000	221,560	251,560
Sub-Activity 2.2.2	National expert consultations to formulate agreed recommendations for policy and legal reforms in the 6 participating countries	12,000	110,174	122,174
Activity 2.3	**Development of national guidelines on the establishment and operation of fisheries refugia and reflected in an updated regional refugia action plan**	**64,000**	**459,459**	**523,459**
Sub-Activity 2.3.1	Draft national guidelines (based on 2.1.2) on procedures for designation and mgmt of fisheries refugia in 6 participating countries	30,000	128,231	158,231
Sub-Activity 2.3.2	National and local consultative process to elicit stakeholder input to the draft guidelines	28,000	126,492	154,492
Sub-Activity 2.3.3	Amend and finalise national guidelines for approval by National Fisheries Refugia Committees in 6 countries	6,000	94,736	100,736
Sub-Activity 2.3.4	Draft regional refugia action plan	0	110,000	110,000
Activity 2.4	**Reforming national and regional policy, legal and planning frameworks for demarcating boundaries and managing refugia**	**126,000**	**533,388**	**659,388**
Sub-Activity 2.4.1	Based on 2.1.2 & 2.1.3, draft required policy and legal reforms to support refugia establishment and mgmt in 6 participating countries	30,000	118,260	148,260
Sub-Activity 2.4.2	Convene national and local stakeholder consultations to review draft text for adoption in 6 countries	18,000	150,780	168,780
Sub-Activity 2.4.3	Facilitate approval and adoption of reforms by the authorities at national and provincial levels for 14 priority sites in 6 countries	18,000	161,458	179,458
Sub-Activity 2.4.4	Develop Regional Action Plan for the management of refugia in coastal areas of the 6 participating countries	60,000	102,890	162,890
Activity 2.5	**Enhancing access to information relating to status and trends in fish stocks and their habitats in waters of the SCS marine basin**	**96,000**	**652,652**	**748,652**
Sub-Activity 2.5.1	Compile information and data derived from abundance surveys in 6 countries for longer-term management	18,000	132,284	150,284
Sub-Activity 2.5.2	Compile information and data derived from surveys on size-frequency of priority species in 6 countries	18,000	130,324	148,324
Sub-Activity 2.5.3	Compile information and data on landings of priority species (volume/value, fishing areas and gears) in South China Sea waters	30,000	146,420	176,420
Sub-Activity 2.5.4	Produce annual syntheses reports of new and additional information for national and regional review	15,000	123,200	138,200
Sub-Activity 2.5.5	Revise national reports on fish stocks and habitats in the South China for each 6 participating countries	15,000	120,424	135,424
Activity 2.6	**Improved national and regional-level management and sharing of information and data on fish early life history in the waters of the SCS**	**117,000**	**1,388,242**	**1,505,242**
Sub-Activity 2.6.1	Prepare 6 national and 1 regional inventory of fish egg and larvae samples collected from SCS waters of the 6 participating countries	30,000	221,220	251,220
Sub-Activity 2.6.2	Develop and maintain 6 national databases and 1 regional database of fish egg and larval fish distribution and abundance	45,000	389,180	434,180
Sub-Activity 2.6.3	Convene annual one-day workshops in the 6 participating countries to monitor the implementation of national programmes for the processing/analysis of fish egg and larvae samples	12,000	387,242	399,242
Sub-Activity 2.6.4	Prepare annual status reports on fish early life history research for each participating country for regional review	30,000	390,600	420,600
Activity 2.7	**Enhancing access to information relating to the locations and status of coastal habitats and management areas in the SCS**	**90,000**	**454,368**	**544,368**
Sub-Activity 2.7.1	Compile and update information and data in 6 * National and 1 * regional Google Earth based GIS on: distribution of habitats; known spawning areas; locations of refugia; MPAs; fisheries management areas; critical habitats for endangered species	72,000	223,508	295,508
Sub-Activity 2.7.2	Prepare annual synthesis of new and additional information included in databases (2.7.1)	18,000	230,860	248,860
Activity 2.8	**Strengthening the information base for the planning, monitoring and evaluation of management at priority fisheries refugia sites**	**27,000**	**37,816**	**64,816**
Sub-Activity 2.8.1	Based on 1.1.4, produce detailed site characterizations for 14 priority refugia for incorporation into national and regional datasets	27,000	37,816	64,816
Activity 2.9	**Improving basin-wide understanding of linkages between ocean circulation patterns, nutrient/chlorophyll concentrations, and sources and sinks of fish larvae in the South China Sea**	**40,000**	**420,000**	**460,000**
Sub-Activity 2.9.1	Development of modelling system linking oceanographic, biochemical, and fish early life history information for management	40,000	340,000	380,000
Sub-Activity 2.9.2	Publication of report on application of modeling system in identifying priority locations for replication and scaling-up best practices	0	80,000	80,000
Activity 2.10	**Regionally and locally appropriate best practices generated to address the effects of trawl and push net fishing on seagrass habitat, and the capture of juveniles, pre-recruits and fish in spawning condition**	**60,000**	**360,000**	**420,000**
Sub-Activity 2.10.1	Best practice fishing methods and practices to address threats to fish stock and habitat linkages demonstrated at priority refugia	60,000	360,000	420,000
Component 3	**Information Management and Dissemination in support of national and regional-level implementation of the fisheries refugia concept**	**299,600**	**1,792,055**	**2,091,655**
Activity 3.1	**Enhancing uptake of best practices in integrating fisheries management and biodiversity conservation in the 6 participating countries**	**87,600**	**672,371**	**759,971**
Sub-Activity 3.1.1	Quarterly capture and documentation of best practices in the establishment and operation of fisheries refugia in the 6 countries	28,800	248,848	277,648
Sub-Activity 3.1.2	Online catalogue of best practices approaches and measures developed and updated each 6 months	30,000	174,373	204,373
Sub-Activity 3.1.3	6 monthly development of communications on best practices for dissemination and syndication, both nationally and regionally	28,800	249,150	277,950
Activity 3.2	**Improving community acceptance of area based approaches to marine management in the 6 participating countries**	**78,000**	**332,384**	**410,384**
Sub-Activity 3.2.1	Produce locally appropriate public awareness and outreach materials to promote local social, economic and environmental benefits of fisheries refugia	24,000	52,884	76,884
Sub-Activity 3.2.2	In connection with activity 1.4.3, implement targeted annual outreach programmes at priority communities at the 14 sites in the SCS	24,000	253,576	277,576
Sub-Activity 3.2.3	Benchmark and annually track community acceptance of refugia approach as a marine spatial planning tool	30,000	25,924	55,924
Activity 3.3	**Knowledge generated and experiences from establishing and operating fisheries refugia captured and shared nationally, regionally, and globally**	**30,000**	**391,300**	**421,300**
Sub-Activity 3.3.1	Establish and operate 6 national and 1 regional web portals for knowledge management on fisheries refugia	30,000	69,500	99,500
Sub-Activity 3.3.2	Prepare and publish 6 GEF International Waters Experience Note on application of refugia approach at the national level	0	25,800	25,800
Activity 3.4	**Information and Education Campaigns for small-scale fisherfolk on the links between fisheries, habitats and biodiversity coordinated regionally through a Regional Education and Awareness Centre**	**44,000**	**296,000**	**340,000**
Sub-Activity 3.4.1	Establishment of Regional Education and Awareness Centre on fisheries and critical habitats	15,000	226,000	241,000
Sub-Activity 3.4.2	Production (and regional-level sharing) of information and education materials for fisheries refugia management	29,000	70,000	99,000
Activity 3.5	**Standardised methods for collection and analysis of information and data for use in assessing impacts of refugia and design appropriate indicators for the longer-term operation of the regional system of fisheries refugia**	**60,000**	**100,000**	**160,000**
Sub-Activity 3.5.1	Develop standardised information and data collection procedures in support of a regional system of fisheries refugia	40,000	50,000	90,000
Sub-Activity 3.5.2	Regional consultation to agree on stress reduction and environmental state indicators for managed refugia	20,000	50,000	70,000
Component 4	**National and regional cooperation and coordination for integrated fish stock and critical habitat management in the South China Sea**	**499,500**	**1,623,056**	**2,122,556**
Activity 4.1	**Strengthened cross-sectoral coordination in the establishment and operation of fisheries refugia in the participating countries**	**24,000**	**359,198**	**383,198**
Sub-Activity 4.1.1	Develop and agree ToR, membership & operational rules for National Fisheries Refugia Committee's (or equivalent) for 6 countries	0	18,316	18,316
Sub-Activity 4.1.2	Establish and convene quarterly meetings of the National Fisheries Refugia Committee (NFRC) (or equivalent) for 6 countries	24,000	291,394	315,394
Sub-Activity 4.1.3	NFRC review and endorsement of quarterly work plans and progress and financial reports, including tracking of continuity of participation of stakeholders, in each of the 6 participating countries	0	37,964	37,964
Sub-Activity 4.1.4	National NFRC inputs to mid-term review and terminal evaluation of national and regional aspects of project in 6 countries	0	11,524	11,524
Activity 4.2	**Harnessing national scientific and technical expertise and knowledge to inform policy, legal and institutional reforms for fisheries refugia**	**12,000**	**218,398**	**230,398**
Sub-Activity 4.2.1	Establish & convene 6 monthly meetings of the National Scientific and Technical Committee (or equivalent) in each of the six countries	12,000	178,236	190,236
Sub-Activity 4.2.2	Provision of technical and scientific inputs to planning of activities in components 1, 2 and 3 led by National Lead Agencies in each of 6 participating countries	0	40,162	40,162
Activity 4.3	**Catalyzing local community action via establishment and operation of site-based management boards at 14 priority refugia sites**	**53,500**	**445,460**	**498,960**
Sub-Activity 4.3.1	Review governance arrangements at each site to identify required ToR and membership of site-based management boards, including links to other local planning bodies	0	0	0
Sub-Activity 4.3.2	Establish and convene quarterly meetings of site-based management boards at the 14 sites	0	33,960	33,960
Sub-Activity 4.3.3	Preparation of quarterly work plans and progress and financial reports on activities at each of the 14 sites	53,500	411,500	465,000
Activity 4.4	**Regional cooperation in the integration of scientific knowledge and research outputs with management and policy making**	**140,000**	**100,000**	**240,000**
Sub-Activity 4.4.1	Establishment and operation of the Regional Scientific and Technical Committee (biannual meetings)	140,000	100,000	140,000
Activity 4.5	**Regional cooperation in the establishment and operation of a regional system of fisheries refugia**	**120,000**	**100,000**	**220,000**
Sub-Activity 4.4.2	Establishment and operation of a regional Project Steering Committee (PSC) (annual meetings)	120,000	100,000	220,000
Activity 4.6	**Effective coordination of regional and national-level activities and reporting requirements of UNEP and GEF satisfied**	**150,000**	**400,000**	**550,000**
Sub-Activity 4.6.1	Establishment and operation of the regional Project Coordinating Unit, including appointment and retention of Chief Technical Advisor/Regional Project Manager	150,000	400,000	550,000
	TOTAL PROJECT COST ($)	**3,000,000**	**12,717,850**	**15,717,850**

ANNEX 6: PROPOSED ACTIVITIES UNDER THE UNSPENT

Executive Summary

Referring to the results of the Sixth Ad-hoc Meeting of the Project Steering Committee (PSC6 Ad-hoc) held virtually on 30 November 2021, Viet Nam proposes reducing the budget of 142,608.67 USD from the original budget allocation, which is called later "Unspent" budget. The project steering committee agreed in principle that the remaining budget could be utilized; however, the PCU proposed to discuss this matter at the Fifth Meeting of the Regional Scientific and Technical Committee (RSTC5), which was conducted during 16-17 March 2022. Two national proposals are from Cambodia (Appendix 1) and Thailand (Appendix 2). The proposed budget under the unspent from Viet Nam is as follows:

Proponent	Title of Activity	Budget (USD)
Cambodia	Supporting Operation of Blood Cockle Refugia at Prey Nub, Preah Sihanouk Province and Enhancement of the Stock of Blue Swimming Crab in Kep province	20,000.00
Thailand	Produce detailed site characterizations for 2 priority fisheries refugia sites for incorporation in national and regional data sets	3,000.00
	TOTAL FROM the UNSPENT	23,000.00

Please be noted that at the RTSC5 meeting, the committee endorsed those two proposals for further consideration and approval by the Project Steering Committee.

ACTIONS BY THE PROJECT STEERING COMMITTEE:

- The Committee is requested to consider two national proposals endorsed by the RTSC5 for utilizing the unspent budget from Viet Nam.
- The Committee is invited to comment or advise on the way forward and to adopt the proposed proposals.
- The Committee is also requested to advise the PCU to manage the remaining budget further to ensure the budget benefits the project target goals and sustainability.

Appendix 1: PROPOSED PROPOSAL FROM CAMBODIA

Country Name	CAMBODIA
Lead Agency Name	Department of Fisheries Conservation (DFC)/Fisheries Administration (FiA)
Activity Title	Supporting Operation of Blood Cockle Refugia at Prey Nub, Preah Sihanouk Province and Enhancement of the Stock of Blue Swimming Crab in Kep province
Component and Activity	1.3.2 Management plans for refugia sites developed through community-based consultations 1.4.1 Establish management teams and a site-based volunteer network at 3 sites 1.4.2 Conduct a practical capacity-building program for management volunteers at the refugia site 1.4.3 Coordinate monthly training and awareness activities at refugia sites, including pilot management activities 1.4.4 Develop and implement a collaborative observer and enforcement program for a management plan 2.5.3 Compile information and data on landings of priority species (volume/value, fishing areas, and gears) 3.2.1 Produce locally appropriate public awareness and outreach materials to promote local social, economic, and environmental benefits of fisheries *refugia.*
Reasons	Blook cockle is local specie that not only provides great benefits for community fisheries at Prek Sang Ke village, Tek Thlar commune, Prey Nub District, Preah Sihanouk province in term of food security and incomes, but also exports to Phnom Penh and other provinces. However, this specie suffered seriously from overfishing, illegal fishing, and climate change, affecting the livelihood of local people and marine fisheries resources, especially endangered animal species too. In this situation, Department of Fisheries Conservation collaborating with Preah Sihanouk Fisheries Administration Cantonment of Provincial Department of Agriculture, Forestry, and Fisheries initiated the creation of blood cockle refugia there that contribute to the reduction of overfishing and increasing its stock. Therefore, the proclamation of establishment of management area of the blood cockle refugia at Prey Nub, Preah Sihanouk province has been issued and signed by the Minister of Agriculture, Forestry, and Fisheries on 28 August 2020 with the size of 116ha at Prek Sang Ke village, Tek Thlar commune, Prey Nub District, Preah Sihanouk province. Today, DFC/FiA do not have budgets to manage the blood cockle refugia, so DFC/FiA has proposed budgets from SEAFDEC/UNEP/GEF/ Fisheries Refugia to support the implementation and operation of activities at the refugia site. On other hands, the blood of cockle refugia at Preay Nub is also one of more contribution to output of the fisheries refugia project in term of enhancing access to information relating to the locations and status of coastal habitats and management areas in Cambodian waters. Regarding the enhancement of the blue swimming crab stock, DFC/FiA need to support additional budgets from SEAFDEC/UNEP/GEF/Fisheries Refugia Project (unspent budgets) to release the brood stock of blue swimming crab into the water sea in Kep province in order to increase the crab stock.

	DFC/FiA collaborating with FiAC in Kep and community fisheries to collect buying the crab adults from fishermen and then those crabs are preserved in the cage before releasing them into the sea. Therefore, the stock enhancement of the crab is also one of the project output in term of Improving the management of critical habitats for crab stocks via strengthening the enabling environment and knowledge-base for fisheries refugia management, and enhancing access to information relating to status and trends in crab stocks and their habitats in Cambodian waters.
Activity Description	To achieve above mentioned component and activities, proposed activities are described as follows: – Prepare 3 years action plan for blood cockle refugia management, – Educate and disseminate about the important of blood cockle and closed season of blood cockle, – Monitor, Patrol, and crack down illegal fishing at the refugia site, – Organize every three month-meeting with PDoA/FiAC, district and local authorities, community, and fishermen, – Produce extension materials to distribute to district and local authorities, community, and fishermen, – Demarcate the boundary of blood cockle refugia site, – Build and deploy the concrete boxes into the refugia site, – Conduct a field survey of information and data on landing site and social economic of fishermen, and – Release brood stock of blue swimming crab in the nature.
Expected Output(s)	– Participate and support from Fishermen and Community Fisheries as well as local authorities in the protection of the marine fisheries resource – Increase marine fisheries resources and blood cockle stock – Improve Food security and incomes of local people – Enhance the stock of blue swimming crab
Period	(from March 2022 to March 2023)
Amount of Budget Request	20,000 USD (USD 15000 for supporting operation of blood cockle refugia at Preay Nub, Preah Sihanouk Province, and USD 5000 for the enhancement of the blue swimming crab stock in Kep province)
Cost Elements/ Budget line(s)	– BL1200 covers the total expenditures of USD 5500 related to following proposed activities : o Prepare 3 years action plan for blood cockle refugia management Conduct a field survey of information and data on landing site and social economic of fishermen – BL2200 covers the total expenditures of 4500USD related to following proposed activities : o Educate and disseminate about the important of blood cockle and closed season of blood cockle, o Monitor, Patrol, and crack down illegal fishing at the refugia site, o Produce extension materials to distribute to district and local authorities, community, and fishermen, and o Demarcate the boundary of blood cockle refugia site. – BL 3200 covers the total expenditures of 6000USD related to following proposed activities : o Build and deploy the concrete boxes into the refugia site, and

	○ Release brood stock of blue swimming crab in the nature. – BL 3300: covers the total expenditures of 4000USD focusing on following activities: ○ Organize every 3 month-meeting with PDoA/FiAC, district and local authorities, community, and fishermen.
Remaining of the Budgetas of 31 Dec 2021	– Remain budget after reduction of 10% in January 2020= USD 156,676.18 – Total expenditures of December 2020 = USD 50,002.22 – Total expenditures of December 2021 = USD 30,518.58 Therefore, Remain budget in December 2021 = USD 76,155.38 USD

Appendix 2: PROPOSED PROPOSAL FROM THAILAND

Country Name	Thailand
Lead Agency Name	Department of Fisheries
Activity Title	2.8.1: Produce detailed site characterizations for 2 priority fisheries refugia sites for incorporation in national and regional data sets
Component and Activity	**Component 2**: Improving the management of critical habitats for fish stocks of transboundary significance via national actions to strengthen the enabling environment and knowledge-base for fisheries management in Thailand **Activity 2.8**: Strengthening the information base for planning, monitoring and evaluation of management at priority fisheries refugia sites
Reasons	For dissemination of the detailed site characterizations, including socio-economic characteristics, for 2 priority fisheries refugia sites in Thailand
Activity Description	Printing the reports on fisheries refugia profiles and socio-economics of the 2 priority fisheries refugia sites
Expected Output(s)	• 50 copies of Technical Report on Fisheries Refugia Profile for Thailand: Trat • 50 copies of Technical Report on Fisheries Refugia Profile for Thailand: Surat • 50 copies of Study Report on Area Context and Socio-Economic Conditions of Coastal Communities in Trat Province: Fisheries Refugia Management for Short Mackerel in Trat Site • 50 copies of Study Report on Area Context and Socio-Economic Conditions of Coastal Communities in Surat Thani Province: Fisheries Refugia Management for Blue Swimming Crab in Surat Thani Site • 50 copies of National Guidelines for Establishment and Operation of Fisheries Refugia: Thailand
Period	(from June 2022 to July 2022)
Amount of Budget Request	3,000 USD
Cost Elements/ Budget line(s)	BL 5202 : Printing of the reports for dissemination : 3,000 amount in USD
Remaining of the Budget as of 31 Dec 2021	24,432.83 USD (Reference Document: Cash Advance Request for Q1/2022)

ANNEX 7: THE FOURTH REVISION OF THE BUDGET AS OF 31 MARCH 2022

Executive Summary

Referring to the results of the Project Steering Committee at its Seventh Ad-hoc Meeting held on 27 May 2022, the meeting adopted the unspent budget requested from Cambodia and Thailand with the proposed budget revision. The committee also agreed with the proposal to include the budget revision from other countries and partners by the end of July 2022. Accordingly, Malaysia and SEAFDEC/PCU proposed the budget revision as of 31 March 2022 to be included in the PSC7 Ad-hoc Report. Thus, the Project Coordination Unit compiled all revised budgets from three countries, Cambodia, Thailand, and Malaysia, and the regional program managed by PCU, as shown in Appendix 1, 2, 3, and 4, respectively. In addition, the PCU concluded the overall budget revision as in Table 1 for further submission to UNEP for consideration further. In principle, all project steering committees agreed and endorsed the 4th Revision of Budget.

Table 1: the 4th Revision of Budget as of 31 March 2022

4th Revision of the Project Budget (as of 31 March 2022)

UNEP PROJECT NO	829
FINANCIAL YEAR	2022
FUND	3,000,000
PROJECT ID	5401

	Code	Description	3rd Revision of Budget (as of 30 SEP 2021)	Balance as of 31 March 22	4th Revision of Budget (as of 31 March 2022)	Adjustment	Justi-fication
10	PROJECT PERSONNEL COMPONENT		C	B	C	C-A	
	1100	Project Personnel w/m	243,101.50	61,703	236,805.80	(6,296)	Ref:1
	1200	Consultants w/m	1,252,756.95	302,510	1,276,585.57	23,829	Ref:2
	1600	Travel on official business (above staff)	278,545.64	41,327	270,657.06	(7,889)	Ref:3
	1999	**Component Total**	**1,774,404.09**	**405,539**	**1,784,048.43**	**9,644**	
20	SUB-CONTRACT COMPONENT				-		
	2100	Sub-contracts (MoU's/LA's for UN cooperating agencies)	-	-	-	-	
	2200	Sub-contracts (MoU's/LA's for non-profit supporting organizations)	294,785.36	157,732	214,386.66	(80,399)	Ref:4
	2300	Sub-contracts (commercial purposes)	80,888.46	30,514	81,387.73	499	Ref:5
	2999	**Component Total**	**375,673.82**	**188,246**	**295,774.39**	**(79,899)**	
30	TRAINING COMPONENT				-		
	3200	Group training (study tours, field trips, workshops, seminars, etc)	279,203.79	114,679	296,696.23	17,492	Ref:6
	3300	Meetings/conferences (give title)	374,251.43	209,081	425,864.50	51,613	Ref:7
	3999	**Component Total**	**653,455.22**	**323,760**	**722,560.73**	**69,106**	
40	EQUIPMENT & PREMISES COMPONENT				-		
	4100	Expendable equipment (items under $1,500 each, for example)	8,638.50	4,646	8,786.54	148	Ref:8
	4200	Non-expendable equipment (computers, office equip, etc)	43,883.83	(8)	44,000.00	116	Ref:9
	4300	Premises	18,585.28	4,819	15,266.00	(3,319)	Ref:10
	4999	**Component Total**	**71,107.61**	**9,457**	**68,052.54**	**(3,055)**	
50	MISCELLANEOUS COMPONENT				-		
	5100	Operation and maintenance of equipment	3,332.27	2,254	3,351.87	20	Ref:11
	5200	Reporting costs (publications, maps, newsletters, printing, etc)	34,081.35	25,804	35,388.64	1,307	Ref:12
	5300	Sundry (communications, postage, freight, clearance charges, etc)	9,945.65	1,201	12,823.40	2,878	Ref:13
	5400	Hospitality and entertainment	-	-	-		
	5500	Evaluation (consultants fees ETC)	78,000.00	67,200	78,000.00	-	Ref:14
	5999	**Component Total**	**125,359.27**	**96,459**	**129,563.91**	**4,205**	
					-		
99	**9999**	**GRAND TOTAL**	**3,000,000**	**1,023,463**	**3,000,000**	**(0)**	

Ref#	BL	Justification
1	1100	Reduced 6.3k to cover the consultant costs of BL 1200 requested by Malaysia
2	1200	Increase 23.83k for consultant costs requested by Cambodia and Malaysia
3	1600	Reduced 7.9k to cover the consultant costs of BL 1200 requested by Malaysia
4	2200	Reduced 80.4k from Viet Nam Unspent to spare for Regional Meeting BL 3300, BL 5300, and BL4200, but increased to BL2200 to Cambodia
5	2300	Increase to cover the expenses from the PCU for financial audit for 2022 and other commercial purposed
6	3200	Increase 17.5 K to cover the activities requested by the Cambodia and Malaysia
7	3300	Increase 51.6 K to cover the activities requested by the Cambodia, Malaysia, and regional Meetings
8	4100	Increase 0.15 K to cover the anticipated activities
9	4200	Increase 0.12 K to cover the anticipated activities
10	4300	Reduced from Malaysia to cover the anticipated expenses under BL5200 and BL 5300 (effects from exchange rates and bank charges)
11	5100	Increase 0.02 K to cover the anticipated activities
12	5200	Increase 1.3 K to cover the activities requested by Malaysia
13	5300	Increase 1.3 K to cover the activities requested by Malaysia and Regional Program/PCU
14	5500	no change

Appendix 1: Cambodia's Budget Revision as of 31 March 2022

Code		CAMBODIA	3rd Budget Revision as at 30 SEP 2021 (OVERALL)	Cumulative Expenditures as of 31 Mar 22	Balance as at 31 Mar 22	Added Unspent Budget from VN	4th Budget Revision as of 31 Mar 2022	Adjustment as of 31 March 2022	Justification (refers to Proposal at RSTC5)	4th Budget Revision as of 31 Mar 2022 (OVERALL)
10	PROJECT PERSONNEL COMPONENT		(A)	(B)	C = A-B	(D)	E = C+D	F		(A' = A + F))
	1100	Project Personnel w/m	52,000.00	43,900.00	8,100.00		8,100.00	-		52,000.00
	1200	Consultants w/m	29,900.00	25,252.00	4,648.00	5,500.00	10,148.00	5,500.00	Ref-1	35,400.00
	1600	Travel on official business (above staff)	77,823.51	75,513.76	2,309.75		2,309.75	-		77,823.51
	1999	Component Total	159,723.51	144,665.76	15,057.75	5,500.00	20,557.75	5,500.00	-	165,223.51
20	SUB-CONTRACT COMPONENT									
	2100	Sub-contracts (MoU's/LA's for UN cooperating agencies)	-	-	-		-	-		-
	2200	Sub-contracts (MoU's/LA's for non-profit supporting organizations)	29,570.00	19,570.00	10,000.00	4,500.00	14,500.00	4,500.00	Ref-2	34,070.00
	2300	Sub-contracts (commercial purposes)	-	-	-		-	-		-
	2999	Component Total	29,570.00	19,570.00	10,000.00	4,500.00	14,500.00	4,500.00	-	34,070.00
30	TRAINING COMPONENT									
	3200	Group training (study tours, field trips, workshops, seminars, etc)	33,921.10	30,317.35	3,603.75	6,000.00	9,603.75	6,000.00	Ref-3	39,921.10
	3300	Meetings/conferences (give title)	43,219.65	10,562.65	32,657.00	4,000.00	36,657.00	4,000.00	Ref-4	47,219.65
	3999	Component Total	77,140.75	40,880.00	36,260.75	10,000.00	46,260.75	10,000.00	-	87,140.75
40	EQUIPMENT & PREMISES COMPONENT									
	4100	Expendable equipment (items under $1,500 each, for example)	2,088.64	1,125.89	962.75		962.75	-		2,088.64
	4200	Non-expendable equipment (computers, office equip, etc)	4,521.00	4,498.00	23.00		23.00	-		4,521.00
	4300	Premises (office rent, maintenance of premises, etc)	-	-	-		-	-		-
	4999	Component Total	6,609.64	5,623.89	985.75		985.75	-	-	6,609.64
50	MISCELLANEOUS COMPONENT									
	5100	Operation and maintenance of equip.	1,811.50	1,107.00	704.50		704.50	-		1,811.50
	5200	Reporting costs (publications, maps, newsletters, printing, etc)	4,000.00	1,625.00	2,375.00		2,375.00	-		4,000.00
	5300	Sundry (communications, postage, freight, clearance charges, etc)	1,236.14	892.41	343.73		343.73	-		1,236.14
	5400	Hospitality and entertainment	-	-	-		-	-		-
	5500	Evaluation (consultants fees ETC)	-	-	-		-	-		-
	5999	Component Total	7,047.64	3,624.41	3,423.23		3,423.23	-	-	7,047.64
99	9999	GRAND TOTAL	280,091.54	214,364.06	65,727.48	20,000.00	85,727.48	20,000.00	-	300,091.54

Appendix 2: Thailand's Budget Revision as of 31 March 2022

Code		THAILAND	3rd Budget Revision as at 30 SEP 2021 (OVERALL)	Cumulative Expenditures as of 31 Mar 22	Balance as at 31 Mar 22	Added Unspent Budget from VN	4th Budget Revision as of 31 Mar 2022 for Thailand	Adjustment as of 31 Mar 2022	Justification (refers to Proposal at RSTC5)	4th Budget Revision as of 31 Mar 2022 (OVERALL)
10	PROJECT PERSONNEL COMPONENT		(A)	(B)	C = A-B	(D)	E = C+D	F = E-C		(A' = A + F))
	1100	Project Personnel w/m	83,148.53	71,183.03	11,965.50		11,965.50	-		83,148.53
	1200	Consultants w/m	51,727.92	42,024.00	9,703.92		9,703.92	-		51,727.92
	1600	Travel on official business (above staff)	16,459.75	10,951.18	5,508.57		5,508.57	-		16,459.75
	1999	Component Total	151,336.20	124,158.21	27,177.99	-	27,177.99	-	-	151,336.20
20	SUB-CONTRACT COMPONENT									
	2100	Sub-contracts (MoU's/LA's for UN cooperating agencies)	-	-	-		-	-		-
	2200	Sub-contracts (MoU's/LA's for non-profit supporting organizations)	16,106.00	16,106.00	-		-	-		16,106.00
	2300	Sub-contracts (commercial purposes)	-	-	-		-	-		-
	2999	Component Total	16,106.00	16,106.00	-	-	-	-	-	16,106.00
30	TRAINING COMPONENT									
	3200	Group training (study tours, field trips, workshops, seminars, etc)	36,199.70	23,408.60	12,791.10		12,791.10	-		36,199.70
	3300	Meetings/conferences (give title)	22,334.91	11,844.16	10,490.75		10,490.75	-		22,334.91
	3999	Component Total	58,534.61	35,252.76	23,281.85	-	23,281.85	-	-	58,534.61
40	EQUIPMENT & PREMISES COMPONENT									
	4100	Expendable equipment (items under $1,500 each, for example)	2,948.38	931.62	2,016.76		2,016.76	-		2,948.38
	4200	Non-expendable equipment (computers, office equip, etc)	-	-	-		-	-		-
	4300	Premises (office rent, maintenance of premises, etc)	-	-	-		-	-		-
	4999	Component Total	2,948.38	931.62	2,016.76		2,016.76	-	-	2,948.38
50	MISCELLANEOUS COMPONENT									
	5100	Operation and maintenance of equip.	800.00	-	800.00		800.00	-		800.00
	5200	Reporting costs (publications, maps, newsletters, printing, etc)	813.12	413.12	400.00	3,000.00	3,400.00	3,000.00	Ref1	3,813.12
	5300	Sundry (communications, postage, freight, clearance charges, etc)	-	-	-		-	-		-
	5400	Hospitality and entertainment	-	-	-		-	-		-
	5500	Evaluation (consultants fees ETC)	-	-	-		-	-		-
	5999	Component Total	1,613.12	413.12	1,200.00	3,000.00	4,200.00	3,000.00	-	4,613.12
99	9999	GRAND TOTAL	230,538.31	176,861.71	53,676.60	3,000.00	56,676.60	3,000.00	-	233,538.31

Appendix 3: Malaysian's Budget Revision as of 31 March 2022

Code		MALAYSIA	3rd Budget Revision as at 30 SEP 2021 (OVERALL)	Cumulative Expenditures as of 31 Mar 22	Balance as at 31 Mar 22	4th Budget Revision as of 31 Mar 2022	Adjustment as of 31 Mar 2022	Justification	4th Budget Revision as of 31 Mar 22 (OVERALL)
10	PROJECT PERSONNEL COMPONENT		(A)	(B)	C = A-B	D	E = D-C		(A'. = A + E)
	1100	Project Personnel w/m	24,995.19	22,995.19	2,000.00	-	(2,000.00)	REF-1	22,995.19
	1200	Consultants w/m	59,705.14	4,705.14	55,000.00	65,000.00	10,000.00	REF-2	69,705.14
	1600	Travel on official business (above staff)	45,503.59	37,803.59	7,700.00		(7,700.00)	REF-3	37,803.59
	1999	Component Total	130,203.92	65,503.92	64,700.00	65,000.00	300.00	-	130,503.92
20	SUB-CONTRACT COMPONENT		-						-
	2100	Sub-contracts (MoU's/LA's for UN cooperating agencies)	-	-	-	-	-		-
	2200	Sub-contracts (MoU's/LA's for non-profit supporting organizations)	-	-	-	-	-		-
	2300	Sub-contracts (commercial purposes)	-	-	-	-	-		-
	2999	Component Total	-	-	-	-	-	-	-
30	TRAINING COMPONENT		-						-
	3200	Group training (study tours, field trips, workshops, seminars, etc)	46,098.04	13,259.88	32,838.16	34,332.28	1,494.12	REF-4	47,592.16
	3300	Meetings/conferences (give title)	24,133.18	8,306.41	15,826.77	15,000.00	(826.77)	REF-5	23,306.41
	3999	Component Total	70,231.22	21,566.29	48,664.93	49,332.28	667.35	-	70,898.57
40	EQUIPMENT & PREMISES COMPONENT		-						-
	4100	Expendable equipment (items under $1,500 each, for example)	1,400.00	-	1,400.00	1,400.00	-		1,400.00
	4200	Non-expendable equipment (computers, office equip, etc)	5,068.60	5,068.60	-	-	-		5,068.60
	4300	Premises (office rent, maintenance of premises, etc)	18,585.28	13,766.00	4,819.28	1,500.00	(3,319.28)	REF-6	15,266.00
	4999	Component Total	25,053.88	18,834.60	6,219.28	2,900.00	(3,319.28)	-	21,734.60
50	MISCELLANEOUS COMPONENT		-						-
	5100	Operation and maintenance of equip.	-	-	-	-	-		-
	5200	Reporting costs (publications, maps, newsletters, printing, etc)	4,169.08	921.01	3,248.07	4,557.50	1,309.43	REF-7	5,478.51
	5300	Sundry (communications, postage, freight, clearance charges, etc)	6.30	(551.20)	557.50	1,600.00	1,042.50	REF-8	1,048.80
	5400	Hospitality and entertainment	-	-	-	-	-		-
	5500	Evaluation (consultants fees ETC)	-	-	-	-	-		-
	5999	Component Total	4,175.38	369.81	3,805.57	6,157.50	2,351.93	-	6,527.31
			-						-
99	9999	GRAND TOTAL	229,664.40	106,274.62	123,389.78	123,389.78	(0.00)	-	229,664.40

Appendix 4: PCU's Budget Revision as of 31 March 2022

Code		REGIONAL PROGRAMS	3rd Budget Revision as at 30 SEP 2021 (OVERALL)	Cumulative Expenditures as of 31 Mar 22	Balance as of 31 Mar 22	Unspent Budget from VN	Balance as of 31 Mar 22 (Meargred VN Unspent)	4th Budget Revision as of 31 Mar. 2022	Adjustment as of 31 Mar 2022	Justification	3th Budget Revision + VN Unspent	4th Budget Revision + VN Unspent as of 31 Mar 2022 (OVERALL)
10	PROJECT PERSONNEL COMPONENT		(A)	(B)	C = A-B	(D)	E = C + D	F	J = F-E		(A' = A+D)	(A'' = A' + J)
	1100	Project Personnel w/m	-	-	-	8,547.00	8,547.00	8,547.00	-		8,547.00	8,547.00
	1200	Consultants w/m	944,253.43	780,753.43	163,500.00	-	163,500.00	163,500.00	-		944,253.43	944,253.43
	1600	Travel on official business (above staff)	95,190.17	90,690.16	4,500.01	2,871.00	7,371.01	7,371.01	-		98,061.17	98,061.17
	1999	Component Total	1,039,443.60	871,443.59	168,000.01	11,418.00	179,418.01	179,418.01	-	-	1,050,861.60	1,050,861.60
20	SUB-CONTRACT COMPONENT											
	2100	Sub-contracts (MoU's/LA's for UN cooperating agencies)	-	-	-	-	-	-	-		-	-
	2200	Sub-contracts (MoU's/LA's for non-profit supporting organizations)	41,022.82	30,022.82	11,000.00	94,676.00	105,676.00	27,703.33	(77,972.67)	REF-1	135,698.82	57,726.15
	2300	Sub-contracts (commercial purposes)	66,387.73	50,374.12	16,013.61	5,000.00	21,013.61	26,013.61	5,000.00		71,387.73	76,387.73
	2999	Component Total	107,410.55	80,396.94	27,013.61	99,676.00	126,689.61	53,716.94	(72,972.67)	-	207,086.55	134,113.88
30	TRAINING COMPONENT											
	3200	Group training (study tours, field trips, workshops, seminars, etc)	37,835.87	5,635.87	32,200.00	-	32,200.00	32,200.00	-		37,835.87	37,835.87
	3300	Meetings/conferences (give title)	174,518.69	114,706.18	59,812.51	8,514.67	68,327.18	140,000.00	71,672.82	REF-2	183,033.36	254,706.18
	3999	Component Total	212,354.56	120,342.05	92,012.51	8,514.67	100,527.18	172,200.00	71,672.82	-	220,869.23	292,542.05
40	EQUIPMENT & PREMISES COMPONENT											
	4100	Expendable equipment (items under $1,500 each, for example)	2,349.52	2,021.14	328.38	-	328.38	328.38	-		2,349.52	2,349.52
	4200	Non-expendable equipment (computers, office equip, etc)	34,099.26	34,099.26	-	-	-	311.14	311.14		34,099.26	34,410.40
	4300	Premises (office rent, maintenance of premises, etc)	-	-	-	-	-	-	-		-	-
	4999	Component Total	36,448.78	36,120.40	328.38	-	328.38	639.52	311.14	-	36,448.78	36,759.92
50	MISCELLANEOUS COMPONENT											
	5100	Operation and maintenance of equip.	720.77	243.40	477.37	-	477.37	477.37	-		720.77	720.77
	5200	Reporting costs (publications, maps, newsletters, printing, etc)	11,887.98	3,971.97	7,916.01	-	7,916.01	7,916.01	-		11,887.98	11,887.98
	5300	Sundry (communications, postage, freight, clearance charges, etc)	6,484.24	5,472.95	1,011.29	-	1,011.29	2,000.00	988.71	REF-3	6,484.24	7,472.95
	5400	Hospitality and entertainment	-	-	-	-	-	-	-		-	-
	5500	Evaluation (consultants fees ETC)	78,000.00	10,800.00	67,200.00	-	67,200.00	67,200.00	-		78,000.00	78,000.00
	5999	Component Total	97,092.99	20,488.32	76,604.67	-	76,604.67	77,593.38	988.71	-	97,092.99	98,081.70
99	9999	GRAND TOTAL	1,492,750.48	1,128,791.30	363,959.18	119,608.67	483,567.85	483,567.85	0.00	-	1,612,359.15	1,612,359.15

Southeast Asian Fisheries Development Center

United Nations Environment Programme

Global Environment Facility

Establishment and Operation of a Regional System of Fisheries *Refugia* in the South China Sea and Gulf of Thailand

REGIONAL GUIDELINES ON INDICATORS FOR SUSTAINABLE MANAGEMENT OF FISHERIES *REFUGIA*

SEAFDEC/UNEP/GEF
Fisheries *Refugia*
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REGIONAL GUIDELINES ON INDICATORS FOR SUSTAINABLE MANAGEMENT OF FISHERIES *REFUGIA*

THE ORIGIN OF THIS WORK

This paper grew out of a three-day workshop on sustainable management indicators for long term Fisheries *Refugia* approaches by small expert groups from six Southeast Asian Countries, members of the GEF/UNEP/SEAFDEC project on "Establishment and Operations of a Regional System of Fisheries *Refugia* in the South China Sea and the Gulf of Thailand" initiated from 2016 to 2022.

The workshop was held at A-One The Royal Cruise Hotel, Pattaya City, Chonburi Province, Thailand, from 9-11 September 2019. The participants, identified here by their institution, were:

- Ouk Vibol, Department of Fisheries Conservation, Fisheries Administration, Cambodia
- Leng Sy Vann, Department of Fisheries Conservation, Fisheries Administration, Cambodia
- Joni Haryadi, Agency for Marine and Fisheries Research and Human Resources, Ministry of Marine Affairs and Fisheries, Indonesia
- Ir. Ngurah N. Wiadnyana, Agency for Marine and Fisheries Research and Human Resources, Ministry of Marine Affairs and Fisheries, Indonesia
- Haryati binti Abdul Wahab, Resource Management Division, Department of Fisheries, Malaysia
- Ryon Siow, Fisheries Research Institute, Malaysia
- Joeren S. Yleana, Bureau of Fisheries and Aquatic Resources, Philippines
- Valeriano M. Borja, National Fisheries Research and Development Institute, Philippines
- Nguyen Thanh Binh, Directorate of Fisheries, Viet Nam
- Nguyen Van Minh, Directorate of Fisheries, Viet Nam
- Praulai Nootmorn, Department of Fisheries, Thailand
- Kumpon Loychuen, Department of Fisheries, Thailand
- Weerasak Yingyuad, Southeast Asian Fisheries Development Center, Thailand
- Somboon Siriraksophon, Project Director

The workshop was a brainstorming session moderated by Fisheries Consultant Somboon Siriraksophon, as a Project Manager employed by the Project. Inputs were also based on individuals and six countries responsible for fisheries, namely Cambodia, Indonesia, Malaysia, Philippines, Thailand, and Viet Nam. The questions came to our minds on how the *Refugia* approach subsidizes the sustainable development in fisheries. Nevertheless, what kinds of information and indicators we would need to guide ourselves toward a sustainable world in the context of the fisheries *refugia* approach.

This paper also considers the progress works of all regional experts from six participating countries on the establishment of fisheries *refugia*. The challenges, issues, and achievements facing each country are the essential lessons learned and information for coloring the paper.

ACRONYMS

ASEAN	Association of Southeast Asian Nations
CBD	Convention of Biological Diversity
CCRF	Code of Conduct for Responsible Fisheries
CRM	Coastal Resource Management
EA	Ecosystem Approach
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organization
GEF	Global Environment Facility
ICZM	Integrated Coastal Zone Management
IUCN	International Union for Conservation of Nature and Natural Resources
IUU	Illegal, Unreported, and Unregulated fisheries
MPI	Multidimensional Poverty Index
MSP	Marine Spatial Planning
MTL	Mean Trophic Level
OEA	Open Access Equilibrium
PPR	Primary Production Requires
PSR	Pressure-State-Response
SEAFDEC	Southeast Asian Fisheries Development Center
UN	United Nations
UNCLOS	United Nations Convention of the Law of the Sea
UNEP	United Nations Environment Programme
WCS	World Conservation Strategy

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CHAPTER 1: INTRODUCTION

1.1 IMPORTANCE OF INDICATORS

> *If we could first know where we are, and whether we are tending, we could better judge what to do, and how to do it. (Abraham Lincoln, speech to the Illinois Republican state convention, June 16, 1858).*

Intuitively, we all use indicators to monitor the complex systems we care about or need to control. Indicators are part of everyone's life. Indicators are also a necessary part of the stream of information we use to understand things, make decisions, and plan our actions. For example, fishers scan the sky for weather sea condition fronts before deciding to leave port for fishing. We have many words for indicator - sign, symptom, signal, tip, clue, grade, rank, data, pointer, dial, warning light, instrument, measurement, a reference point.

The Convention of Biological Diversity (CBD) adopted the concept to understanding trophic interactions and how fisheries affect, using the mean trophic level (MTL) and primary production required (PPR) as among the indicators for the management of sustainable fisheries exploitation (Hornborg. *el.al*., 2013).

In terms of the environmental health indicators, which aim to give people the idea of whether their environment is getting better or worse, an overview of six analytical frameworks or models was defined by Julie *et al*., 2004. They described the scientific aspects of indicator establishment by including frameworks and criteria that apply to establishing a core indicator list for environmental health in Fander, Nothern Belgium.

In fisheries aspects, FAO (1999) stated that indicators aim to enhance communication, transparency, effectiveness, and accountability in natural resource management. Indicators assist in the process of assessing the performance of fisheries policies and management at global, regional, national, and sub-national levels. They provide a readily understood tool for describing the state of fisheries resources and fisheries activity and for assessing trends regarding sustainable development objectives. In measuring progress towards sustainable development, a set of indicators should also stimulate action to achieve **sustainable development**.

1.2 SUSTAINABLE DEVELOPMENT CONCEPT AND FISHERIES SUSTAINABILITY

The concept of sustainable development has emerged as a key guiding principle and action agenda for all forms of environmental management, economic development, and social justice at international, regional, national, sub-national, and local levels. The 'triple bottom line' of sustainability concept (Elkinton, 1997) has revolutionized the way we see and interact with the world and each other, as shown in **Figure 1**. It attempts to set a course for an increasingly innovative future based on conservation and protection, wise resource use, social equity, economic growth, and stability. The concept emerged in the late 1980s with groundbreaking international reports such as Our Common Future and the early 1990s with the UN Declaration on Environment and Development negotiation and its product: Agenda 21 (UN, 1993). Sustainability implies that all socio-economic (human-based) systems and ecological (natural-based) systems should remain in a healthy and viable state so that benefits can flow to current and future generations. This includes the orientation of development activities within the carrying capacity of the natural environment to ensure ongoing resource availability and environmental services. Management for sustainability should, therefore, consider integrated approaches, ecosystem scales, and socio-economic considerations. Initially, ideas of sustainability were promoted when the effects of environmental degradation became increasingly visible across the globe. Poverty, population pressure, unequal resource distribution, and trade were the base causes of environmental degradation in developing countries, which required a new development approach to create sustainable economies.

Sustainable development was also viewed as entirely relevant to the developed nations, with the concept highlighting integrated aspects of conservation and economic growth, technology and information transfer, energy, food supply, security, transport, and pollution control.

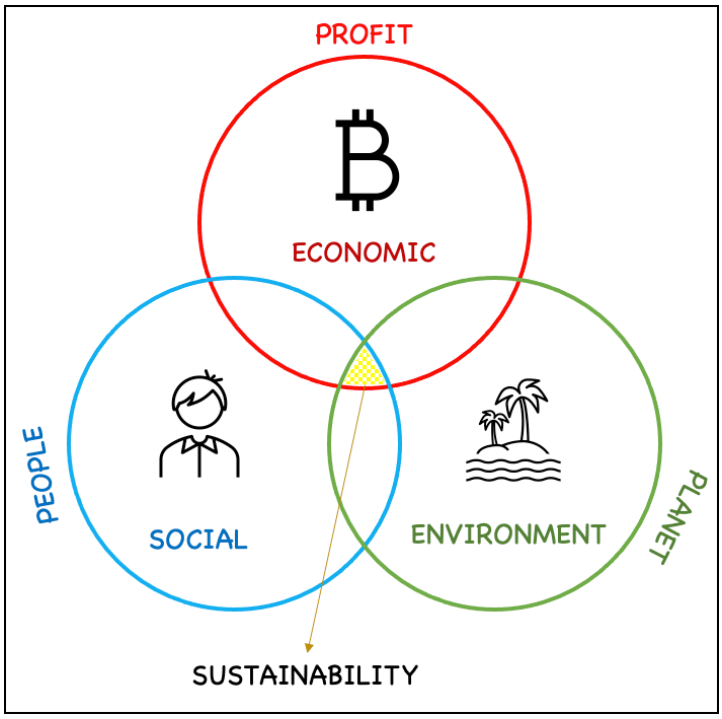


Figure 1: Triple Bottom Line of Sustainable Development Concept

> *For development to be sustainable, it must take account of social and ecological factors, as well as economic ones, of the living and non-living resource base, and the long term as well as short-term advantages and disadvantages of alternative actions (World Conservation Strategy (WCS)*(IUCN 1980).

The concept of sustainability has dramatically altered the fisheries sector. Over the last century, activities have intensified from a local scale to a global market industry that employs millions and is a source of income and food for many nations. After modernization and industrialization of the fisheries sector, distant water fleets have been able to circumnavigate the globe in sourcing fisheries stocks, often with severe consequences for offshore species or conflicts with localized and community-based fisheries. In addition, with increasing coastal state control and rights over living marine resources after the signing of the United Nations Convention of the Law of the Sea in 1982, the capacity of fishing effort for domestic-based fisheries has dramatically increased in national EEZs, leading to further pressures on the stocks. As a result, marine living resources are under stress, with many showing signs of degradation and collapse due to overcapacity and destructive fishing practices. Current statistics display that the global capacity of the ocean to produce wild harvests is at its maximum sustainable limit. In addition, the broader ecosystems have been detrimentally affected, especially species associated with or dependent on target stocks. Bycatch and habitat degradation remain two crucial issues for modern fisheries management. The increased impact of Illegal, Unreported, and Unregulated fisheries (IUU) further stresses the global supply and the viability of marine ecosystems. Agenda 21, Chapter 17, provides important challenges and opportunities for nation states in the implementation of policies related to ocean and coastal management. The policy has oriented the concept at a strategic level but requires applying sustainability concerns at an operational level. The current challenge for the fisheries sector is to interpret and practically apply the concept of sustainability into fisheries practice. In other words, developing sustainability indicators in fisheries contexts are urgently needed, as a valuable and practical process, to incorporate ecosystem management and precautionary concerns into fisheries management operations.

1.3 INDICATORS FOR FISHERIES SUSTAINABILITY

Indicators have increasingly been seen as a valuable tool for 'building in' sustainability in various sectors, with efforts to pursue this process with fisheries (FAO, 1999). Indicators fulfill multiple roles in fisheries systems and can be adapted to a particular use or set of users, including public education, performance assessment, meeting legislative and policy goals, broadening the management base, increasing participation and coordination, management certification, and environmental protection reporting. The FAO guidelines on indicators for sustainable development of marine capture fisheries were drafted in 1999. Later it was adopted by their member countries in the same year to support the implementation of the Code of Conduct for Responsible Fisheries (CCRF). The guidelines provide general information on the sustainable development of fisheries to clarify why a system of indicators is needed to monitor the contribution of fisheries to sustainable development. The guidelines also provide information on the type of indicators and related reference points required. However, it is recognized that it is difficult to generalize. There is a need to agree on common conventions for joint reporting at the national, regional, and global levels, particularly international fisheries, or transboundary resources.

In Southeast Asia, fisheries development has been confronted with various concerns, notably over-exploitation of the limited resources, which results in the degradation of the fishery resources. Moreover, excessive fishing capacity, use of irresponsible fishing practices, conflicts among the various stakeholders, and lack of an appropriate regulatory system for fisheries are the multiple factors that contribute to the deterioration of the fishery resources. To address such concerns, the governments of the countries in the region have been promoting sustainable fisheries resources management over the past three decades. The global Code of Conduct for Responsible Fisheries (CCRF) developed by FAO as well as by the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region adopted during the ASEAN- SEAFDEC Millennium Conference on "Fish for the People" in November 2001 has been used as frameworks in the Southeast Asian countries' efforts towards sustainable fisheries management. In addition, in collaboration with the ASEAN member states, the Southeast Asian Fisheries Development Center (SEAFDEC) published in 2003 the Regionalization of the Code of Conduct for Responsible Fisheries (RCCRF) in Southeast Asia. Later in 2006, the Supplementary Guidelines on Co-management Using Group User Rights, Fishery Statistics, Indicators and Fisheries *Refugia* was published mainly to substantiate the afore-mentioned Regional Guidelines. The supplementary guidelines on the Use of Indicators for Sustainable Development and Management of Capture Fisheries in Southeast Asia were achieved through consultations and after several pilot-testing activities in selected countries in the ASEAN region. Considering that the Guidelines specify the need to develop the National System to Use Indicators for marine capture fisheries management, ASEAN Member States strongly requested to systematically establish the most critical and proper fisheries indicators and standards for fostering sustainable fisheries management in the respective country.

CHAPTER 2: UNDERSTANDING FISHERIES *REFUGIA* CONCEPT

2.1 NATURE OF FISHERIES AND ADAPTIVE MANAGEMENT NEEDS

Considering the nature of fisheries in the region, which is mainly characterized as tropical small-scale multi-species/multi-gear fisheries, the use of indicators for fisheries management in an adaptive manner is seen to be more practical and easily understood and supported by the stakeholders. Adaptive management is a paradigm shift from a predictive approach to an adaptive strategy. Under a broad co-management concept, adaptive management is an approach where fishery managers react on indicators to assess fisheries, resources, and eco-system instead of classical stock assessment (e.g., MSY and MEY). Adaptive management is a process to achieve management objectives and a learning process among interested stakeholders about fisheries or systems being managed to adopt policies and management frameworks to be more responsive to future conditions. The backbone of an excellent adaptive fisheries management system lies in a good data and information system in which we apply to the sustainable management of fisheries *refugia* approach.

2.2 COMPARISON WITH OTHER ECOSYTEM APPROACHES

The concept of fisheries *refugia* has been developed by the Fisheries Component of the UNEP/GEF Project Entitled "Reversing Environmental Degradation Trends in the South China Sea and the Gulf of Thailand" (UNEP/GEF SCS Project) in collaboration with the SEAFDEC for the development of a regional system of fisheries *refugia*. The Fisheries *Refugia* approach is based on the "ecosystem approach (EA)" concept like many existing approaches such as Marine Spatial Planning (MSP), Coastal Resource Management (CRM), Co-management, and Integrated Coastal Zone Management (ICZM). Fisheries *refugia* are developed in parallel by different user groups with specific management interests. Fisheries *refugia* share many of the same principles and have many commonalities with other approaches, but management focus or coverage can be different and support each other. In practice, fisheries *refugia* can incorporate conventional fisheries management and overlaps with co-management, MSP, and ICZM, as shown in **Figure 2**.

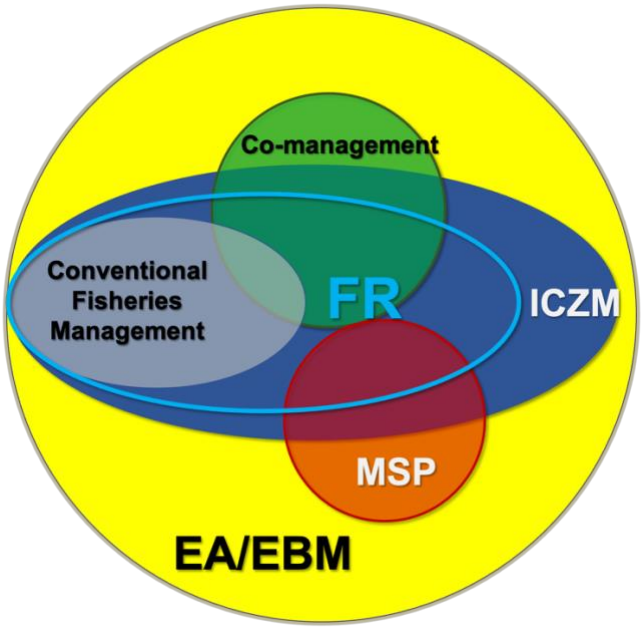


Figure 2: Fisheries *Refugia* and Other Existing Approaches for Sustainable Development

2.3 FISHERIES *REFUGIA* CONCEPT

Fisheries *Refugia* (Paterson *et al*., 2012) was developed as a novel fisheries resource management approach to the identification and designation of priority areas in which to integrate fisheries and habitat management in the context of maintaining fish stock and critical habitats as satisfying the fishing community, social needs now and futures. The fisheries *refugia* approach needs a good platform for building partnerships, enhancing communication and engagement of stakeholders, finding local and scientific-based knowledge, and putting in place an effective integration of fisheries and habitat management. In some cases, the management of fisheries *refugia* may include the transboundary fish stock or shared stocks issues in which cooperation among relevant states is needed to take into accounts.

In the South China Sea and the Gulf of Thailand Sub-regions, against the general background of uncertainty and complexity associated with the development of fisheries *refugia*, there is a need to develop robust and workable solutions to involve stakeholders in establishing and managing *refugia*. An emerging appreciation of the diverse traditions and cultures in the region and the vital role of small-scale, coastal, and subsistence fisheries has recently provided an impetus for the development of fisheries *refugia* approaches to stakeholder participation in the management of fisheries at all levels.

The concept supports the Regional Guidelines for Responsible Fisheries in Southeast Asia with emphasis on item 7.6.4 ADD. 1 on Responsible Fishing (SEAFDEC, 2003), which states that in terms of taking appropriate action to ensure that fishing gear, methods, and practices that are not consistent with responsible fishing are phased out and replaced with more acceptable alternatives: "*States should consider area or seasonal closure to protect critical stages of the life cycle of fisheries resources*." In addition, the concept also builds upon item 7.6.9 of the Regional Guidelines on Wastes, Discards, and Ghost Fishing, which states that in terms of taking appropriate action to minimize waste, discards, catch by lost or abandoned gear, catch of non-target species, both fish and non-fish species, and negative impacts on associated or dependent species, in particular, endangered species: "*States should strongly implement management measures such as closed areas and seasons in critical habitats (e.g., coral reefs, seagrass beds, mangrove areas, etc.) which are important for sustaining fish stocks*."

The concept of natural *refugia* is well developed in the fields of terrestrial ecology and wildlife management. For instance, spatial controls that recognize the potential "source-sink" nature of hunted systems and protect natural *refugia* often effectively avoid wildlife over-exploitation when biological data and enforcement capabilities to regulate harvests are limited. In the context of fisheries, natural *refugia* arise from the interaction of the spatial dynamics of the population, oceanographic features, fish behavior, and fishing effort dynamics. The fisheries *refugia* approach can complement conventional fisheries management measures, such as effort or gear restrictions. It should be a priority consideration in the ASEAN region when fisheries are subject to intense and unmanageable fishing pressure. They may also be used to separate potentially conflicting uses of coastal and marine habitats and their limited resources. However, the effectiveness of fisheries *refugia* will largely depend on the selection and appropriate use of fisheries management measures within the *refugia* area, and at the most general level, the process of establishing fisheries *refugia* must consider the:

- Life-cycle of the species for which *refugia* are being developed,
- Type(s) of *refugia* scenarios(s) that relate to the species for which *refugia* are being developed,
- Location of natural *refugia* and appropriate sites for the establishment of [artificial] *refugia*, and
- National and regional level competencies in using fisheries management measures and spatial approaches to resource management and planning.

Fisheries *Refugia* in the ASEAN context is defined as: "Spatially and geographically defined, marine or coastal areas in which specific management measures are applied to sustain important species [fisheries resources] during critical stages of their life cycle, for their sustainable use." There is a general commonality of understanding that fisheries *refugia* relate to specific areas of significance to the life-cycle of particular species. Fisheries *refugia* may be defined in space and time and protect spawning

aggregations, nursery grounds, and migratory routes**. Figure 3** shows a generalized life-history triangle for fished species, highlighting the problems of growth and recruitment overfishing, which are reflexed the requirements to protect juvenile and spawning *refugia*.

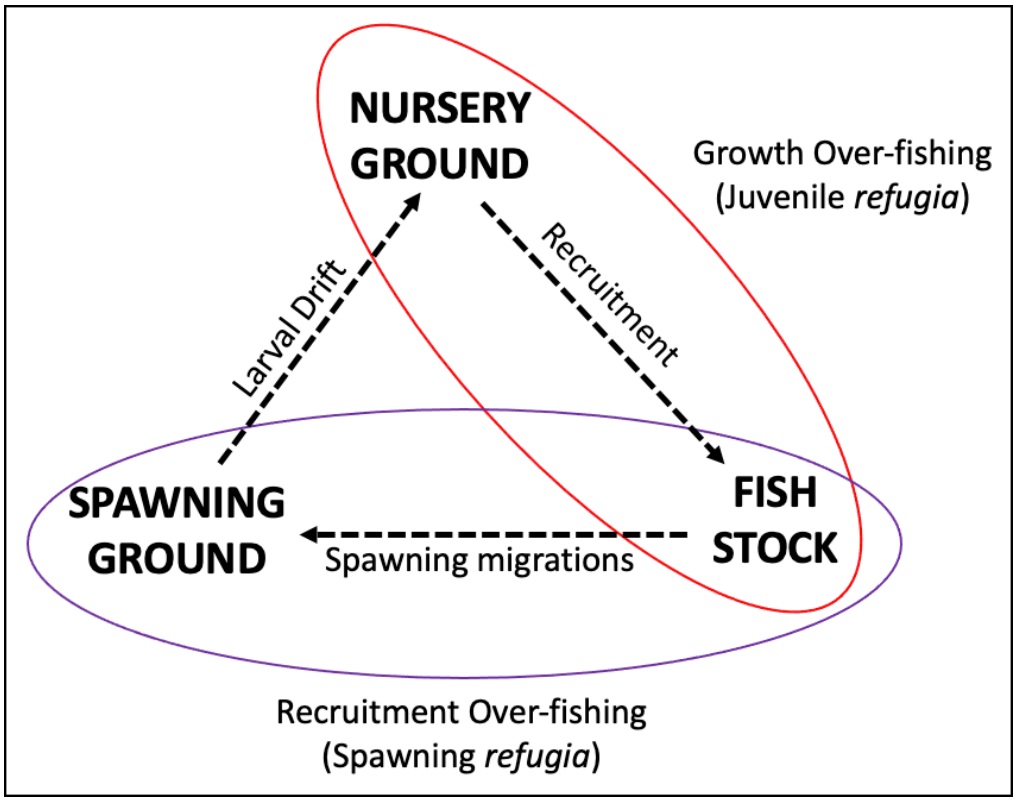


Figure 3: Life-history triangle highlighting the need for *refugia* to protect the recruitment

Therefore, the promotion and use of the fisheries *refugia* concept in the ASEAN region is aimed at improving the use of spatial approaches to fisheries management for the sustainable use of fisheries. The specific fisheries management problems in the ASEAN region that fisheries *refugia* will assist in resolving to include:

- The capture of juveniles – an action focused on reducing the risk of growth over-fishing due to young recruits to the fishery being caught before they grow to optimal market size, or a size at first capture less than that required to maximize yield (or value) per recruit,
- The capture of spawning stock in spawning areas at the time of spawning – an action focused on reducing the risk of recruitment over-fishing due to adult stock being reduced to the extent that recruits are insufficient to maintain commercial fish stocks,
- Use of inappropriate fishing gears and practices,
- Poor management of fish habitats, particularly spawning and nursery areas, and
- Conflicts among resource users – such as those between small-scale and large-scale fisheries.

While recognizing that the overall goal associated with the fisheries *refugia* approach is to improve the service of spatial approaches to fisheries management for sustainable use of fish stocks and maintenance of habitats, objectives relating to fisheries *refugia* should be developed with stakeholder engagements. In defining such objectives, ASEAN Member States must consider the **objective-related indicators** to support evaluating the performance of fisheries *refugia*. Specific objectives may be drawn from the following [non-exhaustive] list and should be defined in terms of temporal and spatial scales:

- Safeguarding of spawning and nursery areas and commercial species within these areas at critical stages of their life cycles,
- Enhancement of fisheries resources and their habitats,

- Prevention of habitat degradation and commercial extinction of important fishery species,
- Improved coordination between fisheries and environmental agencies and organizations,
- Enhanced use of zoning in fisheries management,
- Improved incorporation of species-specific life-history characteristics in fisheries management systems,
- Improved understanding amongst stakeholders, including fisherfolk, scientists, policymakers, and fisheries managers of ecosystem and fishery linkages, and
- Promotion of the role of *refugia* in enhancing the resilience of fisheries systems.

CHAPTER 3: INDICATORS FOR MANAGING FISHERIES *REFUGIA*

3.1. LONG-TERM OBJECTIVES

From the brainstorming among regional experts in September 2019, the objectives for management of fisheries *refugia* should reflect on healthy and sustainability aligned with the Triple Bottom Line of Sustainable Development Concept. The long-term objectives for development of the indicators for management of fisheries *refugia* are to:

a) **Maintain the fish stock and critical habitats**: The successful maintaining or enhancing of fish stocks requires harvest controls but also demands attention to human impacts on the habitat. Reducing exploitation alone on the stock being restored will not be effective if critical habitat has disappeared.

b) **Satisfy fishing community, social needs now, and futures**: Taking the time and effort to understand your community well before embarking on a community effort will pay off in the long term. A good way to accomplish that is to create a community description -- a record of your exploration and findings. It's a good way to gain a comprehensive overview of the community -- what it is now, what it's been in the past, and what it could be in the future.

c) **Put in place an effective management system**: Available evidence suggests that the regions without assessments of abundance have little fisheries management, and stocks are in poor shape. Increased application of area-appropriate fisheries science recommendations and management tools are therefore needed for sustaining fisheries in places where they are lacking.

3.2. DEVELOPING THE FRAMEWORK

Indicators play an essential part in the communication of scientific results to decision-makers. Many countries develop indicators to support effective decision-making and policy-setting at every stage of the decision-making cycle - during problem identification, policy formulation, implementation, or policy evaluation. In developed countries, many fisheries are assessed and evaluated using models of growing complexity that require data. Model results are often very complex, and their presentation may vary significantly between models. Comparing with many developing countries, because the costs of data collection and analysis for these models may be relatively high, it is not feasible to collect all the information required, and a set of indicators can simplify the evaluation and reporting process. Hence, the finding indicators need to be presented simply and understandably.

Rapport and Friend (1979) indicated the good indicators could be oriented to reflect better the pressures of human activities, the state of human and natural systems, and society's responses to the changes in those systems as called a pressure-state-response (PSR). The PSR model highlights these cause-effect relationships and helps decision-makers, and the public see environmental, economic, and other issues as interconnected. In this guideline, developing the indicators for sustainable management of fisheries *refugia* considers a structural framework representing all the relevant dimensions of sustainable development, *e.g*., economic, social, environmental (ecosystem/resource), and institutional/governance.

As noted above, the SCS is a global hotspot of marine biodiversity subjected to high and increasing levels of small-scale fishing pressure and other threats. Various fisheries management reforms are required to fashion a sustainable future for the fisheries of this marine basin. As such, it is important that the *refugia* initiative is not viewed as a proposed 'panacea' to the fisheries problems of Southeast Asia, rather one of a series of complementary management strategies being promoted regionally, including efforts to curb the high and increasing levels of fishing pressure. However, given the high rates of habitat loss and the high levels of community dependence on small-scale fisheries, it is imperative that efforts to

operate the regional fisheries *refugia* system be sustained. Accordingly, the regional experts defined a structural framework for enhancing the effective sustainable management of fisheries *refugia* into twelve targets under four dimensions as shown in Figure 4.

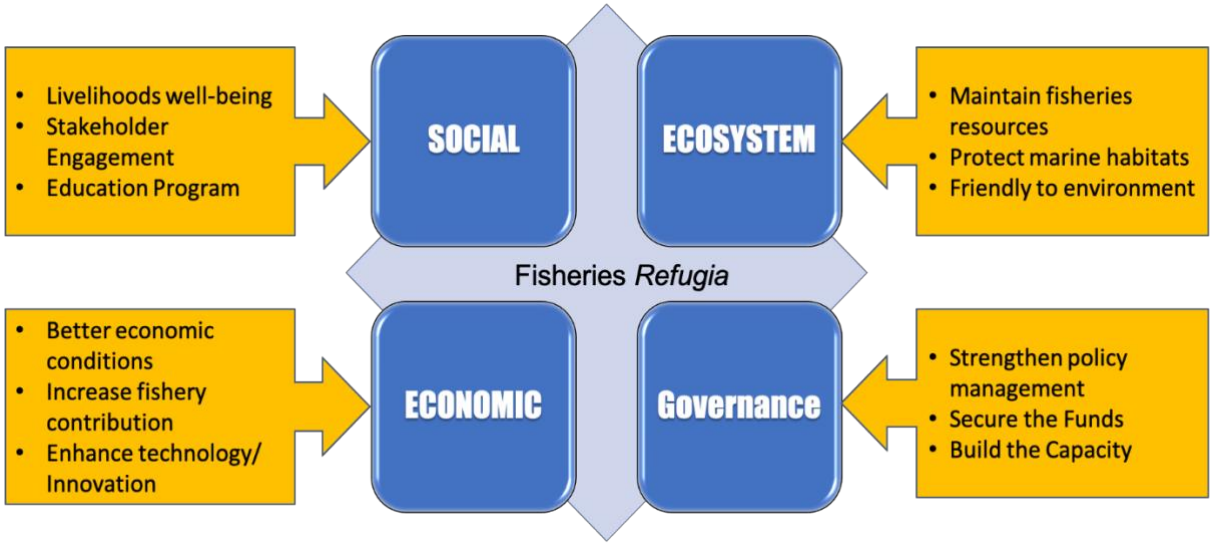


Figure 4: Structural framework for enhancing the effective sustainable management of fisheries *refugia*

a) **Ecosystem Dimension**: Managing a complex ecosystem to balance delivery of all its services is at the heart of ecosystem-based management. But how can this balance be accomplished amidst the conflicting demands of stakeholders, managers, and policy makers? In marine ecosystems, several common ecological mechanisms link biodiversity to ecosystem functioning and to a complex of essential services. As a result, the effects of preserving diversity can be broadly beneficial to a wide spectrum of important ecosystem processes and services, including fisheries, water quality, and recreation. In this guideline, we defined the ecosystem into three sub-dimensions: 1) fisheries resources, 2) marine habitats, and 3) marine environment. To maintain the ecosystem health, we need to maintain fisheries resources, protect the marine habitats and friendly to the marine environment.

b) **Governance Dimension**: Good governance is fundamental to ensuring the equitable and sustainable management of fisheries and to facilitate policy change. To improve fisheries governance, further analysis of institutional arrangement of fisheries governance is needed to better understand how different structures impact policymaking. In particular, it would be interesting to investigate how institutions can facilitate increased co-ordination and coherence between policies for all the sectors using marine resources. For effective policy creation, change, and implementation, countries require a governance process that integrates information on the impacts of existing policies and the views of a wide range of stakeholders collected by institutions that can respond to the specific context of individual fisheries (Delpeuch *et.al.*, 2019). The main objectives of this dimension are strengthening governance and institution capacity as well as strengthening the policy management and securing the fund for sustainability in managing fisheries *refugia*.

c) **Economic Dimension**: The capture fisheries have played an important role to national economies among ASEAN countries, particularly as a source of foreign exchange earnings, an employment creator and income generator, as well as in food and nutrition security. It was also recognized that the region's contribution to global fishery production has gradually increased from 5% in 1950 to 21.1% in 2014 (FishStatJ, 2016). Considering the economic sustainability refers to practices that support long-term economic growth without negatively impacting social, environmental, and cultural aspects of the community. It can refer either to the continued success of an economy over time or more recently to the way an economy operates in a sustainable

manner, protecting social and environmental elements. How can we know the economic sustainability? The guideline defined economic dimension into three sub-dimensions that we need to know as follows: 1) economic health/condition, 2) economic/fisheries production, and 3) driving innovation and transforming fisheries.

d) **Social Dimension**: Social or humans and its relation to the marine ecosystem are at the core of the fisheries *refugia* approach and a "human dimension" for this approach needs to be understood, analyzed, identified, and implemented. Implementation of ecosystem approach like fisheries *refugia* without consideration of socio-cultural, economic, political and institutional dimensions is nowadays regarded as incomplete, delivering only partial and insufficient achievements that the approach aims to generate. In addition, failure to consider human dimensions risks producing or reinforcing social inequalities with marginal groups, enhance conflicts and distrust hindering collaboration, ignoring local values, knowledge and skills essential for particular contexts, striping customary social norms, fostering unemployment, depriving individual and collective identities, altering socio-cultural relations and social capital; all of them critical for human well-being and the associated exploited marine ecosystems. We defined three sub-dimensions, to ensure and assess the wellbeing of fishing communities as follows: 1) livelihood conditions, 2) stakeholder engagements, and 3) educational programs.

Climate change impacts and gender mainstreaming aspects are considered as key cross-cutting dimensions that we include in the frameworks particularly the later one we align with the SEAFDEC Gender Strategy (SEAFDEC, 2019) and GEF Policy Guidance on Gender Equality (GEF, 2017). Nevertheless, the focus of climate change impacts is to ecosystem only, not covering the impacts to other social, economic, and governance dimensions.

3.3 SPECIFYING CRITERIA AND INDICATORS

At the fishery level, indicators provide an operational tool in fisheries management as a bridge between objectives and management action. For example, an indicator such as an estimate of current biomass from a stock assessment model may feed into a decision rule that specifies next year's management measures or other input-output controls. Indicators may also be used to trigger a more general management response, such as achievement with respect to a more integrated coastal management plan. Based on the defined fisheries *refugia* structural frameworks (see Annex 1), the criteria and indicators are specified as shown in **Table 1-5.**

Table 1: Specified criteria and Indicators of the **Ecosystem Dimensions** for fisheries *refugia* approach

SUB-DIMENSIONS	CRITERIA	INDICATORS	UNITS/REF
Fisheries Resources	Abundant stock / Distribution / Fishing Effort	Biomass Estimation	**App.01**
		Level of MSY	**App.02**
		Level of MEY	**App.03**
		Level of CPUE (weight/unit effort)	ton or kg
		CPUA (product weight/Area)	ton or kg
		Catch landing	Ton or kg
	Biological Parameter	Length at first capture (Lc)	**App.04** cm or mm
		Length at first maturity (Lm)	**App.05** cm or mm
		Sex ratio	Ratio of male to female
		Spawning Potential Ratio (SPR)	**App.06**
		Length frequency	cm or mm

SUB-DIMENSIONS	CRITERIA	INDICATORS	UNITS/REF
		Exploitation rate	**App.07**
		GSI (Gonadosomatic Index)	**App.08**
	Species composition / Catch structure	Percentage of dominance species	%
		Number of species	Individual(s).
		Main economic/commercial species	%
		Bycatch Composition	%
Habitat (mangrove, coral, seagrass, and other critical habitats)	Health/condition/ Area	Size Coverage	%
		Habitat Health Index	**App.09**
		Target habitat density (IUCN reference)	**App.10**
Environment	Pollution	Standard Water Quality (e.g. COD, BOD)	**App.11**
	Eutrophication	Phytoplankton Abundance	**App.12** (monitoring)
		Phosphate, Nitrate Concentration (Nutrient loading)	**App.13** (monitoring)
	Anthropogenic (Human activity)	Coastal reclamation area	hectare or Km^2
		Level of maritime activity (If appropriated)	**N/A**
	Erosion	Level and distribution of sedimentation (If appropriated)	**N/A**
		Loss of area/habitat	hectare or Km^2

Table 2: Specified criteria and Indicators of the **Social Dimensions** for fisheries *refugia* approach

SUB-DIMENSIONS	CRITERIA	INDICATORS	UNITS/REF
Livelihoods	Choice of Occupation	Number of option/ Occupation/ work (Alternative, Permanent work, Subsistence work)	Number
	Fish consumption	Fish consumption per capita per year	**App.14**
	Nutrition	% Animal protein (if appropriate)	%
Stakeholder Participation (Indigenous People, Gender, etc.)	Participation	Ratio of number of participations (gender and IP)	%
	Local Organization	Number of organizations,	Number
		Number of Best practices applied	Number
	Networking	Number of networking	Number
		Type /way of direct or indirect communication	Number
		Number of agreements	Number
Education (Local knowledge, Local wisdom)	Awareness program (e.g. information center, information education campaign (IEC))	Number of information center or similar.	Number
		Number of consultations	Number
		Number of best practices	Number
		Number of awareness program	Number
		Number of understandings by stakeholder	Number

SUB-DIMENSIONS	CRITERIA	INDICATORS	UNITS/REF
	Capacity building	Number of training/Extension	Number

Table 3: Specified criteria and Indicators of the **Economic Dimensions** for fisheries *refugia* approach

SUB-DIMENSIONS	CRITERIA	INDICATORS	UNITS/REF
Economic Condition (to community)	Poverty incidence	Poverty Index, Income Poverty Multidimensional poverty index	**App.15**
	Capital accessibility	Number of financial accessible	Number
	Income	Income per household	income/year
Fisheries Production, Fishing Efforts	Contribution of target species and Availability	Value of contribution or production	ton(s), metric ton(s)
Innovative Fisheries Technology	Effectiveness of fishing gear	level of CPUE	**App.16**
	Cost effectiveness	Cost reduction, time, human power	**App.17**
	Environment friendly (Green technology)	Reduce of fuel consumption	**App.18**
		Reduce bycatch	**App.19**
	Investment	• Number of investments • fishing fleet, • processing, • ship builder • management tools/software	• Number • Number • Number • Availability • Availability
		New domestic products	Number

Table 4: Specified criteria and Indicators of the **Governance Dimensions** for fisheries *refugia* approach

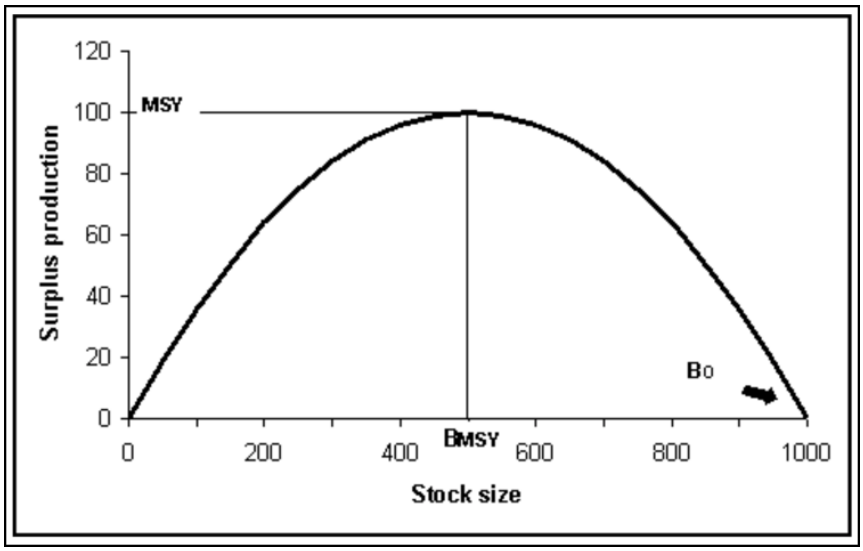
SUB-DIMENSIONS	CRITERIA	INDICATORS	UNITS/REF
Fisheries management policy (Fishing/User Right, Precautionary approaches/Science -based management, and Synergistic Way/Strategy)	Legal framework	Number of law and regulation	In place
	Harvest strategy/ Limit of fishing effort	Fishing closure by area and seasonal closure, Zoning	hectare or Km^2 Days/months
		Number of Input control (Number, mesh size, length of fishing gear, Licensing control, Capacity (e.g. Gross tonnage, horsepower, etc.)	**App.20**
		Number of output control (TAC, Quota, Target species)	**App.21**
	Fisheries management plan/ strategy/ framework	Available/not available	
		Management plan of Fisheries *refugia* in place,	Reformed
		Habitat rehabilitation, protection and stock enhancement.	Adopted
	Efficiency fishing gear	Length limit (e.g. crab fishery)	cm or mm

SUB-DIMENSIONS	CRITERIA	INDICATORS	UNITS/REF
Stakeholder Cooperation/Coordination (Regional / national levels)	Management mechanism	Management board/ committee, transboundary committee, RPOA for *refugia* in place	Established Approved
		Linkage to the existing management/conservation framework (e.g. MPAs)	Established
Enforcement	Coordination mechanism	Inter-agency coordination in place, Number of joint operations	Established Number
	Fishery Law enforcement	Level of enforcement	in place
		Frequency of regular patrol	Number per week or month
		Number of violation prosecution	Decreasing
Capacity Building	Best Practice	Adoption of best practice in place	adoption
	Maritime policy and regulation/ International policy	Number of training/workshops	Number
Funding (Infrastructure, Enforcement, etc.)	Sustainability	Long term commitment of Government on finance	In placed
	Source of funding (Incentive, soft loan, donation/ CSR)	Number of donors	maintain/ increase
		Type of funds	Maintain or increase
	Incentive	Type and number of incentives	Number
		Number of activities	Number
		Number of best practices	Number

Table 4: Specified criteria and Indicators of the **Cross-cutting (Climate Change) Dimensions** for fisheries *refugia* approach

SUB-DIMENSIONS	CRITERIA	INDICATORS	UNITS/REF
On Fish Stock	Impact to Fish Stock	Availability/levels of knowledge abundance, distribution, genetic diversity, recruitment	**App.22** Refers to App01-08
		Update information impact to fish stock	Monitoring
Impact to Habitat	Coral bleaching	Area	hectare or Km^2
		Incident/ frequency	**App.23**
		Recovery Rate	%
	Destruction of mangrove	Area coverage	hectare or Km^2
		Recovery Rate	%
	Destruction of sea grass	Area coverage	hectare or Km^2
		Recovery Rate	%
Impact to Environment	Sea level rise	Saline intrusion (if appropriate)	**App.24**
		Mean sea level annual (if appropriate)	**App.25**
		Coastal Erosion (Area)	hectare or Km^2

	Physical/chemical parameters	Level of physical and chemical parameters (T, Salinity, PH, DO)	**App.26**
	Precipitation (rainfall)	Level of Precipitation (if appropriate)	**App.27**
	Ocean acidification	PH level	ppt.

App.01	**Biomass** Biomass (B) – Weight of an individual or a group of individuals contemporaneous of a stock. Abundance and biomass estimates are metrics usually taken for phytoplankton assays. Biomass is a proxy measure today in phytoplankton assays, while relative abundance is broadly used in diatoms investigations and application of ecological indexes.
App.02	**Maximum Sustainable Yield** (https://www.fao.org/3/y3427e/y3427e07.htm#bm07.3.1) In the 1960s and 1970s, maximum sustainable yield (MSY) was seen as the ideal target to aim for in managing fisheries, and managers attempted to obtain MSY through striving to set the MSY as a target catch level or to determine the fishing mortality rate that would generate MSY (FMSY). The maximum sustainable yield concept is based on a model, referred to as a surplus production or biomass dynamic model (**Figure 5**), which assumes that the annual net growth in abundance and biomass of a stock increases as the biomass of the stock increases, until a certain biomass is reached at which this net growth, or surplus production, reaches a maximum (the MSY). This biomass is referred to as BMSY, and the fishing mortality rate which will achieve MSY is similarly referred to as FMSY. As the biomass increases above BMSY, density dependent factors such as competition for food and cannibalism on smaller individuals start to reduce the net population growth which therefore decreases until at some point, the average carrying capacity of the stock, net population growth reaches zero. In reality, an unexploited stock will tend fluctuate about this biomass because of environmental variability.  Figure 5: Schaefer model of surplus production (biomass dynamic) as a function of stock size showing the major reference points. Other forms of surplus production model can have BMSY at a higher or lower stock size than the 50% of B0 of the Schaefer model. MSY = maximum sustainable yield; BMSY = the biomass at which MSY occurs; and B0 = the average unexploited biomass of the stock (the average 'carrying capacity').

	MSY was such a well-established target for managing fisheries that it is included in the 1982 United Nations Convention on the Law of the Sea (UNCLOS), where it is stated that coastal management agencies should "... maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors". This requirement of the LOS is equivalent to specifying a limit reference point of BMSY. This is not the same as setting MSY as a target reference point for catch, however, and using MSY as a target reference point has been found to be dangerous. This is because it is impossible to estimate MSY precisely for any stock. If MSY is over-estimated, then a fishery will be allowed to take more than the maximum production of the stock which will cause a reduction in the biomass every year. In a new fishery this could drive the biomass down to the level at which MSY is produced (BMSY) but if continued after that will drive the biomass down further, where annual production gets smaller and smaller, making the situation even worse. Even if average MSY could be precisely determined, the productivity of a stock varies from year to year under the influence of environmental variability. Therefore, if the stock is at BMSY, in some years production may still be less than MSY and, if MSY is taken as the catch, the biomass will be driven below BMSY, possibly driving the stock into a downward spiral. Therefore, MSY is no longer seen as a target reference point for fisheries managers to strive for, although it can still be used as a limit reference point i.e. as an upper limit to the annual catch, which should be avoided.
App.03	**Maximum Economic Yield (MEY)** In fisheries terms, maximum sustainable yield (MSY) is the largest average catch that can be captured from a stock under existing environmental conditions. Relating to MSY, the maximum economic yield (MEY) is the level of catch that provides the maximum net economic benefits or profits to society. Fundamental theory in the science of fisheries economics was presented by a Canadian economist (Gordon, 1954). Later, Schaefer used these ideas to develop a mathematical model in an attempt to establish a relationship between biological growth and fishing activities. This model is known as Gordon-Schaefer model (GSM) and is the basic model of bioeconomic. The maximum capacity of the environment to support the highest fishery stock biomass (B) is referred to as carrying capacity (K). At K, the growth rate of the fishery stock virtually becomes zero. **Figure 6** graphically represents total revenue of the fishery with a constant price. In this figure, parabola corresponds to either equilibrium amount of fishing effort or the equilibrium of B. The straight line represents total cash flow when the operating and fixed costs are constant. The slope of this line is equal to the cash flow per fishing effort. Economic rent is represented by the difference of the cost line and revenue curve. This economic rent is supposed to be derived from the fishery stock. The highest difference between the cost of economic rent is the maximum. The point at which revenue curve is intersected by the coastline is known as the open access equilibrium (OAE).

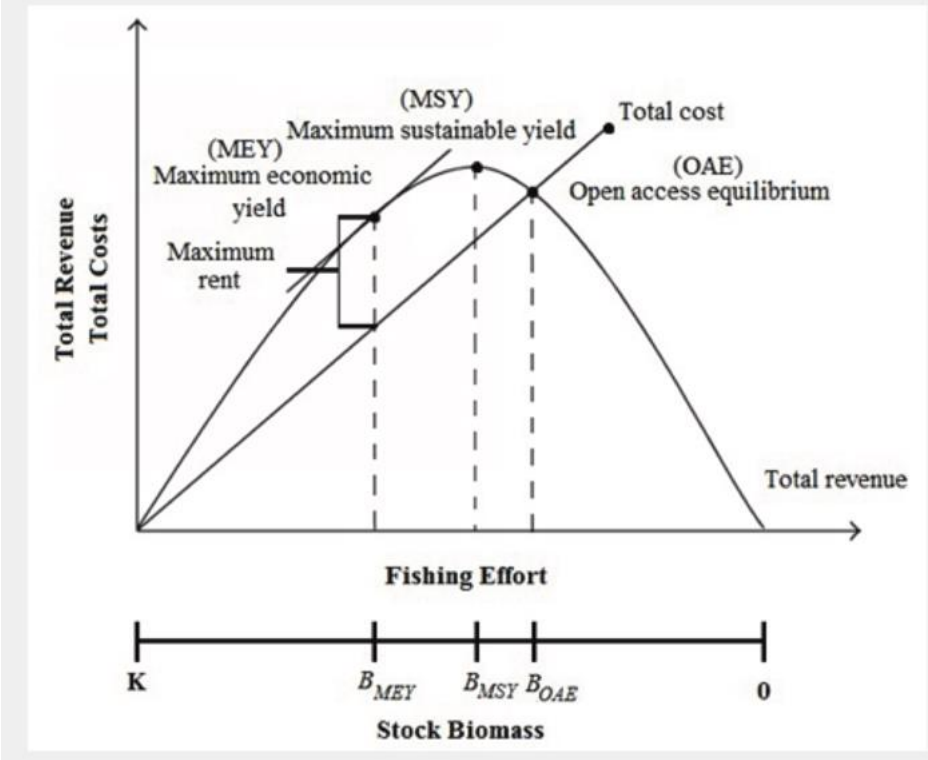


Figure 6: Total revenue of the fishery with constant price

App. 04 **Length at First Capture (Lc)**

The size of a fish at first capture is the size after the fish has bred for the first time. This size will vary in case of both males & females. This size will not be the same for all the varieties of fish. Hence a fishery biologist will be able to say the size of a variety of fish soon after it has bred. In case fish before first capture is not allowed to breed, it is most likely, that the stocks will dwindle in course of time. They will decline sooner if the life span of fish is small, will take more time if life span is longer, other conditions being the same.

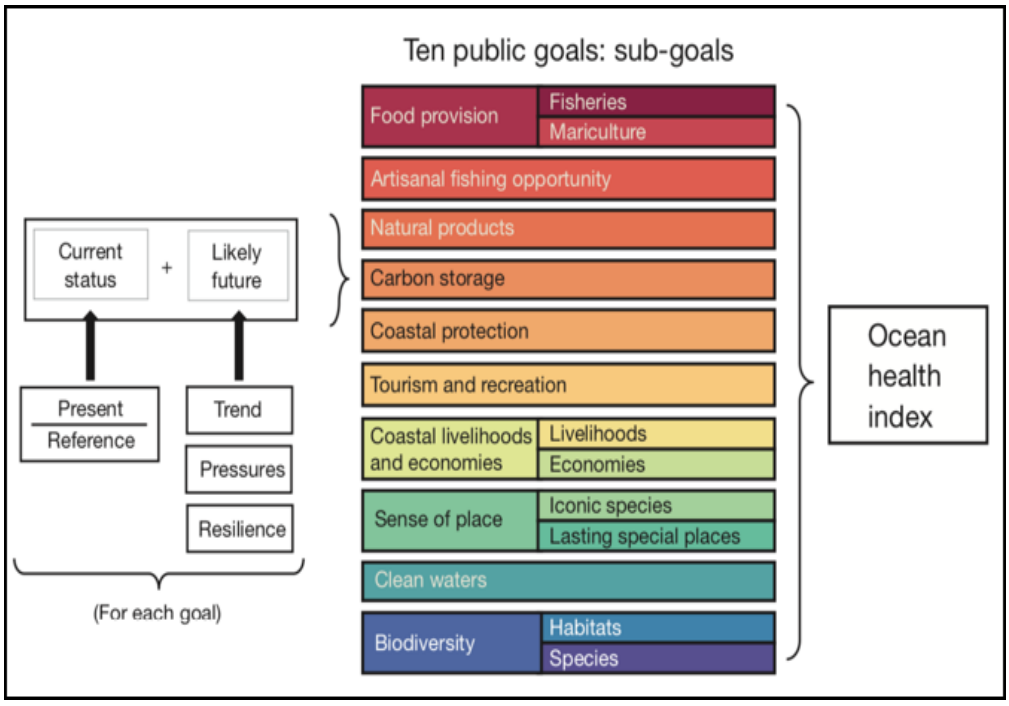
App.05 **Length at First Maturity (Lm)**

The size of fish at first maturity (Lm50) is the length at which 50% of the fish have reached maturity. In the present study it was noticed that the 50% of observed sexual maturity of male and female fishes were in the matured stage. The large and whitish testis and yellowish orange ovaries are defined as matured

For estimating Lm, different researchers use different methodologies. Some uses the lowest recorded mature fish as Lm. Some researchers estimated it by eye observation of visible egg. Some estimates from the first peak of GSI. Some uses cumulative percentage of all samples of fully matured egg (Stage v and above) to estimate Lm. But is there any method to calculate Lm based on histological stages (i-vii) and maturity stages i.e., cumulative percentage of samples over certain maturity stages (stages i-vii/viii)

App.06 **Spawning Potential Ratio (SPR)**

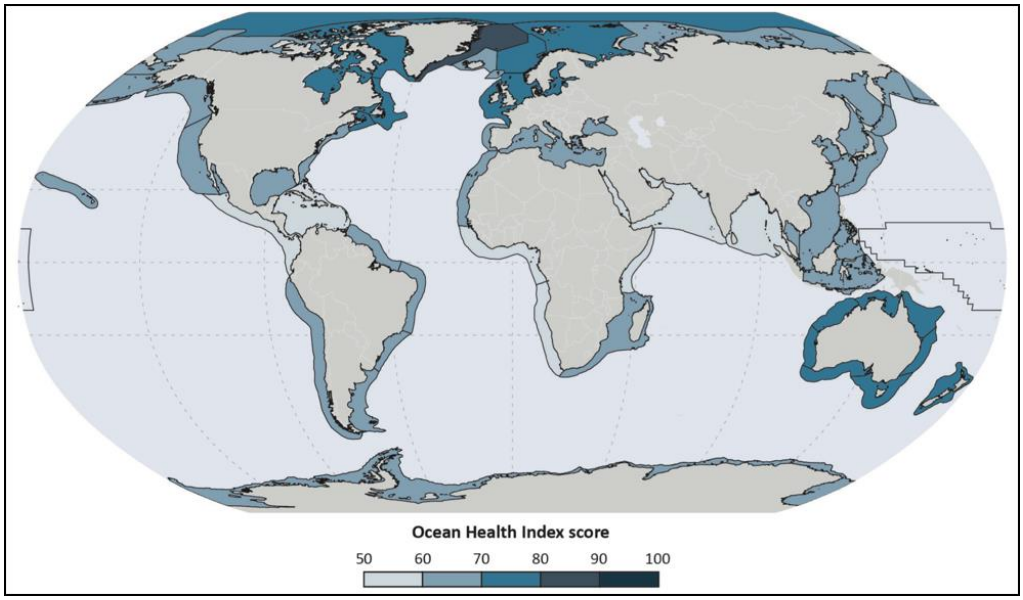
The spawning potential ratio (SPR) of a stock is defined as the proportion of the unfished reproductive potential left at any given level of fishing pressure (Goodyear, 1993; Walters and Martell, 2004) and is commonly used to set target and limit reference points for fisheries. The spawning potential ratio (SPR)—an index developed by marine fisheries scientists to identify and prevent recruitment overfishing—is simply a ratio of the average

	lifetime production of mature eggs per recruit in a fished population to what it would have been if the population had never been fished.
App.07	**Exploitation Rate** Exploitation rate, applied on a fish stock, is the proportion of the numbers or biomass removed by fishing. If the biomass is 1000 tons and the harvest during a year is 200 tons, the annual exploitation rate is 20%.
App.08	**Gonadosomatic Index (GSI)** The gonadosomatic index, abbreviated as GSI, is the calculation of the gonad mass as a proportion of the total body mass. It is represented by the formula: GSI = [gonad weight / total tissue weight] × 100
App.09	**Ocean Health Index** One of the greatest challenges for resource management, including for LMEs, is to understand the condition of human and natural systems within a region and make informed decisions about the best way to improve that condition. Too often, monitoring, assessments, indicator choice, and decisions are made within a single sector or aimed at a single objective, without adequate consideration of the broader implications of proposed actions. Ecosystem-based management and marine spatial planning aim to overcome these management barriers, but there are relatively few tools to inform and support these comprehensive management approaches. Without a tool to measure overall ecosystem health and track progress towards improving it, one cannot effectively manage towards that objective. Together, the five LME modules capture many of the indicators of a healthy ocean ecosystem, but incompletely and without a transparent and quantitative means to combine the various measures. The Ocean Health Index (OHI) was developed in part to address this need. Using a common framework, the OHI measures progress towards achievement of ten widely agreed public goals for healthy oceans, including food provision, carbon storage, coastal livelihoods and economies, and biodiversity (Figure 7). Progress towards each goal is assessed against the optimal and sustainable level that can be achieved (Figure 8). 

Definitions of the goals and sub-goals of the Ocean Health Index

Goal	Sub-goal	Definition
Food provision (FP)	Mariculture (MAR)	Production of sustainably cultured seafood
	Fisheries (FIS)	Harvest of sustainably caught wild seafood
Artisanal fishing opportunity (AO)		Opportunity to engage in artisanal-scale fishing for subsistence and/or recreation
Natural products (NP)		Sustainable harvest of natural products, such as shells, algae, and fish oil used for reasons other than food provision
Coastal protection (CP)		Conservation status of natural habitats affording protection of the coast from inundation and erosion
Carbon storage (CS)		Conservation status of natural habitats affording long-lasting carbon storage
Coastal livelihoods and economies (LE)	Coastal livelihoods (LIV)	Jobs and wages from marine-related sectors
	Coastal economies (ECO)	Revenues from marine-related sectors
Tourism and recreation (TR)		Opportunity to enjoy coastal areas for recreation and tourism
Sense of place (SP)	Lasting special places (LSP)	Cultural, spiritual, or aesthetic connection to the environment afforded by coastal and marine places of significance
	Iconic species (ICO)	Cultural, spiritual, or aesthetic connection to the environment afforded by iconic species
Clean waters (CW)		Clean waters that are free from nutrient and chemical pollution, marine debris, and pathogens
Biodiversity (BD)	Species (SPP)	The existence value of biodiversity measured through the conservation status of marine-associated species
	Habitats (HAB)	The existence value of biodiversity measured through the conservation status of habitats

Figure 8: Ocean Health Index score by LME

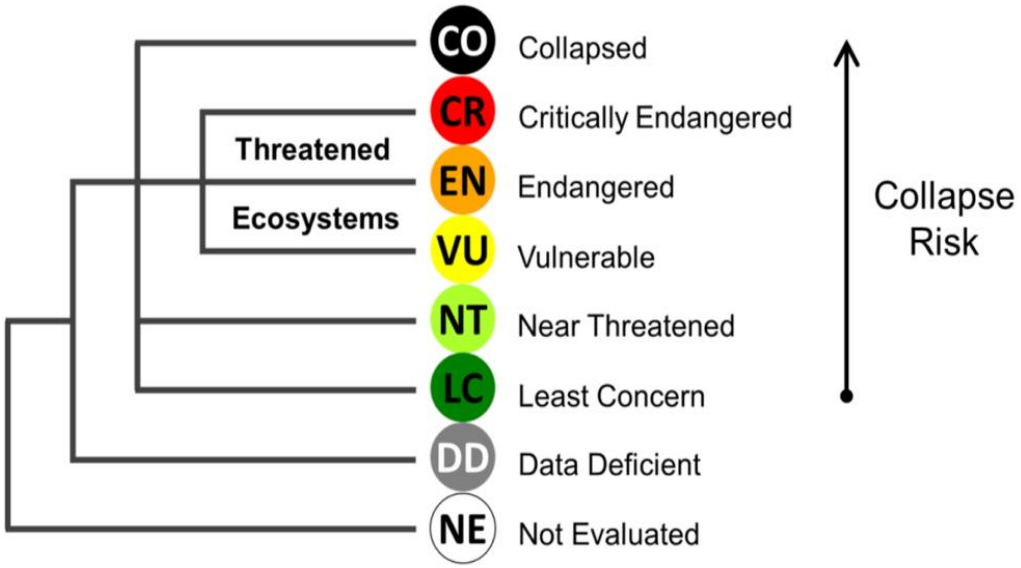


App.10 **Target Habitat Density (IUCN reference)**

The primary goal of the IUCN Red List of Ecosystems (RLE) is to support conservation in resource use and management decisions by identifying ecosystems most at risk of biodiversity loss (Keith et al., 2013). By assessing relative risks of biodiversity loss at the ecosystem level, the RLE accounts for broad scale ecological processes and important dependencies and interactions among species (Keith et al., 2015).

The IUCN Red List of Ecosystems includes eight categories: Collapsed (CO), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD), and Not Evaluated (NE; Figure 9). The first six categories (CO, CR, EN, VU, NT and LC) are ordered in decreasing risk of collapse. The categories Data Deficient and Not Evaluated do not indicate a level of risk.

The categories Critically Endangered, Endangered and Vulnerable indicate threatened ecosystems and are defined by quantitative and qualitative criteria described in Section 5 and Appendix 2. These categories are nested, so that an ecosystem type meeting a criterion

	for Critically Endangered will also meet the criteria for Endangered and Vulnerable. The three threatened ecosystem categories are complemented by several qualitative categories that accommodate: (i) ecosystem types that almost meet the quantitative criteria for Vulnerable (Near Threatened); (ii) ecosystems that unambiguously meet none of the quantitative criteria (Least Concern); (iii) ecosystems for which too few data exist to apply any criterion (Data Deficient); (iv) ecosystems that have not yet been assessed (Not Evaluated). Following the precautionary principle (Precautionary Principal Project, 2005), the overall status of an ecosystem type is the highest risk category obtained through any criterion.  Figure 9: Structure of IUCN Red List of Ecosystem categories
App.11	**Standard Water Quality Parameters** Parameters that are frequently sampled or monitored for water quality include temperature, dissolved oxygen, pH, conductivity, ORP, and turbidity. However, water monitoring may also include measuring total algae, ISEs (ammonia, nitrate, chloride), or laboratory parameters such as BOD, titration, or TOC.
App.12	**Phytoplankton Composition and Abundance** The phytoplankton is one of the most important communities in aquatic ecosystem, constituting the first step of diverse trophic chain, and being one of the main primary producers in the marine, coastal, and continental water bodies. It provides food for primary consumers from zooplankton, benthos, and nekton communities (Harris 1986; Hernández-Becerril 1993). Accordingly, to Metting (1996) microalgae are primarily responsible for the 40–50% of total global photosynthetic primary production. Another important function of phytoplankton in natural or aquaculture ecosystems is the production of oxygen. It has been demonstrated that a great proportion of oxygen in the atmosphere and the water column come from phytoplankton photosynthesis (Balkanski *et al*. 1999). The composition and abundance of phytoplankton vary widely in the diverse aquatic ecosystems, exhibiting sometimes a pronounced seasonal succession, influenced by diverse factors such as temperature and salinity (Muylaert *et al.* 2000), as well as changes in the concentration and proportion of nutrients, resulting from movements of water masses, upwellings, and continental drains

App.13	**Phosphate, Nitrate Concentration (Nutrient loading)** Nitrogen (N) and phosphorus (P) are key nutritional elements for many important life processes such as protein and DNA synthesis, primary production, cellular growth and reproduction. Both have a natural global cycle that includes conversion between different inorganic and organic forms, solid and dissolved (and gaseous for nitrogen) phases that maintained their pre-industrial concentrations within certain natural bounds. During the preindustrial era, the concentrations and fluxes of N and P in rivers were generally small, much less than present day levels, and were mainly sourced from erosion and the leakage of dissolved N and P in their organic/inorganic forms. Today anthropogenic production of N and P to support fertilization and industrial releases has dramatically increased the N and P presence in water bodies. However, in excessive quantities, they may represent a significant source of aquatic pollution. Eutrophication has become a widespread issue rising from a chemical nutrient imbalance and is largely attributed to anthropogenic activities in both inland and coastal waters.
App.14	**Fish Consumption Per Capita Per Year** Per capita consumption is the average use of a product, service or other item per person. You can calculate the per capita consumption of a particular food, for example, if you are interested in investing in a commodity. You can calculate per capita consumption as it relates to a country's economic activity, such as Gross Domestic Product. You can make a quick calculation to help you make comparisons by year to see if something you're researching is trending upward or downward.
App.15	**Poverty Index/Income Poverty** Literature has been built on the Forster-Greer-Thorbecke (FGT) (1) poverty index to estimate **income poverty** (2) (Akongyuure et al., 2017). However, the income poverty has several drawbacks that include using income as the lone indicator of measuring the wellbeing of an individual and hence limited since it does not reflect and incorporate the key dimensions of poverty associated with the quality of life. Also, the income poverty approach does not guarantee that households with income at or above the poverty line would use their incomes to purchase the minimum basic needs. This implies that households may be non-poor in terms of income but deprived of basic needs (Kabubo-Mariara et al., 2011). This infers that income poverty is an indirect approach to assess the ability of the household to satisfy basic needs. Therefore, the study focused its analysis on the multidimensional measurement of poverty (3). 1) Forster-Greer-Thorbecke (FGT) poverty index is a poverty measure in a population defined as; $yi = z - viz$ where, vi = Per capita income of household i, z = Poverty line; thus, households with income above the poverty line are assigned zero Yi = Income poverty gap that is a continuous variable ranging between zero and one. 2) Income poverty refers to a failure to satisfy basic needs using per capita income as a threshold. 3) Multidimensional poverty offers an added advantage compared to income poverty since it enables the researcher to directly assess the types of basic needs a household can actually satisfy. Also, the approach allows for decomposability and offers freedom in assigning different weights to different indicators (Kabubo-Mariara et al., 2011). In this sense, multidimensional poverty indicators for

quantitative impact analysis and weighted procedures for the multidimensional poverty index (MPI) were applied. The approach was preferred to factor and cluster analyses because it provides absolute poverty levels and allows for poverty comparison across different settings (Ogutu and Qaim, 2018).

Dimension and indicator	Description and deprivation cutoff
Education	
School achievement	Deprived if the household head and spouses have not completed the primary level of education
School attendance	Deprived if the household has school-aged children not going to school
Standard of living	
Electricity	Deprived if the household has no electricity
Drinking water	Deprived if the household does not have access to safe drinking water or they have to walk over 30 min to get safe drinking water
Sanitation	Deprived if the household has no descent pit latrine
Flooring	Deprived if the household house is earth
Assets	
Phone	Deprived if the household does not own a mobile phone
Radio and/or television	Deprived if the household does not own at least radio
Vehicle	Deprived if the household does not own at least a bicycle
Health	
Nutrition 1	Deprived if the household reports a household dietary diversity score of 6 and below out of the possible 12 food groups
Nutrition 2	Deprived if the household relies on relief food or any case of malnutrition in the past 2 years
Access	Deprived if the household has difficulty in meeting basic public hospital bills
Source: Adapted from Ayuya et al. (2015).	

App.16

Catch Per Unit Effort (CPUE)

Catch-per-unit effort (CPUE) methods can be used to estimate absolute abundance of closed populations in the presence of successive removals. This estimation is possible because of the proposed relationship between harvest effort and the probability of capture, as well as the observed decline in catch with successive removal events. A minimum of two samples is necessary for abundance estimation and a minimum of three samples for tests of goodness-of-fit. With only a single sample catch of size r, the catch represents, under ideal circumstances, an index to abundance where its expected value is

$$E(r_i) = N_i \times p_i$$

where

r_i = number of fish caught in the i^{th} population;

N_i = fish abundance in the i^{th} population;

P_i = probability of capture exerted on the i^{th} population

Seasonal and annual CPUE estimates are often used to index abundance and to track the depletion of the fished stock as fishing progresses though the season (see 'Modelling the Depletion Process' section). Limitations of CPUE as an index of abundance, however, are well-understood, and they tend to be particularly severe in the case of sedentary organisms.

The assumption is that the number of fish caught per unit of effort expended (often time) is proportional to stock size. However, experience from commercial fisheries shows that CPUE

	can remain high in the face of a rapidly declining stock or decline even if the stock is relatively stable (Hilborn and Walters, 1992).
App.17	**Cost Effectiveness Analysis** Cost-effectiveness analysis (CEA) is a form of economic analysis that compares the relative costs and outcomes (effects) of different courses of action. Cost-effectiveness analysis is distinct from cost–benefit analysis, which assigns a monetary value to the measure of effect. The concept of cost-effectiveness is applied to the planning and management of many types of organized activity. The major steps in a cost-benefit analysis • Step 1: Specify the set of options. • Step 2: Decide whose costs and benefits count. • Step 3: Identify the impacts and select measurement indicators. • Step 4: Predict the impacts over the life of the proposed regulation. • Step 5: Monetise (place dollar values on) impacts.
App.18	**Reduced Fuel Consumption** Compared to a century ago, the world's fishing fleets are larger and more powerful, are traveling further, and are producing higher quality products. These developments come largely at a cost of high-fossil fuel energy inputs. Rising energy prices, climate change, and consumer demand for 'green' products have placed energy use and emissions among the sustainability criteria of food production systems. Management decisions, technological improvements and behavioral changes can further reduce fuel consumption in the short term, although the most effective improvement to fisheries energy performance will come as a result of rebuilding stocks where they are depressed and reducing over-capacity.
App.19	**Reduced Bycatch** Fishers, fishing gear designers and manufacturers, researchers and government and non-government organizations needs to work together to the development of solutions for reducing bycatch. Fishers (commercial, recreational and Indigenous) bring an understanding of how to efficiently catch their target species, how their gear works and what is practical and safe at sea. Fishers in high latitudes often design fishing gear and practices to reduce bycatch as it is in their interests to avoid catching non-target species. They also bring their observations and records of when and where they have caught bycatch. Fishing gear designers and manufacturers contribute by using their knowledge of how their gear works and the different materials that can be used. They can modify gear or design innovations to ensure the gear still catches the target species but not the bycatch. For example, changes to hook shape or net design can reduce bycatch. A good example of gear innovations is the incorporation of Turtle Excluder Devices (TEDs) into net designs used in tropical prawn trawl fisheries. TEDs allow prawns to enter a net yet prevent large marine animals like turtles from being captured. The device has proven to be highly successful in many fisheries around the world.
App.20	**Input Controls or Fishing Effort Management** As defined above, input controls are restrictions put on the intensity of use of gear that fishers use to catch fish. Most commonly these refer to restrictions on the number and size of fishing vessels (fishing capacity controls), the amount of time fishing vessels are allowed

	to fish (vessel usage controls) or the product of capacity and usage (fishing effort controls). Often fishing effort is a useful measure of the ability of a fleet to catch a given proportion of the fish stock each year. When fishing effort increases, all else being equal, we would expect the proportion of fish caught to increase. For some fisheries, vessels may deploy a variable amount of fishing gear. In these cases the definition of fishing effort would also need to contain a factor relating to gear usage per vessel. In principle, input controls might also refer to limits placed upon other vital supplies of fishing such as the amount of fuel use allowed (energy conservation is desirable, see Paragraphs 8.6.1 and 8.6.2 in the Code of Conduct) but the commonest form of input controls are those put on the various components of fishing effort. In simpler less mechanized fisheries input controls might relate to the number of fishing gears deployed (e.g. the number of static fish traps) or to the number of individual fishers allowed to fish. In summary, the Input Control refers to number of gears, mesh size, length of fishing gear, Licensing control, fishing capacity (e.g. Gross tonnage, horsepower, etc.).
App.21	**Output Controls or Catch Management** By contrast, output controls are direct limits on the amounts of fish coming out of a fishery (fish is used here to include shellfish and other harvested living aquatic animals). Obvious forms of output control are limits placed upon the tonnage of fish or the number of fish that may be caught from a fishery in a period of time (e.g. total allowable catches (TAC); in reality, usually total allowable landings). Another form of output control is the bag limits (restrictions of the number of fish that may be landed in a day) used in many recreational fisheries. Limiting bycatch might also be seen as an output control. It is worth immediately noting that to limit fishing intensity it is necessary (unless, as is not usually the case, fish can be released alive) to limit the catch (the amount taken from the sea) rather than the landing (which may well contain only a selection of the catch). The unlanded part of the catch (the discards) may be a substantial proportion of the total catch (Alverson et al, 1994) and may undermine the intent of catch management.
App.22	**Climate Change Impact** Climate change has been recognized as the foremost environmental problem of the twentyfirst century and has been a subject of considerable debate and controversy. It is predicted to lead to adverse, irreversible impacts on the earth and the ecosystem as a whole. Although it is difficult to connect specific weather events to climate change, increases in global temperature has been predicted to cause broader changes, including glacial retreat, arctic shrinkage and worldwide sea level rise. Climate change has been implicated in mass mortalities of several aquatic species including plants, fish, corals and mammals. Climate change, in particular, rising temperatures, can have both direct and indirect effects on global fish production. With increased global temperature, the spatial distribution of fish stocks might change due to the migration of fishes from one region to another in search of suitable conditions. Climate change will have major consequences for population dynamics of marine biota via changes in transport processes that influence dispersals and recruitment (Barange and Perry, 2009). These impacts will differ in magnitude and direction for populations within individual marine species whose geographical ranges span large gradients in latitude and temperature, as experimented by Mantzouni and Mackenzie (2010) in cod recruitment throughout the north Atlantic. The effects of increasing temperature on marine and freshwater ecosystems are already evident, with rapid pole ward shifts in distributions of fish and plankton in regions such as North East Atlantic, where temperature change has been rapid (Brander, 2007). Climate change has been implicated in mass mortalities of many aquatic species, including plants, fish, corals, and mammals.

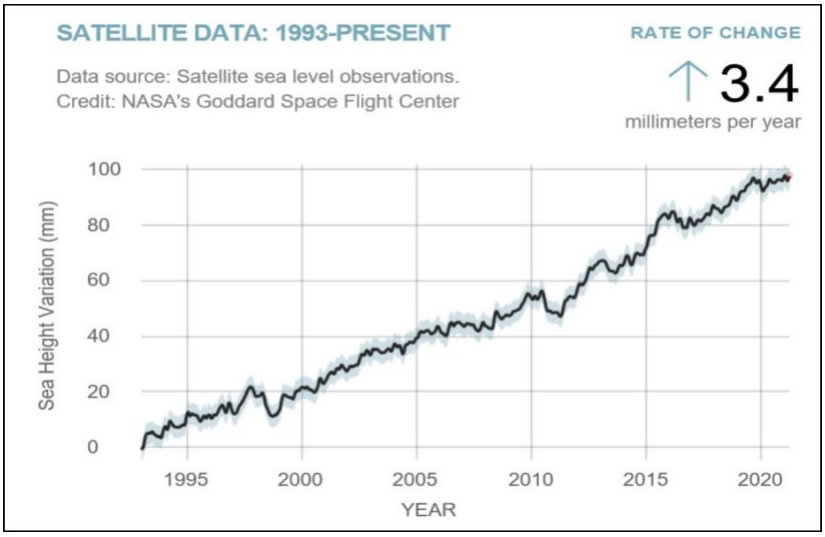
App.23	**Coral Bleaching** Coral bleaching is the process when corals become white due to various stressors, such as changes in temperature, light, or nutrients. Bleaching occurs when coral polyps expel the algae that live inside their tissue, causing the coral to turn white. The leading cause of coral bleaching is climate change. A warming planet means a warming ocean, and a change in water temperature—as little as 2 degrees Fahrenheit—can cause coral to drive out algae. Coral may bleach for other reasons, like extremely low tides, pollution, or too much sunlight. (www.worldwildlife.org)
App.24	**Saline Intrusion** Saltwater intrusion is the movement of saline water into freshwater aquifers, which can lead to groundwater quality degradation, including drinking water sources, and other consequences. Saltwater intrusion can naturally occur in coastal aquifers, owing to the hydraulic connection between groundwater and seawater. The impact to inland not to the coastal area where *refugia* set.
App.25	**Mean Sea Level Annual, Rising Sea Levels** The systematic warming of the planet is directly causing global mean sea level to rise in two primary ways: (1) mountain glaciers and polar ice sheets are increasingly melting and adding water to the ocean, and (2) the warming of the water in the oceans leads to an expansion and thus increased volume. Global mean sea level has risen approximately 210–240 millimeters (mm) since 1880, with about a third coming in just the last two and a half decades. Currently, the annual rise is approximately 3mm per year. Regional variations exist due to natural variability in regional winds and ocean currents, which can occur over periods of days to months or even decades. But locally other factors can also play an important role, such as uplift (e.g. continued rebound from Ice Age glacier weight) or subsidence of the ground, changes in water tables due to water extraction or other water management, and even due to the effects from local erosion. Rising sea levels (Figure 10) create not only stress on the physical coastline, but also on coastal ecosystems. Saltwater intrusions can be contaminating freshwater aquifers, many of which sustain municipal and agricultural water supplies and natural ecosystems. As global temperatures continue to warm, sea level will keep rising for a long time because there is a substantial lag to reaching an equilibrium. The magnitude of the rise will depend strongly on the rate of future carbon dioxide emissions and future global warming, and the speed might increasingly depend on the rate of glacier and ice sheet melting. 

	Figure 10: https://en.wikipedia.org/wiki/Sea_level_rise#/media/File:NASA-Satellite-sea-level-rise-observations.jpg
App.26	**Level of physical and chemical parameters (T, Salinity, PH, DO)** Refers to SEAFDEC Collaborative Research Program in the South China Sea and Gulf of Thailand from 1995-2000 http://map.seafdec.org/mapgallery/
App.29	**Level of Precipitation** **Light rain** — when the precipitation rate is < 2.5 mm (0.098 in) per hour. **Moderate rain** — when the precipitation rate is between 2.5 mm (0.098 in) – 7.6 mm (0.30 in) or 10 mm (0.39 in) per hour. **Heavy rain** — when the precipitation rate is > 7.6 mm (0.30 in) per hour, or between 10 mm (0.39 in) and 50 mm (2.0 in) per hour.

CHAPTER 4: GLOSSARY

As a basis for common understanding on the key terminologies used in this Guidelines, explanations on the following terminologies are provided.

Anthropogenic: Anthropogenic referring to environmental change caused or influenced by people, either directly or indirectly. The anthropogenic activities include mining, release of industrial waste, smelting of As ore, incineration of fossil fuel, particularly coal, utilization of As-loaded water for irrigation, and As-based pesticides, herbicides, and fertilizers (Karimi et al., 2009).

Biodiversity: The variable among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. Diversity indices are measures of richness (the number of species in a system; and to some extent, evenness (variances of species' local abundance). They are therefore indifferent to species substitutions which may, however, reflect ecosystem stresses (such as those due to high fishing intensity).

Catch quotas: Systems that use individual transferable quotas (ITQ), also called individual fishing quota limit the total catch and allocate shares of that quota among the fishers who work that fishery. Fishers can buy/sell/trade shares as they choose. A large-scale study in 2008 provided strong evidence that ITQ's can help to prevent fishery collapse and even restore fisheries that appear to be in decline. Other studies have shown negative socio-economic consequences of ITQs, especially on small-scale fisheries. These consequences include concentration of quota in those hands of few fishers; increased number of inactive fishers leasing their quotas to others (a phenomenon known as armchair fishermen); and detrimental effects on coastal communities.

Eutrophication: Eutrophication is the process by which an entire body of water, or parts of it, becomes progressively enriched with minerals and nutrients. It has also been defined as "nutrient-induced increase in phytoplankton productivity. When the eutrophication phenomenon becomes particularly intense, undesirable effects and environmental imbalances are generated. The two most acute phenomena of eutrophication are hypoxia in the deep part of the lake (or lack of oxygen) and algal blooms that produce harmful toxins, processes that can destroy aquatic life in the affected areas (www.unep.or.jp)

Fisheries management: The integrated process of information gathering, analysis, planning, consultation, decision-making, allocation of resources and formulation and implementation, with enforcement as necessary, of regulations or rules which govern fisheries activities in order to ensure the continued productivity of the resources and accomplishment of other fisheries objectives.

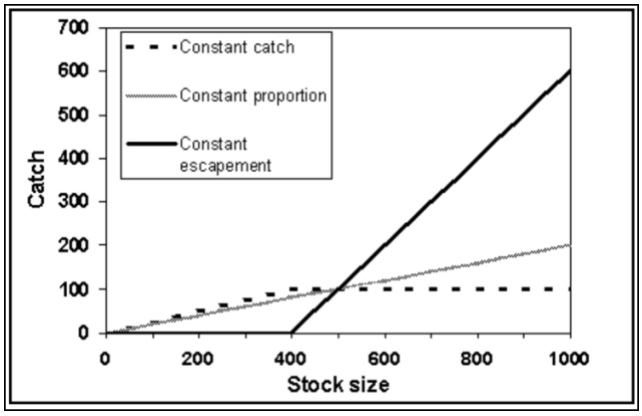
Fishing Effort: Amount of fishing vessels and gears of a specific type (or numbers of fishing unit or total engine capacity of fishing unit) used in the fishing ground over a given unit of time.

Harvest Strategy (https://www.fao.org/3/y3427e/y3427e07.htm#bm07.3.1)

Input and output controls are usually set on the basis of one of three basic harvesting strategies (not to be confused with management strategies: a harvesting strategy is one component of the management strategy). The three basic harvesting strategies are: constant catch; constant proportion or constant harvest rate (equivalent to constant effort if catchability of the resource remains the same); and constant escapement (Figure 1). A constant catch strategy will, by definition, result in no change in catch from year to year. However, for the manager to implement a constant catch strategy, that catch must be set low enough to apply in bad years as well as in good years, without damaging the future productivity of the stock, and must therefore be set at a relatively low level. Therefore the fisher pays a price for the absence of inter-annual variability in catch in a constant catch strategy by foregoing potential catch in good years. In a constant proportion strategy, the effort remains constant and therefore there will be changes in catch from year to year as the resource varies over good, bad and intermediate years. This variability results in some uncertainty about future catches for the fisher compared to the constant catch strategy. It also has benefits for the fisher, though, as it means the catches will be higher in good years, in contrast to the

constant catch strategy, generally leading to a higher annual average catch. A constant escapement strategy (or constant stock size strategy) would aim to ensure that a constant biomass, sufficient to maintain recruitment, was left at the end of every fishing season. This type of strategy tends to achieve the highest annual average catches of the three categories but with the highest variability, in many cases including zero catches in some years.

The decision on which type of harvesting strategy to pursue should be made from a knowledge of the requirements of the fishery and with consultation with the interest groups on the tradeoffs they would like to make between maximizing catch and minimizing variability. The much more difficult question is, given one of the strategies, how does the manager decide on the actual catch, effort or escapement which should be set under the strategy. This is discussed in later sections of the chapter. It should also be noted that these harvesting strategies could all be pursued using output control (setting a TAC), input control (setting the effort that can be expended in a year), or even the use of closed seasons (which can be a form of output control.



Simple examples of the three classes of harvesting strategy and their relationship to stock size: constant catch (with provision for a linearly decreasing catch when the stock size falls below 400); constant proportion; and constant escapement (after Hilborn and Walters, 1992).

Harvest strategies are pre-agreed frameworks for making fisheries management decisions, such as setting quotas. They are akin to agreeing to the rules before playing the game and shift the perspective from short-term reactive decision-making to longer-term objectives. Harvest strategies use data and information to track the performance of the fishery over time. Such sources of information are known as indicators. These include things like biomass, catch rates, protected species interactions etc.

Maximum sustainable yield (MSY) – Highest yield of fish that can be harvested on a sustainable basis from a fish stock by a given number of fishing efforts within a period under existing environmental conditions.

Precautionary principle - A Fishery Manager's Guidebook issued in 2002 by the FAO advises that a set of working principles should be applied to "highlight the underlying key issues" of fisheries management." There are 8 principles that should be considered as a whole in order to best manage a fishery. The first principle focuses on the finite nature of fish stocks and how potential yields must be estimated based on the biological constraints of the population.

In a paper published in 2007, Shertzer and Prager suggested that there can be significant benefits to stock biomass and fishery yield if management is stricter and more prompt.[19] This is supported by recent work on the management of North Sea fisheries in accordance with ranges of acceptable fishing, where fishing at the top of the "acceptable" ranges is many times more risky than fishing near the bottom, but delivers only 20% more yield.

Stakeholders - Individuals or groups of individuals who are involved in utilization of fishery resources and have interests in the fisheries. In fishery statistics context, stakeholders refer to individuals or groups of individuals who are involved in the production and/or usage of fishery statistics for certain purposes.

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REFERENCES

1) Hornborg S, Belgrano A, Bartolino V, Valentinsson D, Ziegler F. (2013): Trophic indicators in fisheries: a call for re-evaluation. Biol Lett 9: 20121050. http://dx.doi.org/10.1098/rsbl.2012.1050

2) Julie De Wit, Jim Lafere and Luc Hens (2004): Indicators for Sustainable Development and Environmental Health Indicators for Flanders (Northern Belgium). Human Ecology Special Issue No. 12: 131-141

3) FAO (1999): Indicators for sustainable development of marine capture fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 8. Rome, FAO. 1999. 68p.

4) Elkington, J. (1997): Cannibals with Forks: The Triple Bottom Line of 21st Century Business. Capstone, Oxford.

5) United Nations (1993): Agenda 21: Earth's Action Plan. New York, Oceania Publications.

6) IUCN (1980): World Conservation Strategy. Living Resource Conservation for Sustainable Development. Gland, Switzerland, International Union for the Conservation of Nature & United Nation Environment Program, FAO/UNESCO: 44p.

7) Paterson, C.J., *et al*. (2012): Fisheries *refugia*: A novel approach to integrating fisheries and habitat management in the context of small-scale fishing pressure, Ocean & Coastal Management, http://dx.doi.org/10.1016/j.ocecoaman.2012.12.001

8) SEAFDEC (2003): Regional Guidelines for Responsible Fisheries In Southeast Asia: Fisheries Management, Southeast Asian Fisheries Development Center. Bangkok, Thailand. 69p.

9) Rapport D, Friend A (1979): Towards a comprehensive framework for environmental statistics: a stress-response approach. Statistics Canada Catalogue 11-510. Minister of Supply and Services Canada, Ottawa. 90 pp.

10) Delpeuch, C. and B. Hutniczak (2019): Encouraging policy change for sustainable and resilient fisheries, OECD Publishing, https://doi.org/10.1787/31f15060-en

11) FishStatJ (2016): Database and software for fishery statistical analysis. United Nations FAO. Accessed 28 June 2016. http://www.fao.org/fishery/statistics/software/fishstatj/en

12) SEAFDEC. (2019): SEAFDEC Gender Strategy—Mainstreaming gender in SEAFDEC and its programs. Southeast Asian Fisheries Development Center. Bangkok, Thailand.

13) GEF SEC (2018): Guidance to Advance Gender Equality in GEF Projects and Programs. Global Environment Facility. 33p.

14) Gordon HS (1954) The economic theory of a common-property resource: The fishery. J Pol Eco 62(2): 124-142.

15) Goodyear, C. P. (1993): Spawning stock biomass per recruit in fisheries management: foundation and current use. In Risk Evaluation and Biological Reference Points for Fisheries Management, 120, pp. 67–81. Ed. by S. J. Smith, J. J. Hunt, and D. Rivard. Canadian Special Publications of Fisheries Aquatic Sciences.

16) Walters, C. J., and Martell, S. J. D. (2004): Fisheries Ecology and Management. Princeton University Press, Princeton, USA.

17) Keith, D.A., Rodrí guez, J.P., Rodrí guez-Clark, K.M. *et al*.(2013): Scientific foundations for an IUCN Red List of Ecosystems. PLoS One, 8(5), e62111.

18) Keith, D.A. (2015): Assessing and managing risks to ecosystem biodiversity. Austral Ecol. 40, in press [doi:10.1111/aec.12249].

19) C.P. Harris (1986): Phytoplankton Ecology. Structure, Function, and Fluctuation Chapman and Hall, London.

20) D. Hernández-Becerril (1993): Fitoplancton marino en México. S. Salazar-Vallejo, N. González (Eds.), Biodiversidad marina y costera de México, CONOABIO & CIQRO, México (1993), pp. 39-53.

21) F.B. Metting Jr. (1996): Biodiversity and application of microalgae. J. Ind. Microbiol., 17 (1996), pp. 477-489

22) Y. Balkanski, P. Monfray, M. Battle, M. Heimann (1999): Ocean primary production derived from satellite data: an evaluation with atmospheric oxygen measurements. Global Biogeochem. Cycles, 13, pp. 257-271.

23) K. Muylaert, K. Sabbe, W. Vyverman (2000): Spatial and temporal dynamics of phytoplankton community in a freshwater tidal estuary (Schelde, Belgium) Estuar. Coast Shelf Sci., 50 (2000), pp. 673-687.

24) Akongyuure DN, Amisah S, Agyemang TK, et al. (2017): Tono reservoir fishery contribution to poverty reduction among fishers in Northern Ghana. Afr J Aquat Sci 42: 143–154.

25) Kabubo-Mariara J, Wambugu A, Musau S (2011): Multidimensional poverty in Kenya: Analysis of maternal and child wellbeing. PEP PMMA 12.

26) Ogutu SO, Qaim M (2018) Commercialization of the small farm sector and multidimensional poverty (No. 117). Global Food Discussion Papers.

27) Ray Hilborn, Carl J. Walters (1992): Quantitative Fisheries Stock Assessment. Springer, Boston, MA.

28) Alverson, D. L., Freeberg, M. H., Murawski, S. A., and Pope, J.G. (1994): A global assessment of fisheries bycatch and discards. FAO Fisheries Technical Paper, 339. FAO, Rome. 233pp.

29) Barange, M., & Perry, R.I. (2009): Physical and ecological impacts of climate change relevant to marine and inland capture fisheries and aquaculture In: Climate change implications for fisheries and aquaculture overview of current scientific Knowledge, Cochrane, K., Young, C. De, Soto, D., & Bahri, T. (Eds). FAO Fisheries and Aquaculture Technical paper: No. 530, pp. 7-106, FAO, Rome

30) Mantzouni, I., & Mackenzie, B. R. (2010): Productivity responses of a widespread marine piscivore, Gadus morhua, to oceanic thermal extremes and trends. Proc Biol Sci. Feb 10. [Epub ahead of print].

ANNEX 1: Fisheries *refugia* structural frameworks

ANNEX 9: ANNUAL EXPENDITURES VERSUS AUDIT REPORT

I. INTRODUCTION

Referring to the expenditures that have been quarterly reported by participating countries to the Project Coordination Unit (PCU) from Q1/2017 to Q1/2022, the PCU finds it is necessary to update each country on the adjustment of expenditures (actual expenditures) versus the audit reports. A comparison between the quarterly expenditure report with the consolidated audit reports as of 2018, 2019, and 2020 shows differences in the value of expenditures. This report aims to inform the country's actual expenditures based on the consolidated audit report during the past years, and the country's balanced budget, as of 31 December 2020.

II. EXPENDITURES VS AUDIT REPORT BY COUNTRY

The report focuses on four countries, namely Cambodia, Indonesia, Malaysia, and the Philippines. There is no problem for Thailand due to transferring to the Thai baht currency. For Viet Nam, there are no expenditures for the project implementation yet (see below Figure).

Year		CAMBODIA	INDONESIA	MALAYSIA	PHILIPPINES
As of 31 DECEMBER 2018	Expenditures	52,036.11	-	19,884.00	26,498.14
	Actual Expenditures	52,036.11	-	19,884.00	26,498.14
	VARIANCE	-	-	-	-
2019	Expenditures	71,378.25	16,290.12	44,760.00	67,273.36
	Actual Expenditures	71,378.25	16,290.12	43,236.60	67,282.88
	VARIANCE	-		(1,523.40)	9.52
2020	Expenditures	50,002.22	55,706.56	31,705.75	28,326.37
	Actual Expenditures	49,991.90	55,694.40	32,671.65	27,851.83
	VARIANCE	(10.32)	(12.16)	965.90	(474.54)
As of 31 DECEMBER 2020	Cumulative Expenditures	173,416.58	71,996.68	96,349.75	122,097.87
	Cumulative actual expenditures	173,406.26	71,984.52	95,792.25	121,632.85
	TOTAL VARIANCE	(10.32)	(12.16)	(557.50)	(465.02)

In the case of Cambodia, the PCU finds a variance of 10.32 USD in the 2020 expenditures report submitted to the PCU compared to the audit report, as shown in Ref. 1. For Indonesia, a variance between the expenditure report to PCU and the audit report for 2020 is 0.01 USD. Still, the audit report mentioned a Bank interest in the amount of 12.15USD to the bank account (See Ref.2). Accordingly, the balanced budget will be increased by 12.16 USD. For Malaysia, the actual expenditures in the audit report for 2019 are 1523.40 USD less than the expenditures reported to the PCU; in contrast, it is 965.90 USD higher than the expenditures reported to the PCU in 2020. The country's two-year overall expenses reported to PCU are 557.50 USD over the actual payments as of 31 December 2020 (Ref. 3). A similar case in the Philippines shows that the overall two-year expenditures reported to PCU are 465.02 USD higher than the actual payments as of 31 December 2020 (Ref. 4).

III. ACTIONS BY THE PROJECT STEERING COMMITTEE

- The committee is requested to consider variances between the expenditures reported to PCU and the actual expenditures audited by the Firm from 2018 to 2020.
- The committee may seek clarification from the PCU on the variance. At the same time, the Committee is also requested to adopt the proposed variances for further adjustment of the annual expenditures recorded by the concerned countries. Noting that the actual expenditures are related to the balanced budget of each participating country as of 31 December 2020.

Ref. 1: Actual Expenditures of 2020 for Cambodia

NB: The expenditures should be reported in line with the specific object of expenditures as per project budget Object of Expenditure in accordance with UNEP Budget codes			2020 Cambodia Expenditure incurred Amount						
	Code	Description	Q1	Q2	Q3	Q4	Total	Audit Report	Difference
10		PROJECT PERSONNEL COMPONENT							
	1100	Project Personnel w/m	2,700.00	1,650.00	2,700.00	2,700.00	9,750.00	9,750.00	-
	1200	Consultants w/m	600.00		3,202.00	3,950.00	7,752.00	7,752.00	-
	1600	Travel on official business (above staff)	12,113.00	596.25	2,582.50	546.25	15,838.00	15,838.00	-
	1999	Component Total	15,413.00	2,246.25	8,484.50	7,196.25	33,340.00	33,340.00	-
20		SUB-CONTRACT COMPONENT					-		
	2100	Sub-contracts (MoU's/LA's for UN cooperating agencies)					-	-	-
	2200	Sub-contracts (MoU's/LA's for non-profit supporting organizations)	450.00		2,000.00	3,000.00	5,450.00	5,450.00	-
	2300	Sub-contracts (commercial purposes)					-	-	-
	2999	Component Total	450.00	-	2,000.00	3,000.00	5,450.00	5,450.00	-
30		TRAINING COMPONENT					-		
	3200	Group training (study tours, field trips, workshops, seminars, etc)	4,093.50		1,215.00	1,210.00	6,518.50	6,518.50	-
	3300	Meetings/conferences (give title)			1,177.75	1,536.15	2,713.90	2,719.40	5.50
	3999	Component Total	4,093.50	-	2,392.75	2,746.15	9,232.40	9,237.90	5.50
40		EQUIPMENT & PREMISES COMPONENT					-		
	4100	Expendable equipment (items under $1,500 each, for example)	45.50		85.50	100.00	231.00	-	(231.00)
	4200	Non-expendable equipment (computers, office equip, etc)			400.00		400.00	626.00	226.00
	4300	Premises (office rent, maintenance of premises, etc)					-	-	-
	4999	Component Total	45.50	-	485.50	100.00	631.00	626.00	(5.00)
50		MISCELLANEOUS COMPONENT					-		
	5100	Operation and maintenance of equip.	46.00		46.00	200.00	292.00	-	(292.00)
	5200	Reporting costs (publications, maps, newsletters, printing, etc)	400.00		400.00	100.00	900.00	900.00	-
	5300	Sundry (communications, postage, freight, clearance charges, etc)	63.98	3.00	48.73	41.11	156.82	438.00	281.18
	5400	Hospitality and entertainment					-	-	-
	5500	Evaluation (consultants fees ETC)					-	-	-
	5999	Component Total	509.98	3.00	494.73	341.11	1,348.82	1,338.00	(10.82)
							-		
99	9999	GRAND TOTAL	20,511.98	2,249.25	13,857.48	13,383.51	50,002.22	49,991.90	(10.32)

NS

Ref. 2: Calculation for the adjusted Expenditures in 2020

Report 2020

Expenditure Financial Report 2020		Expenditure Audit Report 2020		Difference
Period	USD	Component	USD	USD
Q1/2020	3,285.29	1/2020	10,592.34	
Q2/2020	3,336.03	2/2020	38,400.00	
Q3/2020	9,700.00	3/2020	-	
Q4/2020	39,385.24	4/2020	6,714.21	
Total	55,706.56	Total	55,706.55	(0.01)
		Bank Interest		(12.15)
		Adjust Expenditure 2020		(12.16)

Ref. 3: Variances between the expenditures and Audit report in 2019 and 2020 for Malaysia

Country	Particulars	In U.S. Dollars 2019 Financial Report per consolidated	per country which different	Different
Malaysia				
	Current assets			
	Cash and cash equivalents	**61,003**	**62,526**	**(1,523)**
	EXPENDITURES	**44,760**	**43,232**	**1,528**
	Component I	25,809	24,953	856
	Component III	7,496	7,077	419
	Component IV	11,455	11,202	253

Report 2020

Expenditure Financial Report 2020		Expenditure Audit Report 2020		Difference
Period	USD	Component	USD	USD
Q1/2020	4,779.87	1/2020	22,784.91	
Q2/2020	2,067.63	2/2020	4,330.44	
Q3/2020	12,266.63	3/2020	1,328.50	
Q4/2020	12,591.62	4/2020	4,227.80	
Total	31,705.75	Total	32,671.65	965.90
		Adjust Expenditure 2020		965.90

Ref. 4: Variances between the expenditures and Audit report in 2019 and 2020 for the Philippines

Country	Particulars	In U.S. Dollars 2019 Financial Report per consolidated	per country which different	Different
Philippines				
	Current assets			
	Cash and cash equivalents	**56,346**	**56,194**	**152** = 152.27
	EXPENDITURES	**67,273**	**67,415**	**(142)** = (143.75)
	Component I	50,887	50,324	563
	Component II	13,376	13,326	50
	Component III	197	214	(17)
	Component IV	2,813	3,178	(365)
	Bank Service Charge	-	162	(162)
	Tax (2018)	-	587	(587)
	Exchange Loss/ (Gain)	-	(376)	376

2020

		in PhP	Ex Rate	in USD	
Revenues:					
Beg Balance, 1.1. 2020		1,499,788.16			
Add: Refund of Mr. Val Borja		3,126.83			
Less: Accrued Expenses	1,446,672.83				
Due to BIR	9,600.00	1,456,272.83			
Adjusted Balance		46,642.16	50.635	921.14	
Add: Receipt of Funds					
2.5.2020	989,291.20		50.450	19,609.34	
7.21.2020	1,055,159.00	2,044,450.20	49.100	21,490.00	48,099.34
Direct Payment		356,335.00	50.905	7,000.00	
Contribution from UNEP/GEF		**2,447,427.36**		**49,020.48**	
Exchange (Loss)					
Financial Audit Fee CY 2019 paid		101,120.00			
Amount Credited 11.17.2020		100,562.40			
Exchange Loss/Misc. Exp.		**557.60**			

PCU Transfer Q1/2020 = USD 26,619.34 **Receipt** = USD 26,609.34

Q3/2020 = USD 21,500. - = USD 21,490. –

TOTAL = USD 48,119.34 = USD 48,099.34

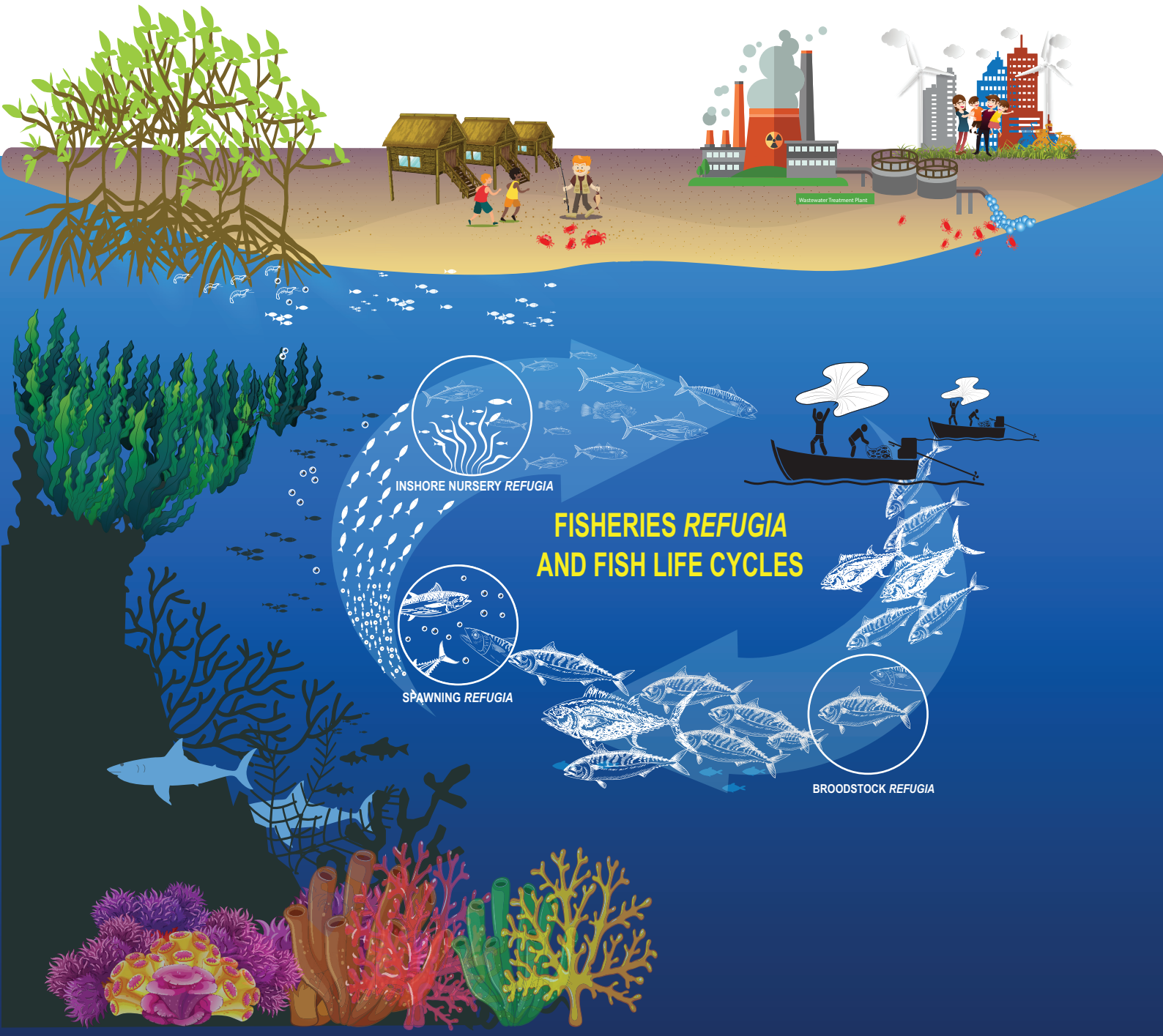
Bank charges = USD (48,119.34 - 48,099.34) = USD 20.-

Difference expenditure from Audit Report =USD (28,424.57 – 28,326.37) = USD 98.20

Total Expenditure = USD (20 + 98.20) = **USD 118.20**

Exchange Gain = USD 592.74

The Establishment and Operation of A Regional System of Fisheries *Refugia* in the South China Sea and Gulf of Thailand is a part of Strategic Action Programme for the South China Sea



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