

**REPORT OF  
THE FORTY-FIFTH MEETING OF THE PROGRAM COMMITTEE  
OF THE SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER**

Iloilo City, Philippines

5 – 7 December 2022



**THE SECRETARIAT  
SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER**

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## EXECUTIVE SUMMARY

The Forty-fifth Meeting of the Program Committee (45PCM) of the Southeast Asian Fisheries Development Center (SEAFDEC) was organized from 5 to 7 December 2022 in Iloilo City, Philippines and hosted by the SEAFDEC Aquaculture Department (AQD). The Secretary-General of SEAFDEC, in her capacity as the Chairperson of SEAFDEC Program Committee, chaired the Meeting which reviewed the programs implemented by SEAFDEC in 2022 and scrutinized the programs to be implemented in 2023 to ensure that these have been formulated and implemented in line with the priorities and needs of the Member Countries. The list of SEAFDEC Programs and Projects in 2022 and those for implementation in 2023 appears in *Appendix 1*.

The 45PCM noted **Programs under the FCG/ASSP Mechanism**, which comprise nineteen (19) projects that have been categorized under the six (6) SEAFDEC Strategies: 1) Securing the sustainability of fisheries to contribute to food security, poverty alleviation and livelihood of people in the region; 2) Supporting the sustainable growth of aquaculture to complement fisheries and contribute to food security, poverty alleviation and livelihood of people in the region; 3) Ensuring the food safety and quality of fish and fishery products for the Southeast Asian region; 4) Enhancing trade and compliance of the region's fish and fishery products with market requirements; 5) Addressing cross-cutting issues, such as labor, gender and climate change, where related to international fisheries; and 6) Empowering SEAFDEC to strengthen its roles in the region and to improve its services to Member Countries; and five (5) new projects that are scheduled to commence in 2023. In addition, the 45PCM noted one (1) Pipeline Project, of which SEAFDEC is under discussion with potential donors for funding support and implementation. After the deliberations, the 45PCM approved the implementation of the implementation of the projects in 2022 and those for implementation in 2023, and provided recommendations on the Pipeline Project, which are summarized as follows:

### **Strategy I: Securing the sustainability of fisheries to contribute to food security, poverty alleviation and livelihood of people in the region**

#### **(1) Strengthening a Regional Cooperation and Enhancing National Capacities to Eliminate IUU Fishing in Southeast Asia**

- TD to work with the Fisheries Administration (FiA) of Cambodia on fish catch monitoring at landing sites
- TD to develop a handbook on Monitoring, Control and Surveillance (MCS) prior to the conduct of the training to ensure effectiveness of the training
- TD to discuss with FAO regarding the integration of the Database on Regional Fishing Vessels Record (RFVR Database) with the FAO Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels (Global Record) subject to confirmation from the AMSs on their intention to share the data with FAO
- AMSs to raise the issue of integrating the RFVR Database and the FAO Global Record at the FAO/COFI meeting in order to facilitate the process of integration of the RFVR Database and Global Record
- TD to include an activity on the FAO Voluntary Guidelines for Transshipment in the Project activity for 2023
- TD to explore the possibility of organizing an online regional meeting inviting the AMSs and representatives from AN-IUU and RPOA-IUU to discuss on how the three platform could complement each other in combating IUU fishing
- TD to support Malaysia to organize training for stakeholders in Malaysia and IT experts to facilitate the harmonization of eACDS with the existing traceability system in the country
- TD to consider continuing activities on regional training course on Port States Measures in Inspection focusing on other modes of transportation other than shipping container
- AMSs to share experiences to SEAFDEC on the process to develop eACDS

#### **(2) Harmonization and Enhancing Utilization of Fishery Statistics and Information**

- The 45PCM took note of the progress of this Project in 2022

#### **(3) Responsible Fishing Technology and Practice**

- TD to strengthen the capacity of the AMSs in the assessment of abandoned, lost, or otherwise discarded fishing gear (ALDFG) and fishing gear marking by organizing training and online seminar following the FAO Voluntary Guidelines on the Marking of Fishing Gear



- TD to consider the development of technologies to improve fuel efficiency, especially for small-scale fishing vessels
  - TD to share the information to Malaysia on the experiment on the efficiency comparison between the use of Vee type and rectangular flat otter boards of trawls in the Gulf of Thailand by M.V. PLALUNG as well as consider the possibility of having officers from the Fisheries Research Institute Kampung Acheh, Malaysia to participate in such activity
  - TD to provide a regional platform to share experience and discuss mitigation measures on the impacts of climate change on the fisheries sector based on the outcomes of the M.V. PLALUNG's activities on innovation and technology for optimizing energy use and carbon emission reduction
  - TD to include research on fishing gear and technologies that could reduce the incidental catch of marine mammals
- (4) Research for Enhancement of Sustainable Utilization and Management of Sharks and Rays in the Southeast Asian Region**
- SEAFDEC to follow up on the movement of CITES-related issues, review the proposed listings based on scientific evidence, and facilitate the Member Countries to develop common positions related commercially-exploited aquatic species (CEAS)
  - SEAFDEC to conduct activities on the identification of priority key shark species to build capacity on data collection and stock assessment
  - AMSs to consider having a sub-regional collaboration for the management of sharks and rays
- (5) Sustainable Utilization of Fisheries Resources and Resources Enhancement in Southeast Asia**
- TD to explore GIS applications that could generate images in better resolution for the conduct of future training courses on GIS for marine resources management
- (6) Fisheries Management Strategies for Pelagic Fish Resources in the Southeast Asian Region**
- AMSs to consider the results of the study conducted by MFRDMD as a scientific reference and develop their respective national fisheries management plans
- (7) Management Scheme of Inland Fisheries in the Southeast Asian Region**
- IFRDMD to consult with the Inland Fisheries Research and Development Institute of Cambodia and other development partners to supplement the research activities on fish catch monitoring in inland fisheries
  - IFRDMD to consider Thailand to be one of the project sites to apply the Special Area for Conservation and Fish *Refugia* (SPECTRA) system
  - IFRDMD to include fisheries management in reservoirs in this Project
  - IFRDMD to consider conducting activities in Malaysia with the objective to improve the management of inland fisheries in Malaysia, especially in East Malaysia (*i.e.* Sabah and Sarawak)
- (8) Small-scale Fisheries Management for Better Livelihood and Fisheries Resources**
- TD to consider providing additional activities such as training or extension to assist EAFM pilot sites in Cambodia to implement their fisheries management plan
  - SEAFDEC to follow up on the previous training and facilitate the management plan at the pilot site in Lao PDR
- (9) Establishment and Operation of a Regional System of Fisheries *Refugia* in the South China Sea and Gulf of Thailand**
- The 45PCM noted the project technical closure will be completed by December 2022 and financial closure by June 2023
  - Project participating countries, namely: Cambodia, Indonesia, Malaysia, Philippines, Thailand, and Viet Nam to submit their respective audited financial reports for 2022 to SEAFDEC by 31 March 2023
- (10) Strengthening the Effective Management Scheme with GIS (Geographic Information System) & RS (Remote Sensing) Technology for Inland Fisheries and Aquaculture at AMS**
- The 45PCM took note of the progress of this Project in 2022 and the completion of the Project by December 2022 was also noted

**(11) Sustainable Utilization of Anguillid Eels in the Southeast Asian Region**

- SEAFDEC to provide technical assistance to Malaysia and Myanmar on the breeding technology of tropical eels

**(12) Development of Stock Assessment Methods and Strengthening of Resources Management Measures for Tropical Anguillid Eel in Southeast Asia**

- The 45PCM took note of the progress of this Project in 2022

**(13) Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia**

- TD to refer to the FAO Voluntary Guidelines on the Marking of Fishing Gear in developing the technical manual for fishing gear marking especially for the AMSs with multigears

**(14) ASEAN-JICA Capacity Building Project on IUU Fishing Countermeasures in Southeast Asia**

- The 45PCM took note of the Project status and proposed activities for 2023, SEAFDEC Secretariat to circulate to the Program Committee *ad referendum* the information on the proposal once agreed by JICA

**Strategy II: Supporting the sustainable growth of aquaculture to complement fisheries and contribute to food security, poverty alleviation and livelihood of people in the region**

**(15) Sustainable Aquaculture through Cost-Effective Culture Systems, and Prompt and Effective Aquatic Animal Health Management**

- SEAFDEC to consider mentioning the title of activities from “training course” to “knowledge sharing” or “seminar” when sending invitation letters to Myanmar in order to enable the participation of the representatives in the event

**Strategy III: Ensuring the food safety and quality of fish and fishery products for the Southeast Asian region**

**(16) Enhancing Food Safety and Competitiveness of Seafood Products**

- The 45PCM took note of the progress of this project in 2022

**(17) ASEAN-JICA Food Value Chain Development Project**

- The 45PCM took note of the Project status and proposed activities for 2023, SEAFDEC Secretariat to circulate to the Program Committee *ad referendum* the information on the proposal once agreed by JICA
- SEAFDEC to consider the inclusion of the study on zoonotic diseases in addition to the study on parasites in fish

**Strategy IV :Enhancing trade and compliance of the region’s fish and fishery products with market requirements**

- This strategy has no project in 2022

**Strategy V: Addressing cross-cutting issues, such as labor, gender and climate change, where related to international fisheries**

**(18) Assistance for Capacity Development in the Region to Address International Fisheries-related Issues**

- SEAFDEC Secretariat to continue facilitating the ASEAN-SEAFDEC platform to review regional proposals and develop common positions to be conveyed to CITES CoP meetings
- SEAFDEC Secretariat to conduct a regional workshop or webinar on the U.S. Maritime Security and Fisheries Enforcement Act or Maritime Safe Act

## **Strategy VI: Empowering SEAFDEC to strengthen its roles in the region and to improve its services to Member Countries**

### **(19) Fisheries Resource Survey and Operational Plan for the M.V. SEAFDEC 2**

- AMSs requesting to use the M.V. SEAFDEC or M.V. SEAFDEC 2 to submit the “Request for Utilization of SEAFDEC Research Vessel” form to SEAFDEC together with an official letter requesting the use of the research vessels
- SEAFDEC to consider the request from Brunei Darussalam to use the M.V. SEAFDEC 2 for the marine fisheries resources and environmental surveys in the coming years
- SEAFDEC to consider the request from Malaysia to use the M.V. SEAFDEC 2 for an acoustic survey in 2024 subject to the availability of the budget from Malaysia
- SEAFDEC to provide capacity-building programs to the Philippines on the analysis of data from hydroacoustic equipment EK80
- SEAFDEC to coordinate with Myanmar on the cruise plan and to obtain the official letter and request form for the utilization of M.V. SEAFDEC 2 for the fishery resource survey in Myanmar

### **New Projects**

#### **(20) USAID/SEAFDEC/Sustainable Fish Asia-SEA Project**

- SEAFDEC to consult with USAID SUFIA to include the activities, namely: 1) improving the efficiency of aquatic animal traceability to deal with the U.S. MMPA, and 2) improving the knowledge of fisheries officers of determining the cause of death of marine mammals to enhance the capacity of the AMSs to comply with the U.S. MMPA in the USAID SUFIA Project
- AMSs to share information with SEAFDEC on technical issues faced when dealing with NOAA on comparability findings and how SEAFDEC could support the AMSs to solve these issues in order to serve as inputs for the development of appropriate activities under this Project

#### **(21) Sustainable Management of Fisheries, Marine Living Resources and Their Habitats in the Bay of Bengal Region for the Benefit of Coastal States and Communities**

- The 45PCM took note of the Project status in 2022 and SEAFDEC Secretariat to circulate to the Program Committee *ad referendum* the information on the proposal once agreed by FAO

#### **(22) Promoting the Blue Economy and Strengthening Fisheries Governance of the Gulf of Thailand through the Ecosystem Approach to Fisheries (GoTFish Project)**

- The 45PCM took note of the Project status in 2022 and SEAFDEC Secretariat to circulate to the Program Committee *ad referendum* the information on the proposal once agreed by FAO

#### **(23) Blue Horizon: Ocean Relief through Seaweed Aquaculture**

- The 45PCM took note of the Project status in 2022 and SEAFDEC Secretariat to circulate to the Program Committee *ad referendum* the information on the proposal once agreed by WWF-US

#### **(24) Regional Technical Consultation on Aquatic Animal Health Emergencies in Southeast Asia**

- The 45PCM took note of the Project status in 2022

The 45PCM endorsed the progress of the **Departmental Programs** in 2022 which comprise eight (8) programs, five (5) of which were implemented by AQD, namely; 1) Quality Seed for Sustainable Aquaculture; 2) Healthy and Wholesome Aquaculture; 3) Maintaining Environmental Integrity through Responsible Aquaculture; 4) Meeting Social and Economic Challenges in Aquaculture; and 5) Collaborative Projects with the Philippine Government; and three (3) by TD, namely: 1) Promotion on Strengthening of SEAFDEC Visibility and Enhancing Human Capacity Building; 2) Improvement of Fisheries Technology and Reduction of the Impact from Fishing Activities; and 3) USAID Sustainable Fish Asia Local Capacity Development Activity. The 45PCM then provided recommendations on these programs which could be summarized as follows:

#### **1. Aquaculture Department**

- AQD to extend expertise on genomic selection and application of artificial intelligence (AI) technology in the broodstock development program for economically important fish species, such as groupers, seabasses, giant tiger prawn, whiteleg shrimp
- AQD to transfer milkfish breeding technologies through either the conduct of a training program at AQD or a visit of AQD researchers to Malaysia

- AQD to share the information and knowledge of the use of local materials to produce good quality local fish feed
- AQD to provide technical assistance on specific pathogen-free (SPF) for *Penaeus monodon*, as it aligned with the project proposal under the ASEAN Shrimp Alliance (ASA)
- AQD to organize an online meeting to discuss the future collaboration between Myanmar and AQD on how to support the work of the new research department under the Ministry of Agriculture, Livestock and Irrigation of Myanmar
- AQD to explore the possibility of sending missions to Cambodia every year to support the aquaculture development of the country. Detailed information on the required support from AQD would be discussed later so that the experiences of AQD could be shared with the country

## 2. Training Department

- TD to consider the possibility of conducting activities that has moved toward in the adoption of EAFM plan to facilitate sharing of experience between the fisheries management areas (FMAs) in the Philippines and Thailand
- TD to share the results of the organizational capacity assessments, *e.g.* strengths and weaknesses, with the Member Countries

The 45PCM took note of the activities of the **Other Programs** implemented in 2022 and approved the proposed activities for 2023 which comprise six (6) programs, four (4) of which were implemented by TD, namely: 1) Implementing the Lower Mekong Fish Passage Initiative in Cambodia, Thailand, and Viet Nam; 2) Gender Dimension in the Value Chain of Small-scale Fisheries & Aquaculture in Southeast Asia; 3) Implementing the Strategic Action Programme for the South China Sea; 4) Survey to Estimate levels of Abandoned, Lost or otherwise Discarded Fishing Gear in Thailand Gillnet and Trap Fisheries; one (1) program would be implemented by AQD on “Seminar-Workshop on Aquaculture Development in Southeast Asia (ADSEA)”; and one (1) program was implemented by the SEAFDEC Secretariat on “Collection of Research and Datasets from Data-poor Countries in Southeast Asia Related to SDG Indicator 14.4.1 and Formulation of a Thesaurus for Aquatic Genetic Resource”. The 45PCM then provided recommendations on these programs which could be summarized as follows:

- (1) Implementing the Lower Mekong Fish Passage Initiative in Cambodia, Thailand, and Viet Nam**
  - The 45PCM noted the progress and achievements this Other Program of TD and also noted that the Program has been successfully completed in 2022
  - The 45PCM noted that there is still some unspent budget from the project that could still be used in 2023 for monitoring the performance of fish passages constructed under this project.
- (2) Gender Dimension in the Value Chain of Small-scale Fisheries and Aquaculture in Southeast Asia**
  - The 45PCM noted the progress and achievements this Other Program of TD and also noted that the Program has been successfully completed in 2022
- (3) Implementing the Strategic Action Programme for the South China Sea**
  - The 45PCM noted the progress and achievements of this Other Program of TD
- (4) Seminar-Workshop on Aquaculture Development in Southeast Asia (ADSEA)**
  - The 45PCM was informed by AQD that the ADSEA would be conducted through face-to-face, hybrid, or online mode in 2023
  - AQD to consider emphasizing and promoting both freshwater and marine aquaculture which could enhance the mutual interest of the region in the ADSEA program
- (5) Survey to Estimate levels of Abandoned, Lost or otherwise Discarded Fishing Gear in Thailand Gillnet and Trap Fisheries**
  - The 45PCM noted the progress and achievements this Other Program of TD and also noted that the Program has been successfully completed in 2022
- (6) Collection of Research and Datasets from Data-poor Countries in Southeast Asia Related to SDG Indicator 14.4.1 and Formulation of a Thesaurus for Aquatic Genetic Resource**
  - The 45PCM noted the progress and achievements this Other Program of Secretariat and also noted that the Program has been successfully completed in 2022

The 45PCM also took note of the status of the one (1) **Pipeline Project** as follow:

**(1) Implementation and Assessment of the ASEAN Regional Plan of Action for the Management of Fishing Capacity**

- The project proposal was submitted to the Japan-ASEAN Integration Fund (JAIF) for possible funding support and is now under final consideration by Japan
- The 45PCM approved this Project to be placed under the FCG/ASSP mechanism and for the Project to be implemented in 2023 once the fund could be secured
- SEAFDEC to assist the Member Countries to monitor their ratification and implementation of the United Nations Fish Stock Agreement (UNFSA)
- MFRDMD to identify key target species that are common for several countries as the focus of the Project and the framework of managing fishing capacity should be based on the stock status

The 45PCM noted the statements delivered virtually by non-member governments and international/regional organizations, namely: Food and Agriculture Organization of the United Nations (FAO), Regional Office for Asia and the Pacific, United States Agency for International Development/Regional Development Mission for Asia (USAID/RDMA), and World Wildlife Fund (WWF).

The 45PCM took note of the progress of monitoring and evaluation of the implementation of the RES&POA-2030, including the preliminary report of the 2021 Baseline Information. The 45PCM also noted the request made by the SEAFDEC Secretariat for the AMSs that have not yet submitted inputs to the 2021 Baseline Information to submit their respective inputs by the end of January 2023.

While expressing gratitude to the Government of Japan for allocating funds to SEAFDEC, the 45PCM noted on the update JTF budget request process from the Government of Japan. The AMSs was urged to cooperate in promoting the roles and contribution of SEAFDEC to the sustainable fisheries development in the region and convey the significance of SEAFDEC activities and contributions from the Government of Japan during various ASEAN fora, such as the AMAF and the AMAF Plus Three.

The 45PCM took note of the outline of Japanese Trust Fund-7 which is expected to succeed the JTF-6 Phase II for a period of five years from 2025 to 2029, and also noted that the budget request process for JTF-7 will proceed every year according to the single-year basis of the Government of Japan.

The 45PCM took note of the requirements of the Letter of Agreement (LOA) to Support the Implementation of National Activities under SEAFDEC Projects. Specifically, the 45PCM noted that LOA should be signed by the SEAFDEC Secretary-General and respective Council Directors prior to transferring grants from SEAFDEC to the Member Countries for the implementation of national activities under the LOA.

The Program Committee adopted the Report of the 45<sup>th</sup> Meeting of the SEAFDEC Program Committee for submission to the 55<sup>th</sup> Meeting of SEAFDEC Council, and to the ASEAN through the 25<sup>th</sup> Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP)

## SEAFDEC PROGRAMS AND PROJECTS FOR THE YEAR 2022–2023

## I. Projects under FCG/ASSP Mechanism

## Ongoing Project

Strategy/Project Title		Lead Department	2022	2023
<b>Strategy I: Securing the sustainability of fisheries to contribute to food security, poverty alleviation and livelihood of people in the region</b>				
1	Strengthening a Regional Cooperation and Enhancing National Capacities to Eliminate IUU Fishing in Southeast Asia	TD	Y	Y
2	Harmonization and Enhancing Utilization of Fishery Statistics and Information	SEC	Y	Y
3	Responsible Fishing Technology and Practice	TD	Y	Y
4	Research for Enhancement of Sustainable Utilization and Management of Sharks and Rays in the Southeast Asian Region	MFRDMD	Y	Y
5	Sustainable Utilization of Fisheries Resources and Resources Enhancement in Southeast Asia	TD	Y	Y
6	Fisheries Management Strategies for Pelagic Fish Resources in the Southeast Asian Region	MFRDMD	Y	Y
7	Management Scheme for Inland Fisheries in the Southeast Asian Region	IFRDMD	Y	Y
8	Small-scale Fisheries Management for Better Livelihood and Fisheries Resources	TD	Y	Y
9	Establishment and Operation of a Regional System of Fisheries <i>Refugia</i> in the South China Sea and Gulf of Thailand	TD	Y	N
10	Strengthening the Effective Management Scheme with GIS (Geographic Information System) & RS (Remote Sensing) Technology for Inland Fisheries and Aquaculture at AMS	TD	Y	N
11	Sustainable Utilization of Anguillid Eels in the Southeast Asian Region	IFRDMD	Y	Y
12	Development of Stock Assessment Method for Strengthening of Resources Management Measures of Tropical Anguillid Eels in AMS	SEC	Y	Y
13	Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia	TD	Y	Y
14	ASEAN-JICA Capacity Building Project on IUU Fishing Countermeasures in Southeast Asia	TD	N	Y
<b>Strategy II: Supporting the sustainable growth of aquaculture to complement fisheries and contribute to food security, poverty alleviation and livelihood of people in the region</b>				
15	Sustainable Aquaculture through Cost-Effective Culture Systems, and Prompt and Effective Aquatic Animal Health Management	AQD	Y	Y
<b>Strategy III: Ensuring the food safety and quality of fish and fishery products for the Southeast Asian region</b>				
16	Enhancing Food Safety and Competitiveness of Seafood Products	MFRD	Y	Y
17	ASEAN-JICA Food Value Chain Development Project	SEC	N	Y
<b>Strategy IV: Enhancing trade and compliance of the region's fish and fishery products with market requirements</b>				
	Nil			

Strategy/Project Title		Lead Department	2022	2023
<b>Strategy V: Addressing cross-cutting issues, such as labor, gender and climate change, where related to international fisheries</b>				
18	Assistance for Capacity Development in the Region to Address International Fisheries-related Issues	SEC	Y	Y
<b>Strategy VI: Empowering SEAFDEC to strengthen its roles in the region and to improve its services to Member Countries</b>				
19	Fisheries Resource Survey & Operational Plan for M.V. SEAFDEC 2	TD	Y	Y

### New Projects

Project Title		Lead Department	Period
20	USAID/SEAFDEC/Sustainable Fish Asia-SEA Project	TD	2023–2027
21	Sustainable Management of Fisheries, Marine Living Resources and Their Habitats in the Bay of Bengal Region for the Benefit of Coastal States and Communities	TD	2023–2026
22	Promoting the Blue Economy and Strengthening Fisheries Governance of the Gulf of Thailand through the Ecosystem Approach to Fisheries (GoTFish Project)	TD	2023–2027
23	Blue Horizon: Ocean Relief through Seaweed Aquaculture	SEC, AQD	2023–2026
24	Regional Technical Consultation on Aquatic Animal Health Emergencies in Southeast Asia	AQD	2023

### II. Departmental Programs

No.	Program Title	Responsible Department
1	Quality Seed for Sustainable Aquaculture	AQD
2	Healthy and Wholesome Aquaculture	AQD
3	Maintaining Environmental Integrity through Responsible Aquaculture	AQD
4	Meeting Socio-economic Challenges in Aquaculture	AQD
5	Collaborative projects with the Philippine Government	AQD
6	Promotion on Strengthening of SEAFDEC Visibility and Enhancing Human Capacity Building	TD
7	Improvement of Fisheries Technology and Reduction of the Impact from Fishing Activities	TD
8	SEAFDEC Capacity Development through USAID Sustainable Fish Asia Activity	TD

### III. Other Programs

No.	Program Title	Responsible Department	Period
1	Implementing the Lower Mekong Fish Passage Initiative in Cambodia, Thailand, and Viet Nam	TD	2018–2022
2	Gender Dimension in the Value Chain of Small-scale Fisheries & Aquaculture in Southeast Asia	TD	2020–2022
3	Implementing the Strategic Action Programme for the South China Sea and Gulf of Thailand	TD	2018–2023
4	Survey to Estimate levels of Abandoned, Lost or otherwise Discarded Fishing Gear in Thailand Gillnet and Trap Fisheries-ALDFG	TD	2021–2022
5	Seminar-Workshop on Aquaculture Development in Southeast Asia (ADSEA)	AQD	2023

No.	Program Title	Responsible Department	Period
6	Collection of Research and Datasets from Data-poor Countries in Southeast Asia Related to SDG Indicator 14.4.1 and Formulation of a Thesaurus for Aquatic Genetic Resource	SEC	2022

#### IV. Pipeline Projects

No.	Project Title	Responsible Department
1	Implementation and Assessment of the ASEAN Regional Plan of Action for the Management of Fishing Capacity	MFRDMD

Y = Program implemented during the year

N = Program not implemented during the year





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## LIST OF ACRONYMS

ACDS	ASEAN Catch Documentation Scheme
AHPND	Acute Hepatopancreatic Necrosis Disease
AMAF	ASEAN Ministers on Agriculture and Forestry
AMSs	ASEAN Member States
APFIC	Asia Pacific Fisheries Commission
AQD	SEAFDEC Aquaculture Department
ARs	Artificial Reefs
ASEAN	Association of Southeast Asian Nations
ASSP	ASEAN-SEAFDEC Strategic Partnership
ASWGF	ASEAN Sectoral Working Group on Fisheries
BOBLME	Bay of Bengal Large Marine Ecosystem
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DOF	Department of Fisheries
EAFM	Ecosystem Approach to Fisheries Management
EEZs	Exclusive Economic Zones
EMS	Early Mortality Syndrome
ETP Species	Endangered, Threatened and Protected Species
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FCG	ASEAN-SEAFDEC Fisheries Consultative Group
FEDs	Fish Enhancing Devices
GEF	Global Environmental Facility
GIS	Geographic Information System
IFRDMD	SEAFDEC Inland Fishery Resources Development and Management Department
ILO	International Labour Organization
IOTC	Indian Ocean Tuna Commission
IUCN	The International Union for Conservation of Nature
IUU Fishing	Illegal, Unreported and Unregulated Fishing
JAIF	Japan-ASEAN Intergration Fund
JICA	Japan International Cooperation Agency
JTED	Juvenile and Trash Excluder Devices
JTF	Japanese Trust Fund
MCS	Monitoring, Control and Surveillance
MCs	Member Countries
MFRD	SEAFDEC Marine Fisheries Research Department
MFRDMD	SEAFDEC Marine Fishery Resources Development and Management Department
NACA	Network of Aquaculture Centres in Asia-Pacific
NDFs	Non Detriment Findings
NPOA	National Plan of Action
PCM	SEAFDEC Program Committee Meeting
PSM	Port State Measures
PSMA	Port State Measures Agreement
RFMOs	Regional Fisheries Management Organizations
RFPN	Regional Fisheries Policy Network
RFVR	Regional Fishing Vessels Record
RPOA	Regional Plan of Action
RS	Remote Sensing
RTC	Regional Technical Consultation
SEAFDEC	Southeast Asian Fisheries Development Center
SEASOFIA	Southeast Asian State of Fisheries and Aquaculture
SDGs	Sustainable Development Goals
SOM-AMAF	Senior Officials Meeting of the ASEAN Ministers on Agriculture and Forestry
SOP	Standard Operating Procedure
TAC	Total Allowable Catch
TiLV	Tilapia Lake Virus
TD	SEAFDEC Training Department
UNEP	United Nations Environment Programme
USAID	U.S. Agency for International Development

US-DOI  
VMS  
WCPFC

U.S. Department of Interior  
Vessel Monitoring System  
Western and Central Pacific Fisheries Commission



**REPORT OF THE FORTY-FIFTH MEETING OF THE PROGRAM COMMITTEE OF THE  
SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER**

**Iloilo City, Philippines  
5–7 December 2022**

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**INTRODUCTION**

1. The Forty-fifth Meeting of the Program Committee (45PCM) of the Southeast Asian Fisheries Development Center (SEAFDEC) was organized in Iloilo City, Philippines on 5–7 December 2022 and hosted by the SEAFDEC Aquaculture Department (AQD).

2. The 45PCM was attended by the SEAFDEC Program Committee Members for Brunei Darussalam, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam together with their respective delegations. The SEAFDEC Secretary-General, Deputy Secretary-General, and Department Chiefs as ex-officio members of the SEAFDEC Program Committee together with officers from the SEAFDEC Secretariat and Departments also attended the 45PCM. The list of participants appears in **Annex 1**. Moreover, the representatives from the collaborating partners of SEAFDEC, namely: Food and Agriculture Organization of the United Nations (FAO), United States Agency for International Development/Regional Development Mission for Asia (USAID/RDMA), and World Wildlife Fund (WWF-US) also virtually delivered statements during Agenda 5 Cooperation with Donors, Non-member Government and International/Regional Organization.

**I. OPENING OF THE MEETING**

3. The Chief of AQD, *Mr. Dan Baliao*, welcomed the participants of the 45PCM to Iloilo City, Philippines. He reiterated the proposal made by AQD in 2019 to host the SEAFDEC Program Committee Meeting in Iloilo City, Philippines in 2020, however, the face-to-face meeting was not possible at that time due to the COVID-19 pandemic making hosting the Meeting by AQD postponed until 2022 when the situation has improved. Moreover, he emphasized the importance of the PCM in reviewing the activities and achievements of the SEAFDEC programs and projects conducted by the SEAFDEC Departments and ensuring that they are aligned with the needs of the SEAFDEC Member Countries. As part of the 45PCM, the participants will also have the opportunity to visit and observe the facilities at the AQD's Tigbauan Main Station. He looked forward to having a fruitful discussion and sharing of views during the 45PCM and wished the participants to have a comfortable and safe stay in Iloilo City. His Welcome Remarks appear in **Annex 2**.

4. The Secretary-General of SEAFDEC, *Ms. Malinee Smithrithee*, in her capacity as Chairperson of the Program Committee, welcomed the participants to the 45PCM in Iloilo City, Philippines. While expressing gratitude to AQD for hosting the Meeting, she informed the participants that this 45PCM was intended to provide a forum for presentation and discussion of the progress of SEAFDEC programs of activities in 2022 as well as to obtain the endorsement of those proposed for 2023. The results of the 45PCM would be further submitted to the Fifty-fifth Meeting of the SEAFDEC Council scheduled in 2023 for approval, as well as to the ASEAN mechanism through the Twenty-fifth Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (25FCG/ASSP) to be organized back-to-back with this 45PCM. She then encouraged the Program Committee to provide comments and advice to ensure that SEAFDEC programs and projects would pave the way toward sustainable development of fisheries in the region. With that note, she declared the 45PCM open. Her Opening Remarks appear in **Annex 3**.

5. On behalf of the President of the Philippines and Acting Secretary of the Department of Agriculture, *H.E. Ferdinand R. Marcos, Jr.*, the Officer-in-Charge of the Bureau of Fisheries and Aquatic Resources, *Atty. Demosthenes R. Escoto*, delivered the Keynote Speech. *Atty. Escoto* extended congratulations to the SEAFDEC Member Countries on the occasion of the Center's first physical meeting of the SEAFDEC Program Committee since the COVID-19 pandemic. He reiterated that in the 55 years since the Philippines joined SEAFDEC, the organization has been indispensable in ensuring food security through the development of fisheries and aquaculture in Southeast Asia. He then encouraged the participants of the 45PCM to review and evaluate the activities of the SEAFDEC to make sure that there is complementation in the implementation of programs and projects. Finally, he reaffirmed the pledge of the Government of the Philippines to cooperate in solving the substantive issues faced by the fisheries sector in the years ahead. His Keynote Speech appears in **Annex 4**.



## II. ADOPTION OF THE AGENDA AND ARRANGEMENTS OF THE MEETING

6. The Agenda which appears as **Annex 5** was adopted.

## III. REVIEW OF SEAFDEC PROGRAM IMPLEMENTATION FOR THE YEAR 2022 AND PROPOSED PROGRAMS FOR THE YEAR 2023

7. The 45PCM took note of the progress and achievements of the nineteen (19) ongoing projects and five (5) new projects under the FCG/ASSP Mechanism, eight (8) Departmental Programs, six (6) Other Programs, and one (1) Pipeline Project as reported by the SEAFDEC Secretariat and Departments. It was noted that the progress and achievements of the programs and projects implemented in 2022 and the activities proposed for 2023, incorporating the recommendations of the 45PCM, would be submitted to the SEAFDEC Council at its 55<sup>th</sup> Meeting and the higher authority of ASEAN through the 25FCG/ASSP for approval.

### 3.1 Program under the FCG/ASSP Mechanism

8. The 45PCM noted the progress and achievements of the programs implemented by the SEAFDEC Secretariat and the Departments in 2022 as well as the activities proposed for 2023 under the FCG/ASSP Mechanism (**Annex 6**). The 45PCM approved the proposed activities and suggested the ways and means that could pave the way for improving the projects and activities as follows:

#### 3.1.1 Strategy I: Securing the sustainability of fisheries to contribute to food security, poverty alleviation and livelihood of people in the region

##### (1) **Strengthening a Regional Cooperation and Enhancing National Capacities to Eliminate IUU Fishing in Southeast Asia**

9. The 45PCM took note of the progress and proposed activities for 2023 under this Project as presented by the representative from Training Department (TD).

10. While congratulating SEAFDEC for its achievements in the Project implementation, the Program Committee Member for Cambodia informed the 45PCM that Cambodia is conducting fish catch monitoring at eight landing sites. He, therefore, requested SEAFDEC to work closely with the Fisheries Administration (FiA) and FAO experts in FiA Cambodia on this matter. He also informed the 45PCM that the pilot implementation of the electronic ASEAN Catch Documentation Scheme (eACDS) in Cambodia which was introduced in 2022 would continue in 2023.

11. The Program Committee Member for Viet Nam expressed appreciation to SEAFDEC for conducting the activity on combating IUU fishing and recommended SEAFDEC check the missing report of the “Regional Workshop on Monitoring, Control and Surveillance for Combating IUU Fishing in Southeast Asia” organized in 2022. With reference to the gap analysis and key points that came up from the Regional Workshop, especially the issues to facilitate full understanding and implementation of MCS, she suggested TD develop a handbook prior to the conduct of the training in order to ensure the effectiveness of the training.

12. Moreover, the Program Committee Member for Viet Nam also requested TD to discuss with FAO regarding the integration of the Database on Regional Fishing Vessels Record (RFVR Database) with the FAO Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels (Global Record). She informed the 45PCM of the difficulties of Viet Nam in providing information to the Global Record considering that majority of fishing vessels larger than 24 m in length and over in Viet Nam do not have IMO numbers. She also reiterated the newly developed FAO Voluntary Guidelines for Transshipment and suggested SEAFDEC include an activity on this matter in the Project activity for 2023. In addition, she also inquired about the inclusion of the inspection of shipping containers in the Regional Training Course on Port State Measures Inspection held in 2022 considering that there was no definition of terminologies of the shipping container in the PSMA.

13. In response, the representative from the SEAFDEC Secretariat informed the 45PCM that TD has discussed with FAO the possibility of a linkage between the RFVR Database and FAO Global Record. FAO informed SEAFDEC that once the Global Record is finalized, the IT technicians from FAO and SEAFDEC can discuss the possibility of linking the two systems. However, the ASEAN Member States (AMSS) should confirm with SEAFDEC their intention to share their data with FAO.

14. In addition, the SEAFDEC Secretary-General suggested that the AMSs which are also members of FAO can raise the issue of integrating the RFVR Database and the FAO Global Record at the FAO/COFI meeting in order to facilitate the process. She also reiterated that there are two existing regional platforms that address IUU fishing issues in the region, *i.e.* ASEAN Network for Combating IUU Fishing (AN-IUU) and Regional Plan of Action to Promote Responsible Fishing Practices including Combating IUU Fishing in the Region (RPOA-IUU). In response to the suggestion of the Program Committee Member for Viet Nam, SEAFDEC will explore the possibility of organizing an online regional meeting inviting the AMSs and representatives from the AN-IUU and RPOA-IUU to discuss the issues.

15. The Program Committee Member for Malaysia expressed appreciation to TD for organizing the Online Training on Preparation and Installation of the eACDS Application to Server for Malaysia in June 2022. Moreover, she requested support from TD to organize training for stakeholders and IT experts in Malaysia to facilitate the harmonization of eACDS with the existing traceability system in the country.

16. While expressing appreciation to SEAFDEC for organizing the “Regional Training Course on Port State Measures Inspection in Focus of Shipping Container for Fish and Fisheries Product” in collaboration with the US National Oceanic and Atmospheric Administration (NOAA), the Program Committee Member for Thailand encouraged SEAFDEC to continue this activity focusing on other modes of transportation in 2023.

17. The Program Committee Member for the Philippines reiterated that the RFVR Database is basically for obtaining information on fishing vessels of the AMSs. In this regard, he requested TD to analyze the utilization of the RFVR Database including the dashboard. Moreover, he also cited that traceability systems including eACDS are crucial in complying with the market requirements and ensuring sustainable utilization of fishery resources. Therefore, he requested the AMSs to share experiences on the development process of national traceability systems with TD.

18. In response to the suggestion of the Program Committee Member for the Philippines, the representative from the SEAFDEC Secretariat informed the 45PCM that TD organized the “Regional Workshop to Exchange Information on Catch Documentation Scheme and Traceability of Fish and Fishery Products” in November 2022 to facilitate information exchange on the national traceability systems of the respective countries. The 45PCM noted that while several countries in the region already have their national traceability system for fish and fishery products in place, the eACDS can be used by some AMSs that have not yet established such systems for further improvement/development of their respective systems.

19. Regarding the utilization of the RFVR Database, the Program Committee Member for Indonesia informed the 45PCM that Indonesia is committed to regularly updating the RFVR Database and suggested SEAFDEC to communicate with existing regional platforms, namely: AN-IUU and RPOA-IUU, in order that the three platforms could find the suitable mechanism to complement each other in combating IUU fishing. He also supported the conduct of training on PSM for inspectors in 2023 especially since the training could be organized with the physical attendance of staff from the AMSs.

## **(2) Harmonization and Enhancing Utilization of Fisheries Statistics and Information**

20. The 45PCM took note of the progress and proposed activities for 2023 under this Project as presented by the representative from the SEAFDEC Secretariat.

## **(3) Responsible Fishing Technology and Practice**

21. The 45PCM took note of the progress and proposed activities for 2023 under this Project as presented by the representative from TD.

22. Concerning the issues of abandoned, lost, or otherwise discarded fishing gear (ALDFG), the Program Committee Member for the Philippines requested TD to include the activities toward strengthening the capacity of the AMSs in the assessment of ALDFG and fishing gear marking. In this connection, he requested TD to consider developing a guideline on the assessment of ALDFG and fishing gear marking. Moreover, he also suggested that TD include the development of technologies to improve fuel efficiency, especially for small-scale fishery vessels.

23. The Program Committee Member for Malaysia requested TD to share the information on the experiment on the efficiency and impacts between Vee type and rectangular flat otter boards of trawls in the Gulf of Thailand by M.V. PLALUNG. She also expressed the interest of Malaysia to send researchers from the Fisheries Research Institute Kampung Acheh, Malaysia to participate in such activity. Furthermore, she also shared the same view as the Program Committee Member for the Philippines that SEAFDEC should provide training and knowledge-sharing sessions on the assessment of ALDFG and fishing gear marking.

24. In response to the suggestion on the development of guidelines for fishing gear marking, the representative from TD informed the 45PCM that upon the launching of the FAO Voluntary Guidelines on the Marking of Fishing Gear, TD would provide the training following such guidelines. Moreover, he informed the 45PCM that SEAFDEC is planning to organize an online seminar on fishing gear marking in 2023.

25. While expressing appreciation to SEAFDEC for fully bringing out the best performance of M.V. PLALUNG on innovation and technology for optimizing energy use and carbon emission reduction, the Program Committee Member for Thailand requested SEAFDEC to provide a regional platform to share experience and discuss mitigation measures on the impacts of climate change on the fisheries sector based on the outcomes of this activity.

26. The SEAFDEC Secretary-General informed the 45PCM that the renovation of M.V. PLALUNG was intended to reduce the carbon emission of fishing vessels, optimize fuel consumption, and reduce the number of fishing crew onboard. SEAFDEC demonstrated in Thai waters the successful results of vessel renovation to Thai fishery vessel operators, members of a fishery association, and officials of the Ministry of Agriculture and Cooperatives of Thailand. Furthermore, SEAFDEC welcomes the officers from the Member Countries to also observe and gain experience onboard M.V. PLALUNG in the future.

27. With regard to compliance with the requirements of the U.S. Marine Mammal Protection Act (MMPA), the Program Committee Member for Myanmar requested SEAFDEC to include research on fishing gear and technologies that could reduce the incidental catch of marine mammals in future activities of this Project.

#### **(4) Research for Enhancement of Sustainable Utilization and Management of Sharks and Rays in the Southeast Asian Region**

28. The 45PCM took note of the progress and proposed activities for 2023 under this Project as presented by the representative from MFRDMD.

29. The Program Committee Member for Japan informed the 45PCM that during the 19<sup>th</sup> Meeting of the Conference of the Parties (CoP19) of the Convention of International Trade in Endangered Species of Wild Flora and Fauna (CITES), a large number of shark species were listed in Appendix II including the 54 species of requiem sharks. In this regard, he expressed concern about block listing a large number of species despite insufficient scientific evidence using the so-called “look-alike” provision. He, therefore, encouraged the SEAFDEC Member Countries to strengthen the collaboration in reflecting the ASEAN-SEAFDEC position, including actively raising collective voice at CITES-related meetings. Furthermore, since it is likely that the listing of shark and ray species will be accelerated in the next CoP and related meetings, he encouraged the SEAFDEC Member Countries to follow up on such movements and review the listing proposals based on scientific evidence. He emphasized the importance of disseminating the information at the international fora on research and capacity-building activities on the conservation and management of shark resources as well as the socioeconomic issues in the region.

30. The Program Committee for Malaysia supported the implementation of the activities under the Project, especially those related to shark species identification and information collection improvement for the development of the stock assessment model. In addition, she informed the 45PCM that Malaysia will publish NPOA-Sharks Plan 3 in 2023.

31. The Program Committee Member for Thailand informed the 45PCM of similar activities under the National Plan of Action for Conservation and Management of Sharks (NPOA-Sharks) 2020–2024 of Thailand, *e.g.* onsite training on the identification of shark species at ports for entrepreneurs. Therefore, he underscored that Thailand could share its experiences with SEAFDEC and the other Member Countries under this Project in 2023.

32. The Program Committee Member for the Philippines expressed support for the conduct of capacity-building activities under this Project. Moreover, he requested SEAFDEC to consider conducting activities on the identification of priority key shark species to build capacity on stock assessment, and shark data collection.

33. The Program Committee Member for Myanmar shared the view that the management of sharks by the respective countries is difficult, especially in obtaining timely and official data on sharks caught by fishers. Moreover, he suggested that other Member Countries consider having a sub-regional collaboration for the management of sharks and rays.

34. With regard to the positions of the SEAFDEC Member Countries on the listing of commercially-exploited aquatic species (CEAS) during the CITES CoP19, the representative from the SEAFDEC Secretariat informed the 45PCM that the technical recommendations of the FAO expert panel are not taken into consideration by the CITES Parties when voting for the proposals. Therefore, the Member Countries were encouraged to unite and develop common positions toward proposals related to CEAS in the future.

#### **(5) Sustainable Utilization of Fisheries Resources and Resources Enhancement in Southeast Asia**

35. The 45PCM took note of the progress and proposed activities for 2023 under this Project as presented by the representative from TD.

36. While expressing appreciation to TD for conducting the “Regional Training Course on GIS for Marine Resources Management,” the Program Committee Member for Myanmar expressed his concern on the GIS application used by TD during the Training that although it is free of charge, the generated images were in low resolution. He, therefore, suggested that TD explore other applications that could generate images in better resolution in future training courses.

37. The Program Committee Member for Thailand expressed appreciation to TD for conducting the activities on the comparison of the catch per unit effort of fishery resources by trawling between the research vessels of SEAFDEC and the Department of Fisheries (DOF) of Thailand. Moreover, he also shared information on the DOF campaign for Thai fishing vessels to bring back to the shore the marine debris that could be collected during their fishing operations and expressed the willingness to share the experience of Thailand through future activities under this project.

#### **(6) Fisheries Management Strategies for Pelagic Fish Resources in the Southeast Asian Region**

38. The 45PCM took note of the progress and proposed activities for 2023 under this Project as presented by the representative from MFRDMD.

39. The Program Committee Member for the Philippines expressed support for this Project considering that the majority of marine capture fisheries production in the region is derived from small pelagic fishes. He also reiterated that the Project was aimed at assessing the stock status based on the data submitted by the countries, while the expected output of the Project is to develop voluntary management of pelagic fish resources. However, as the pelagic fish resources are shared among several countries in the region, he recommended that SEAFDEC come up with guidance, *e.g.* on the appropriate harvest strategy, based on the results from the assessment study.

40. In response to the inquiry of the Program Committee Member for Cambodia whether the Project that covers the Asia-Pacific region would involve all the AMSs in the study, the representative from MFRDMD informed the 45PCM that all AMSs are involved in the study by returning the questionnaire to MFRDMD with the data for analysis. However, the analysis would come up with information on stock status based on the ecosystems, *e.g.* South China Sea and Andaman Sea, and this will be shared with the countries to support their respective management scheme. Nevertheless, MFRDMD has not yet decided on the methodologies to be used for such analysis as this would depend on the data received from the countries, *i.e.* using ASPIC, Harvested Feedback Control, and others.

41. The Program Committee Member for Cambodia also shared the same view with regard to the concern of the Philippines. He informed the 45PCM that the Commission’s Directorate-General for Maritime Affairs and Fisheries (DG MARE) has a lot of requests for Cambodia to undertake and urged the country to come up with procedures or guidelines for conducting research and implement the activity and share the report of progress of work to the DG MARE.

42. The Program Committee Member for Indonesia supported the response of MFRDMD that the respective countries should establish an appropriate management plan for their country. He added that while SEAFDEC serves as the technical arm for the ASWGFi, SEAFDEC has no mandate for managing transboundary resources. Therefore, Indonesia and all other AMSs should consider the results of the study conducted by MFRDMD as a

scientific reference and develop their own fisheries management plan. For the data from Indonesia for this study, he informed the 45PCM that he will communicate with the concerned technical unit responsible for research activities in Indonesia to submit the questionnaire to MFRDMD.

#### **(7) Management Scheme of Inland Fisheries in the Southeast Asian Region**

43. The 45PCM took note of the progress and proposed activities for 2023 under this Project as presented by the representative from IFRDMD.

44. The Program Committee Member for Cambodia informed the 45PCM that the FiA has other development partners that assist in fish catch monitoring in inland fisheries in Cambodia, namely: 1) Mekong River Commission (MRC) that collects information on inland fisheries from 'dai' fisheries; and 2) European Union (EU) CAPFISH-Capture Program that conducts fish catch monitoring in inland fisheries from around 1,000 households for three years as well as catch assessment of family-scale fishing in inland fisheries. He suggested that activities under this Project that conduct activities on fish catch monitoring in family-scale fishing in Cambodia should link or supplement with the activities of these development partners to come up with more comprehensive results. Regarding the catch assessment database, he suggested that IFRDMD consult with the Inland Fisheries Research and Development Institute of Cambodia to supplement the research activities in Cambodia.

45. While expressing his appreciation for the progress of this Project, the Program Committee Member for Thailand proposed Thailand to be one of the Project sites to apply the SPECTRA system. He also informed the 45PCM that some freshwater areas in Thailand and the areas in the Mekong River Basin that are located on the border between Thailand and Lao PDR could be considered to be included in the next phase of the Project from 2025 onwards.

46. The Program Committee Member for Lao PDR expressed the willingness to cooperate with IFRDMD in 2023. He then suggested to IFRDMD that fisheries management in reservoirs should be considered to be included in this Project.

47. The Program Committee Member for Malaysia informed the 45PCM that Malaysia is in the midst of improving its inland fisheries management, and the country has recently developed a data collection system. Therefore, she requested IFRDMD to consider conducting activities in Malaysia with the objective to improve the management of inland fisheries in Malaysia, especially in East Malaysia (*i.e.* Sabah and Sarawak) where there are a lot of reservoirs with inland aquaculture and fisheries activities but the information is still lacking.

48. The Program Committee Member for the Philippines commended the Project for having a well-structured log frame for reporting the outputs and outcomes. He then urged other projects to consider packaging the project log frame in a similar manner.

#### **(8) Small-scale Fisheries Management for Better Livelihood and Fisheries Resources**

49. The 45PCM took note of the progress and proposed activities for 2023 under this Project as presented by the representative from TD.

50. The Program Committee for Cambodia expressed appreciation to TD for implementing activities applying the ecosystem approach to fisheries management (EAFM) concept in pilot sites in Cambodia, *i.e.* pilot sites in Kampot and Preah Sihanouk Provinces a few years ago, and in Boeng Tonle Chhmar in 2022. While recalling that the previous activities undertaken by TD focused on assisting the country to prepare management plans and the activities proposed for 2023 are to follow up the implementation of the plans, he suggested that TD should also consider providing additional activities such as training or extension to assist Cambodia to implement the plan.

51. Since Cambodia is in the process of preparing a 5-year plan for inland fisheries management as well as for marine fisheries management, the Program Committee for Cambodia added that the country is trying to incorporate the EAFM concept when preparing the GoTFish project so that some experience could be included in the 5-year plan. However, the GoTFish project has not yet started to date.

52. While expressing appreciation for the works undertaken in Lao PDR under this Project before the COVID-19 pandemic, the Program Committee Member for Lao PDR requested SEAFDEC to continue the works in Lao PDR in 2023, especially following up the previous training and developing the management plan at the pilot site in Lao PDR.

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

53. The 45PCM noted that the project has been implemented since 2016 and will be completed with the project technical closure by December 2022 and financial closure by June 2023 as presented by the representative from TD. In this connection, the participating countries of the project, namely: Cambodia, Indonesia, Malaysia, Philippines, Thailand, and Viet Nam, were requested to submit their respective audited financial reports for 2022 to SEAFDEC by 31 March 2023.

**(10) Strengthening the Effective Management Scheme with GIS (Geographic Information System) & RS (Remote Sensing) Technology for Inland Fisheries and Aquaculture at AMS**

54. The 45PCM noted the progress and achievements of the Project which has been implemented since 2019 as presented by the representative from the SEAFDEC Secretariat. The completion of the Project by December 2022 was also noted.

**(11) Sustainable Utilization of Anguillid Eels in the Southeast Asian Region**

55. The 45PCM took note of the progress and proposed activities for 2023 under this Project as presented by the representative from IFRDMD.

56. While making observations on the application of GIS mapping for effective management of inland fisheries, the Program Committee Member for Myanmar suggested that the project could consider selecting the appropriate GIS software that the Member Countries could easily apply. In response, the Project Lead Technical Officer explained that the GIS application will be selected during project implementation, and the selection will consider its applicability not only for scientists but also for the government officers.

57. While supporting the works of SEAFDEC on anguillid eels that incorporated the aquaculture component as a significant part of ensuring sustainable utilization and management of anguillid eel resources, the Chief of AQD inferred that the Project has already conducted surveys on anguillid eels for several years. In this regard, he inquired whether the Project has come up with results from the surveys. In response, the representative from the SEAFDEC Secretariat informed the 45PCM that the results of the surveys will be disseminated once all the data and information from the participating countries are completed.

58. In response to the concern on the unclear demarcation between the two projects related to anguillid eels under the support from JTF and JAIF, the representative from the SEAFDEC Secretariat informed the 45PCM that this Project under JTF is focused on the survey and utilization of anguillid eels, while the project under JAIF is focused on the stock status assessment, data collection improvement, and DNA study for eel population structure.

**(12) Development of Stock Assessment Methods and Strengthening of Resources Management Measures for Tropical Anguillid Eel in Southeast Asia**

59. The 45PCM took note of the progress and proposed activities for 2023 under this Project as presented by the representative from the SEAFDEC Secretariat.

60. The Chief of AQD expressed concern about the similarities between the Project activities and outputs in 2022 and proposed activities in 2023. In response, the representative from the SEAFDEC Secretariat informed the 45PCM that the COVID-19 pandemic delayed the Project implementation with some activities are still ongoing and the data collection is not yet completed. Therefore, the Project could be completed and finalized in the year 2023.

**(13) Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia**

61. The 45PCM took note of the progress and proposed activities for 2023 under this Project as presented by the representative from TD.

62. While expressing concern about the rescheduled plan to implement the remaining Project activities in 2023, the Program Committee Member for Thailand encouraged TD to manage the schedule to ensure that the activities of the Project would be accomplished within the timeline; otherwise, TD should discuss with JAIF the possibility to extend the Project duration. In addition, TD was suggested to refer to the FAO Voluntary Guidelines on the Marking of Fishing Gear in developing the technical manual for fishing gear marking, especially for the AMSs with multigear, to avoid the duplication of work with FAO.

63. The Chief of AQD supported the collection of data and information on marine debris following the Guidelines developed by FAO.

64. In addition, the representative from the SEAFDEC Secretariat reiterated the other relevant regional framework, *i.e.* the ASEAN Framework of Action on Marine Debris, which was supported by the Ministers and representatives responsible for natural resources, environment, and marine affairs from all AMSs at the Special ASEAN Ministerial Meeting on Marine Debris in 2019.

65. The Program Committee Member for Malaysia supported the implementation of this Project and looked forward to participating in the proposed Project activities. Moreover, she also informed the 45PCM that the country has taken various initiatives to reduce marine debris including beach cleaning campaign.

66. The Program Committee Member for Indonesia informed the 45PCM that the Project activities are in line with the country's national program to eliminate marine litter and debris from 2018 to 2025 with the goal of reducing up to 70 % of discards by 2025. From 2018 to 2021, the country reduced around 28 % of marine litter and marine debris and launched a government policy notably "Bulan Cinta Laut" programs that do not allow fishing activity for a month in a year. During the no fishing month, the government encourages fishers to collect plastic and other marine litter on the beach while these plastics will be valued appropriately based on the fish price in the market.

67. The program Committee Member for the Philippines also expressed support for this Project and inquired about the pilot sites and criteria for the selection of Project pilot sites. In response, the representative from TD informed the 45PCM that the Project pilot sites would be in Malaysia and Thailand; however, the criteria for site selection are not yet decided.

**(14) ASEAN-JICA Capacity Building Project on IUU Fishing Countermeasures in Southeast Asia**

68. The 45PCM took note of the Project status and proposed activities for 2023 as presented by the representative from the SEAFDEC Secretariat. Moreover, the 45PCM was informed that once the proposal is agreed upon by JICA, the SEAFDEC Secretariat would circulate the information to the Program Committee *ad referendum*.

69. The Program Committee Member for the Philippines shared the observation that there are several projects related to IUU fishing. Therefore, he suggested SEAFDEC categorize the presentations in PCM based on subjects/issues to enable the Program Committee to effectively review the progress and consider the proposed activities of the SEAFDEC programs and projects.

70. The Program Committee Member for Myanmar recommended that this Project should complement the ongoing IUU-related projects.

71. The SEAFDEC Secretariat informed the 45PCM that the programs and projects are reported to the PCM according to the program structure and funding sources. However, when SEAFDEC reports the progress and achievements of its programs and projects to the SEAFDEC Council as presented in the SEAFDEC Annual Report, the report was restructured based on subjects/issues to facilitate a better understanding of the overall SEAFDEC activities. Nevertheless, the SEAFDEC Secretariat took note of the concerns and recommendations from the 45PCM and will explore ways to rearrange the agenda items of future PCM based on subjects/issues, as appropriate.

**3.1.2 Strategy II: Supporting the sustainable growth of aquaculture to complement fisheries and contribute to food security, poverty alleviation and livelihood of people in the region**

**(15) Sustainable Aquaculture through Cost-Effective Culture Systems, and Prompt and Effective Aquatic Animal Health Management**

72. The 45PCM took note of the progress and proposed activities for 2023 under this Project as presented by the Deputy Chief of AQD.

73. While expressing the view that the activities under this Project are very useful, the Program Committee Member for Myanmar requested SEAFDEC to mention the title of activities from “training course” to “knowledge sharing” or “seminar” when sending invitation letters to Myanmar.

**3.1.3 Strategy III: Ensuring the food safety and quality of fish and fishery products for the Southeast Asian region**

**(16) Enhancing Food Safety and Competitiveness of Seafood Products**

74. The 45PCM took note of the progress and the proposed activities for 2023 under this Project as presented by the Chief of MFRD.

**(17) ASEAN-JICA Food Value Chain Development Project**

75. The 45PCM took note of the Project status and proposed activities for 2023 as presented by the representative from the SEAFDEC Secretariat. Moreover, the 45PCM was informed that once the proposal is agreed upon by JICA, the SEAFDEC Secretariat would circulate the information to the Program Committee *ad referendum*.

76. The Program Committee Member for Brunei Darussalam expressed support for this Project in the view that the product quality and safety could not be compromised. She also supported the proposed development of the ASEAN Guidelines for Inspection of Fish and Fisheries Products as this would support the region to produce high-quality fish and fishery products.

77. The Program Committee Member for Thailand recalled that the Concept Note on the development of the ASEAN Guidelines for Inspection of Fish and Fisheries Products was noted by the 43<sup>rd</sup> Meeting of the ASEAN Ministers on Agriculture and Forestry (AMAF) in 2021, and the 13<sup>th</sup> Meeting of ASEAN Consultative Forum (AFCF) was informed that the ASEAN-JICA Food Value Chain Development Project previously agreed to include the activity of the development of the Guidelines into its program under the Fisheries Value Chain Development module. He, therefore, supported that the development of the Guidelines should be still included in this Project.

78. While noting that the Project covers the aspects of sanitary and phyto-sanitary (SPS) and food safety, the Program Committee Member for Malaysia requested SEAFDEC that in addition to the study on parasites in fish, the Project should also consider the inclusion of zoonotic diseases in fish considering that fish is sometimes eaten raw and diseases could be transferred to humans. She also expressed the interest of Malaysia to participate in the study in the future.

**3.1.4 Strategy IV: Enhancing trade and compliance of the region’s fish and fishery products with market requirements**

This strategy has no project in 2022.

**3.1.5 Strategy V: Addressing cross-cutting issues, such as labor, gender and climate change, where related to international fisheries**

**(18) Assistance for Capacity Development in the Region to Address International Fisheries-related Issues**

79. The 45PCM took note of the progress and proposed activities for 2023 under this Project as presented by the representative from the SEAFDEC Secretariat.



80. The Program Committee Member for Myanmar sought clarification on the continuation of the program on the Regional Fisheries Policy Network (RFPN). In response, the SEAFDEC Secretariat informed the 45PCM that the new capacity-building program for fisheries officers of the AMSs, so-called the Regional Capacity Building Network (RECAP Network) was proposed and endorsed by the SEAFDEC Council during its 53<sup>rd</sup> Meeting in 2021 to temporarily replace the RFPN program. Nevertheless, the SEAFDEC Secretariat will continue looking for opportunities to resume the RFPN program.

81. The Program Committee Member for Thailand expressed appreciation to SEAFDEC for organizing the “Regional Technical Consultation on Development of the ASEAN-SEAFDEC Common Positions on the Proposed Listing of Commercially Exploited Aquatic Species into the CITES Appendices.” He also conveyed appreciation to the ASEAN-SEAFDEC Member Countries, especially those who supported the proposal of Thailand to down-list Siamese crocodile in the CITES Appendix. Nonetheless, SEAFDEC was encouraged to continue facilitating the ASEAN-SEAFDEC platform to review regional proposals and develop common positions to be conveyed to CITES CoP meetings. In addition, he requested SEAFDEC to conduct regional workshop or webinar on the U.S. Maritime Security and Fisheries Enforcement Act or Maritime Safe Act under this Project.

82. The Program Committee Member for Indonesia appreciated the conduct of the Project activities and supported the organization of the consultation to update international fisheries-related issues at least twice a year. He then encouraged SEAFDEC to continue to support the capacity-building programs related to CITES-listed aquatic species.

### **3.1.6 Strategy VI: Empowering SEAFDEC to strengthen its roles in the region and to improve its services to Member Countries**

#### **(19) Fisheries Resource Survey and Operational Plan for the M.V. SEAFDEC 2**

83. While noting the utilization of the M.V. SEAFDEC 2 in 2022 and the plan for 2023, the 45PCM was informed that the countries requesting to use the SEAFDEC vessels, *i.e.* M.V. SEAFDEC or M.V. SEAFDEC 2, are required to submit the form “Request for Utilization of SEAFDEC Research Vessel” to SEAFDEC together with an official letter requesting the use of the research vessels.

84. The Program Committee Member for Thailand informed the 45PCM that Thailand has a 51-day survey plan in the Andaman Sea in the second quarter of 2023. In this regard, the country will submit an official letter together with the request form to SEAFDEC for the utilization of M.V. SEAFDEC 2.

85. While understanding the difficulties brought about by the COVID-19 pandemic during the past two years, the Program Committee Member for Japan expressed appreciation to SEAFDEC for its effort to operate the SEAFDEC research vessels. He then encouraged the Member Countries to utilize the SEAFDEC research vessels. On the other hand, he expressed concern about the M.V. SEAFDEC that was donated by the Government of Japan to SEAFDEC more than thirty years ago and that if SEAFDEC finds that the utilization of the M.V. SEAFDEC is difficult or creates negative impacts on SEAFDEC activities, SEAFDEC may need to consider appropriate handling of this research vessel.

86. While supporting the implementation of the Project, the Program Committee Member for Brunei Darussalam requested SEAFDEC to use the M.V. SEAFDEC 2 for the marine fisheries resources and environmental surveys which could support the sustainable utilization of the marine environment and assessment of the fish stock status.

87. The Program Committee Member for Malaysia requested SEAFDEC to use the M.V. SEAFDEC 2 for an acoustic survey in Malaysia in 2024 subject to the availability of the budget from Malaysia. In this regard, Malaysia will submit the official request letter together with the request form to SEAFDEC in 2023.

88. The Program Committee Member for the Philippines expressed support to SEAFDEC on the planned activities for 2023 and requested SEAFDEC to provide capacity-building programs on the analysis of data from hydroacoustic equipment EK80. Moreover, he inquired TD about the possibility of the Philippines participating in the activities on evaluating the impacts of microplastic on fisheries resources. In response, the representative from TD informed the 45PCM that such activities including participating countries were already approved by JAIF and could no longer be revised. Nonetheless, SEAFDEC informed the 45PCM that the Philippines will be considered should there be opportunities for similar collaborations.

89. Regarding the proposed utilization of M.V. SEAFDEC 2 for the fishery resource survey in Myanmar, the Program Committee Member for Myanmar was informed by the representative from TD that the cruise plan has already been initially developed in consultation with Myanmar. However, Myanmar is still required to submit the official letter and request form to SEAFDEC.

### **3.1.7 New Projects**

#### **(20) USAID/SEAFDEC/Sustainable Fish Asia-SEA Project**

90. The 45PCM took note of the details of the Project as presented by the representative from the SEAFDEC Secretariat.

91. The Program Committee Member for Thailand reiterated the request of Thailand during the 54<sup>th</sup> SEAFDEC Council for SEAFDEC to consult with the U.S. NOAA on the implementation of pilot projects, namely: 1) improving the efficiency of aquatic animal traceability to deal with the U.S. MMPA, and 2) improving the knowledge of fisheries officers of determining the cause of death of marine mammals. In this regard, SEAFDEC was requested to consult with USAID SuFiA to include these activities in this Project to enhance the capacity of the AMSs to comply with the U.S. MMPA.

92. The Program Committee Member for Viet Nam informed the 45PCM that NOAA has extended the one-year exemption in reviewing the comparability finding until November 2023. Therefore, the AMSs would have more time to obtain a better understanding of the regulations and develop comparative findings.

93. With regard to the U.S. MMPA, the SEAFDEC Secretary-General informed the 45PCM that since SEAFDEC does not have the chance to involve in the bilateral discussions between the respective countries and NOAA on comparability findings, it would be very much appreciated if the AMSs could share information with SEAFDEC on the technical issues faced when dealing with NOAA and how SEAFDEC could support the AMSs to solve these issues. Such information could serve as input for SEAFDEC to develop appropriate activities under this Project.

94. The Program Committee Member for Malaysia expressed the country's interest to participate in the Project activities especially under the thematic area "Exploration of seaweed culture as part of blue economy and climate change mitigation" considering that Malaysia has a wide area for seaweed farming in Sabah. Moreover, she also expressed the country's support for applying GIS and RS technologies/innovations to estimate carbon reduction by wild seaweed and seaweed farming in the Southeast Asian region.

#### **(21) Sustainable Management of Fisheries, Marine Living Resources and Their Habitats in the Bay of Bengal Region for the Benefit of Coastal States and Communities**

95. The 45PCM took note of the details of the Project as presented by the representative from the SEAFDEC Secretariat.

96. The Program Committee Member for Viet Nam sought clarification on the key focus of the countries under this Project. In response, the representative from the SEAFDEC Secretariat informed the 45PCM that while the Project comprises five components, SEAFDEC will be responsible mainly for Component 1 "Sustainable management of fisheries" and Component 3 "Management of coastal and marine pollution to improve ecosystem health." Moreover, SEAFDEC will be also involved together with other project partners in Component 5 "Regional mechanism for planning, coordination and monitoring of the BOBLME."

97. While noting that the overall plan and activities of this Project are still subject to finalization by FAO in 2023, the 45PCM was informed that when such information is finalized, it will be circulated to the Program Committee *ad referendum*.

#### **(22) Promoting the Blue Economy and Strengthening Fisheries Governance of the Gulf of Thailand through the Ecosystem Approach to Fisheries (GoTFish Project)**

98. The 45PCM noted the status of the Project's development in 2022 as presented by the representative from the SEAFDEC Secretariat. In addition, the 45PCM took note that once the overall plan and plan of activities for 2023 are finalized, the information would be circulated to the Program Committee *ad referendum*.

### **(23) Blue Horizon: Ocean Relief through Seaweed Aquaculture**

99. The 45PCM took note of the Project framework and status as presented by the representative from the SEAFDEC Secretariat.

100. While expressing appreciation to SEAFDEC for including the Philippines in the Project, the Program Committee Member for the Philippines expressed the hope that the Project would be a success and achieve the expected outputs and outcomes, especially the seaweed carbon credit model, seaweed value chain, and sustainable seaweed.

101. The Program Committee Member for Malaysia informed the 45PCM that seaweed culture is one of the important subsectors in Malaysia that produced approximately 180,000 t of elkhorn sea moss (*Kappaphycus alvarezii*) in 2021. Moreover, she also looked forward to the development of the Guide to Promoting a Sustainable Seaweed Industry and hoped that Malaysia would be involved in capacity-building activities in the future.

102. The 45PCM noted the endorsement of the Project by the GEF CEO in July 2022. In addition, the 45PCM took note that once the overall plan and plan of activities for 2023 are finalized, the information would be circulated to the Program Committee *ad referendum*.

### **(24) Regional Technical Consultation on Aquatic Animal Health Emergencies in Southeast Asia**

103. The Program Committee Member for Myanmar expressed appreciation to AQD for providing updates on the Project status as presented by the Chief of AQD. He supported and expressed the willingness of Myanmar to participate in the Project activities.

## **3.2 Departmental Programs**

104. While considering the progress and achievements attained from the implementation of the SEAFDEC Departmental Programs in 2022 and the proposed programs for 2023 (**Annex 7**), the 45PCM offered recommendations for the improvement of the programs and endorsed the proposed programs taking into consideration the following recommendations.

### **3.2.1 Aquaculture Department**

105. The 45PCM took note of the progress and achievements of the Departmental Programs of AQD in 2022, namely: 1) Quality Seed for Sustainable Aquaculture; 2) Healthy and Wholesome Aquaculture; 3) Maintaining Environmental Integrity through Responsible Aquaculture; 4) Meeting Social and Economic Challenges in Aquaculture; and 5) Collaborative Projects with the Philippine Government as presented by the Chief of AQD. Subsequently, the 45PCM approved the programs for implementation in 2023.

106. The Program Committee Member for Malaysia recalled the request made by Malaysia during the 44PCM in 2021 for AQD to extend expertise on genomic selection and application of artificial intelligence (AI) technology in the broodstock development program for economically important fish species, such as groupers, seabasses, giant tiger prawn, whiteleg shrimp. She hoped that Malaysia and AQD would continue the cooperation on this work. While noting the achievement of AQD in milkfish breeding, she also informed the 45PCM that Malaysia has recently developed milkfish farming, thus Malaysia would like to seek assistance from AQD to transfer milkfish breeding technologies through either the conduct of a training program at AQD or a visit of AQD researchers to Malaysia. Furthermore, she also commended AQD for its successful development of cost-effective feed that could address the global challenges on high-cost formulated fish feed and requested AQD to share the information and knowledge of the use of local materials to produce good quality local fish feed.

107. The Program Committee Member for the Philippines also expressed appreciation to AQD for the close collaboration with the Philippine Government through its Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR) and the National Fisheries Research and Development Institute (NFRDI) in addressing the priority programs of the Philippines. Considering that aquaculture is an important sector in sustaining the fish supply of the country, the Philippines supports the works of AQD and looks forward to more collaborations with AQD in the future.

108. The Program Committee Member for Thailand commended AQD for its activity on specific pathogen-free (SPF) for *Penaeus monodon*, and informed the 45PCM that these are aligned with the project proposal under the ASEAN Shrimp Alliance (ASA). She, therefore, requested AQD to provide technical assistance on this matter, and this would be raised again in detail at the 25FCG/ASSP to be held back-to-back with this 45PCM.

109. The Program Committee Member for Myanmar informed the 45PCM that Myanmar has recently established a new research department under the Ministry of Agriculture, Livestock and Irrigation. In this regard, he requested AQD to organize an online meeting to discuss the future collaboration between Myanmar and AQD on how to support the work of the new research department.

110. The Program Committee Member for Cambodia commended AQD for the work it has undertaken. Moreover, he requested AQD to explore the possibility of sending missions to Cambodia every year to support the aquaculture development of the country. Detailed information on the required support from AQD would be discussed later so that the experiences of AQD could be shared with the country.

111. In response to the requests made by the Member Countries, the AQD Chief informed the 45PCM of the willingness of the AQD to provide assistance and facilitate the adoption by the Member Countries of the aquaculture technologies developed by AQD. In this connection, AQD would explore the possibility of mobilizing the JTF budget to extend support to the Member Countries as requested.

### 3.2.2 Training Department

112. The 45PCM took note of the progress and achievements of the Departmental Programs of TD in 2022, namely: 1) Promotion on Strengthening of SEAFDEC Visibility and Enhancing Human Capacity Building; 2) Improvement of Fisheries Technology and Reduction of the Impact from Fishing Activities; and 3) USAID Sustainable Fish Asia Local Capacity Development Activity as presented by the representatives from TD. Subsequently, the 45PCM approved the programs for implementation in 2023.

113. With regard to the program “Promotion on Strengthening of SEAFDEC Visibility and Enhancing Human Capacity Building,” the Program Committee Member for the Philippines noted that TD has implemented activities to promote the adoption of the EAFM concept in several areas, especially in Thailand. Considering that the Philippines has moved forward in the adoption of the EAFM plan in several fisheries management areas (FMAs) in the country since 2019, he suggested TD consider the possibility of conducting activities to facilitate sharing of experience between the FMAs in the Philippines and Thailand.

114. The Program Committee Member for Thailand also expressed appreciation to TD for granting support in response to the request made by the DOF Thailand, *i.e.* conducting training programs on Lead EAFM for the Inland Fisheries Research and Development Center and for the Mekong River Fisheries Community, as well as annual internship programs for Thai university students.

115. With regard to the program “USAID Sustainable Fish Asia Local Capacity Development Activity,” the Program Committee Member for Thailand requested SEAFDEC to share the results of the organizational capacity assessments, *e.g.* strengths and weaknesses, with the Member Countries.

### 3.3 Other Programs

116. The 45PCM considered and endorsed the progress of implementation in 2022 and the corresponding plans for 2023 of the following programs:

#### (1) Implementing the Lower Mekong Fish Passage Initiative in Cambodia, Thailand, and Viet Nam

117. The 45PCM was informed of the progress and achievements of the Project implementation in the three participating countries, namely: Cambodia, Thailand, and Viet Nam (**Annex 8**) as presented by the representative from TD. The 45PCM also noted that the Project was successfully completed in 2022.

118. The SEAFDEC Secretary-General encouraged the participating countries to facilitate the co-management between local authorities and fishing communities around the fish passage structures, especially on rules and regulations for harvesting fish around the structures. Otherwise, fish that aggregate in the area could be easily captured and the fish passage would not serve its purpose in ensuring the sustainability of the resources. She also informed the 45PCM that since there is still some unspent budget from the Project due to the COVID-19 situation,

such budget could still be used in 2023 for monitoring the performance of fish passages constructed under this Project.

119. In response to the query of the Chief of AQD on the applicability of fish passage in other river basins, the SEAFDEC Secretary-General informed the 45PCM that fish passage in general can be applied in other areas. However, a survey should be conducted before installation in order to obtain information on the existing species including their migratory patterns.

120. The Program Committee Member for Cambodia informed the 45PCM that fish species in inland waters are divided into three groups: 1) white fish (with long-distance migration along the river), 2) grey fish (with short-distance migration between river and lake), and 3) blackfish (floodplain residents). He added that under the CAPFISH-Capture Program, Cambodia is monitoring the fish migration in the existing dams while the Mekong River Commission previously pre-assessed the fish migration before the dam construction.

## **(2) Gender Dimension in the Value Chain of Small-scale Fisheries & Aquaculture in Southeast Asia**

121. The 45PCM noted the progress and achievements of the Project (**Annex 9**) as presented by the representative of TD. The 45PCM also noted that the Project has been successfully completed in 2022.

## **(3) Implementing the Strategic Action Programme for the South China Sea and Gulf of Thailand**

122. The 45PCM noted the progress of the Project implementation in 2022 and approved the proposed activities in 2023 (**Annex 10**) as presented by the representative from TD.

123. While reiterating the background of the Project, the representative from the SEAFDEC Secretariat informed the 45PCM of the difficulties through the course of Project implementation due to the change and vacancy of the Project Manager as well as the complex interagency working mechanism. However, under the cooperation agreement between SEAFDEC and UNEP, SEAFDEC is serving as the executing agency for the Project until the end of June 2023.

124. The Program Committee Member for Viet Nam sought clarification on the participation of the countries' fisheries agencies and the role of SEAFDEC in terms of technical involvement in the Project. In response, the representative from the SEAFDEC Secretariat explained that the original project design includes the project "Establishment and Operation of a Regional System of Fisheries *Refugia* in the South China Sea and the Gulf of Thailand" as the fisheries component of the SCS SAP Project. However, the Fisheries *Refugia* Project started earlier and the activities would be completed by the end of December 2022; while the SCS SAP Project was very much delayed and the involvement of SEAFDEC is only in the regional activities of the project.

## **(4) Seminar-Workshop on Aquaculture Development in Southeast Asia (ADSEA)**

125. The 45PCM was informed of the planned Seminar-Workshop on Aquaculture Development in Southeast Asia (ADSEA) (**Annex 11**) as presented by the representative from AQD. The 45PCM noted that the ADSEA would be conducted through face-to-face, hybrid, or online mode in 2023.

126. The Program Committee for Thailand expressed appreciation to AQD for the ADSEA program and requested AQD to consider emphasizing and promoting both freshwater and marine aquaculture which could enhance the mutual interest of the region in the ADSEA program.

## **(5) Survey to Estimate levels of Abandoned, Lost or otherwise Discarded Fishing Gear in Thailand Gillnet and Trap Fisheries**

127. The 45PCM noted the progress of the Project implementation in 2022 (**Annex 12**) as presented by the representative from TD. The 45PCM was also informed that this Program was successfully completed in 2022.

128. The Program Committee Member for Thailand appreciated SEAFDEC and FAO for implementing this Project in Thailand and commended the Project for its contribution to systematic ALDFG data collection which could be a reference for the conduct of relevant studies in the future.

**(6) Collection of Research and Datasets from Data-poor Countries in Southeast Asia Related to SDG Indicator 14.4.1 and Formulation of a Thesaurus for Aquatic Genetic Resource**

129. The 45PCM was informed of the progress and achievements of the Program in 2022 (**Annex 13**) and noted that this Program was successfully completed in 2022 as presented by the representative from the SEAFDEC Secretariat.

**IV. PIPELINE PROJECTS AND EMERGING NEEDS FOR PREPARATION OF FUTURE PROJECT PROPOSALS**

130. The 45PCM was informed that there is one (1) project proposal under discussion with potential donors for funding support and implementation.

**(1) Implementation and Assessment of the ASEAN Regional Plan of Action for the Management of Fishing Capacity**

131. The 45PCM was informed of the status of the proposal of the Pipeline Project “Implementation and Assessment of the ASEAN Regional Plan of Action for the Management of Fishing Capacity” (**Annex 14**) as presented by the representative from MFRDMD. Furthermore, the 45PCM noted that the project proposal was submitted to the Japan-ASEAN Integration Fund (JAIF) for possible funding support and is now under final consideration by Japan. Subsequently, the 45PCM approved this Project to be placed under the FCG/ASSP mechanism and for the Project to be implemented in 2023 once the fund could be secured.

132. While supporting the project proposal, the Program Committee Member for Thailand inquired whether SEAFDEC could assist the Member Countries to monitor their ratification and implementation of the United Nations Fish Stock Agreement (UNFSA). He informed the 45PCM that Thailand has already ratified the UNFSA but not yet in full implementation since it involves transboundary fish species that migrate across countries in the region. Therefore, he requested the cooperation of the countries to fully implement the UNFSA, especially in the conduct of the stock assessment.

133. The Program Committee Member for Cambodia expressed his support for the project proposal and shared a similar view with Thailand on the need to monitor the UNFSA implementation. Moreover, he informed the 45PCM that Cambodia is already a party to UNFSA, and had a recent discussion with the DG-MARE to propose the study on highly migratory species and stock assessment in the Gulf of Thailand at the regional level.

134. The Program Committee Member for Malaysia reaffirmed the commitment of the Department of Fisheries Malaysia to collaborate with MFRDMD and encouraged all AMSs to also support this project proposal.

135. The Program Committee Member for the Philippines shared the view that this project proposal is significant in assessing the fishing capacity of the countries, especially for transboundary species. He emphasized that the key inputs for the Project are the collaboration among the Member Countries and the outputs from SEAFDEC programs and projects relevant to transboundary resources. He requested MFRDMD to harmonize assessment methods to obtain science-based recommendations to manage the resources.

136. The Program Committee Member for Indonesia expressed appreciation to MFRDMD for the project proposal and looked forward to obtaining a positive response from the appraisal process. He expressed concern about whether MFRDMD and Member Countries would assess all small pelagic species which would create burden and difficulty for all AMSs. He, therefore, suggested that key target species common for several countries should be identified for MFRDMD to work on under this Project.

137. The Program Committee Member for the Philippines supported Indonesia that there is a need to identify priority stocks in the region that MFRDMD should work on, and the framework of managing fishing capacity should be based on the stock status.

138. The representative from MFRDMD took note of all suggestions and hoped that MFRDMD will get support from the AMSs especially in conducting catch assessment of transboundary and migratory species under this Project.

## V. COOPERATION WITH DONORS, NON-MEMBER GOVERNMENTS AND INTERNATIONAL/REGIONAL ORGANIZATIONS

139. The Senior Fishery Officer of the Food and Agriculture Organization of the United Nations (FAO), Regional Office for Asia and the Pacific, *Dr. Simon Funge-Smith*, thanked SEAFDEC for the opportunity to deliver a statement at the 45PCM as well as expressed appreciation for the continued cooperation with FAO on capacity building and knowledge exchange activities. He highlighted the collaborative activities conducted through a number of virtual workshops that subsequently moved towards hybrid modes which can be beneficial to reach a wider range of trainees and stakeholders. He also enumerated the new collaborative activities with SEAFDEC through the BOBLME Phase II and GoTFish projects. Moreover, he also expressed appreciation to SEAFDEC for conducting activities in support of small-scale fisheries during the International Year of Artisanal Fisheries and Aquaculture (IYAFA) in 2022. His Statement appears in **Annex 15**.

140. The Mission Director of the United States Agency for International Development/Regional Development Mission for Asia (USAID/RDMA), *Dr. Steven G. Olive*, extended gratitude of the U.S. Government to SEAFDEC for the opportunity to participate in the 45PCM, to the Government of the Philippines for hosting this important meeting, and the SEAFDEC Member Countries for their active participation. He reiterated that USAID has worked with SEAFDEC since 2015 to promote sustainable fisheries and marine conservation throughout Southeast Asia. He highlighted that USAID is currently working with SEAFDEC through Sustainable Fish Asia, or SuFiA, Project to improve the management of marine biodiversity and fisheries resources in the region. The SuFiA Local Capacity Development activity, which ended in August 2022, strengthened both human and institutional capacity to support sustainable fisheries management plans and enhance public-private partnerships to combat IUU fishing and seafood fraud. Also, in collaboration with NOAA, USAID worked with SEAFDEC to host training sessions on the implementation of the Agreement on Port State Measures. He assured that USAID will continue to demonstrate the importance of its relationship with SEAFDEC and advance the priorities of its Member Countries. His Statement appears in **Annex 16**.

141. The representative from World Wildlife Fund (WWF), *Mr. Aaron McNevin*, expressed appreciation to SEAFDEC for the invitation to attend the 45PCM. He reiterated that the cooperation between WWF and SEAFDEC started from the GEF Blue Horizons: Ocean Relief through Seaweed Aquaculture project. Moreover, he informed the 45PCM that the proposal was approved and the implementation of the Blue Horizons project could now commence. He then looked forward to having a deeper collaboration between WWF and SEAFDEC in implementing the Blue Horizon project with shared interests for sustainable aquaculture production for the region. His Statement appears in **Annex 17**.

## VI. OTHER MATTERS

### 6.1 Monitoring and Evaluation of the Implementation of RES&POA-2030

142. The 45PCM took note of the progress of monitoring and evaluation of the implementation of the RES&POA-2030, including the preliminary report of the 2021 Baseline Information (**Annex 18**) as presented by the representative from the SEAFDEC Secretariat. The 45PCM also noted the request made by the SEAFDEC Secretariat for the AMSs that have not yet submitted inputs to the 2021 Baseline Information to submit their respective inputs by the end of January 2023.

143. The Program Committee Member for Thailand made an observation that since not all countries provided inputs to the baseline survey as appears in the current preliminary report, therefore, the results after receiving inputs from all AMSs could change. In response to her request for SEAFDEC to circulate the updated results to the AMSs prior to submission of the final report to the ASWGFi for notation, the representative from the SEAFDEC Secretariat informed the 45PCM that after circulating the final report to the Program Committee *ad referendum*, it will be submitted to the SEAFDEC Council and ASEAN mechanism in 2023.

144. Furthermore, the Program Committee for Thailand suggested to SEAFDEC that a country-based gap analysis should be made for each of the components, while the recommendations from this evaluation are envisaged to be useful for developing priority actions by SEAFDEC in 2023 under the Strategic Plan of Action on ASEAN Cooperation on Fisheries (SPA-Fisheries) 2021–2025, particularly on the “Training Needs Assessment to Identify the Current Demand for Knowledge and Skills Needed for a Sustainable Fisheries Development.”

145. The Program Committee Member for Indonesia informed the 45PCM that Indonesia would provide updated inputs to the SEAFDEC Secretariat by January 2023. He then requested SEAFDEC to provide assistance in completing the questionnaire.

146. The Program Committee Member for the Philippines reiterated that the current process of the evaluation is to collect baseline information. In this regard, he suggested SEAFDEC to provide clearer criteria to assist the respective countries in conducting self-assessments and giving objective ratings for each of the key indicators of the plan of action.

147. The Program Committee for Viet Nam shared the same concern as the Program Committee Member for the Philippines. Moreover, she informed the 45PCM that Viet Nam has not yet provided input to the questionnaire since according to its related agencies the key indicators do not reflect the regional status of RES&POA-2030 implementation. She further expressed the concern that the criteria for giving ratings are not clear, and requested SEAFDEC to come up with more detailed criteria, *e.g.* the elements that the country should achieve in order to give a particular rating for each key indicator of the POA.

148. In response to the inquiry from the Philippines and Viet Nam on clearer criteria, the representative from the SEAFDEC Secretariat explained that the situations, priorities, and elements that need to be achieved in fulfilling the POA could be different in the respective countries. Thus, it would be difficult to obtain an agreed set of criteria for all AMSs for each POA. Therefore, the AMSs were encouraged to provide as much details as possible on their ratings. This would also enable the future focal points to be aware of the criteria used by their country in the evaluation. He also informed the 45PCM that this is only the start of the evaluation process, and SEAFDEC will continue to work and explore a better way of analysis to come up with the report for submission to the SEAFDEC Council and the ASEAN mechanism in 2023.

## 6.2 Updating JTF budget request process in Japan

149. While expressing appreciation to SEAFDEC for the effective utilization of the Japanese Trust Fund (JTF) for activities that contribute to sustainable fisheries and food security in the Southeast Asian region, the Program Committee Member for Japan expressed the willingness of the Government of Japan to sustain the contribution to SEAFDEC through the JTF as well as the dispatch of senior officials from Japan to be attached at SEAFDEC. Furthermore, he informed the 45PCM that approximately USD 1.8 million would be provided to SEAFDEC through JTF for the year 2023, which is the same level of the budget as for 2022. As for the budget for 2024, this is still under negotiation process; however, Japan would try to secure the same level of budget as in the previous year.

150. The Program Committee Member for Japan further informed the 45PCM that in order to secure the budget from Japan for SEAFDEC, it is necessary that the contribution and impacts of SEAFDEC in the ASEAN framework are made visible. He, therefore, urged the other Member Countries to convey the significance of SEAFDEC activities and contributions from the Government of Japan during various ASEAN fora, such as the AMAF and the AMAF Plus Three.

151. The Program Committee Member for Indonesia, while expressing gratitude to the Government of Japan for allocating funds to SEAFDEC, informed the 45PCM that the representative from Indonesia has expressed during the AMAF Plus Three in 2022 the appreciation to the support and cooperation from the Government of Japan to SEAFDEC. He looked forward to the Government of Japan being able to secure the budget for SEAFDEC in the future.

## 6.3 The Outline Japanese Trust Fund-7

152. The 45PCM took note of the outline of Japanese Trust Fund-7 (**Annex 19**) which is expected to succeed the JTF-6 Phase II for a period of five years from 2025 to 2029 as presented by the SEAFDEC Deputy Secretary-General. Subsequently, the 45PCM noted that the budget request process for JTF-7 will proceed every year according to the single-year basis of the Government of Japan.



#### **6.4 Letter of Agreement to Support the Implementation of National Activities under SEAFDEC Projects**

153. The 45PCM took note of the requirements of the Letter of Agreement to Support the Implementation of National Activities under SEAFDEC Projects (**Annex 20**) as presented by the representative from the SEAFDEC Secretariat. Specifically, the 45PCM noted that the Letter of Agreement (LOA) should be signed by the SEAFDEC Secretary-General and respective Council Directors prior to transferring grants from SEAFDEC to the Member Countries for the implementation of national activities under the LOA.

### **VII. CONCLUSIONS AND RECOMMENDATIONS OF THE FORTY-FIFTH MEETING OF THE PROGRAM COMMITTEE**

#### **7.1 Adoption of Report of the Program Committee Meeting**

154. The 45PCM adopted the recommendations of its Forty-fifth Meeting on 7 December 2022. The 45PCM also took note that the Report would be submitted to the 55<sup>th</sup> Meeting of the SEAFDEC Council and ASEAN through the 25<sup>th</sup> Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP).

#### **7.2 Date and Venue of the Forty-sixth Meeting of the Program Committee**

155. In considering the date and venue of the Forty-Sixth Meeting of the Program Committee, the Chief of the IFRDMD informed the 45PCM that IFRDMD is welcome to host the Forty-sixth Meeting in Indonesia. However, he needs further guidance and arrangement with High level officer Ministry of Marine Affairs and Fisheries. In addition, he also informed the 45PCM that IFRDMD will closely coordinate and communicate with SEAFDEC Secretariat in finalizing the schedule and related arrangements for the Meeting.

### **VIII. CLOSING OF THE PROGRAM COMMITTEE MEETING**

156. In the Closing Remarks, the Chairperson of the Program Committee extended her gratitude to the Program Committee Members and SEAFDEC Secretariat and Departments for their valuable inputs and recommendations on the projects and activities of SEAFDEC. She then thanked AQD for smoothly arranging the 45PCM in Iloilo City, Philippines. She reiterated that the adopted outputs would be subsequently presented to the forthcoming SEAFDEC Council Meeting. She wished the Program Committee Members a safe trip back to their respective countries and then declared the meeting closed. Her Closing Address appears in **Annex 21**.

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## WELCOME REMARKS

By *Mr. Dan D. Baliao*,  
Chief of SEAFDEC Aquaculture Department

*His Excellency President Ferdinand R. Marcos, Jr.*,  
To my colleagues in SEAFDEC Secretariat and Departments,  
To the delegates of the SEAFDEC Member Countries,  
To the representatives of our Collaborating Partners,  
And to the distinguished members of the SEAFDEC Program Committee,  
Ladies and gentlemen, Mabuhay!

As the Chief of the Aquaculture Department, the host of this year's meeting, and on behalf of the whole organization, it is my pleasure to welcome you all to the opening program of the Forty-Fifth Meeting of the SEAFDEC Program Committee.

As the region strives to achieve food security and sustainability, this annual meeting holds significance as it gives us an opportunity to gather in one room to discuss and steer the course of where SEAFDEC is heading with its programs and projects.

First of all, it is with excitement that I officially welcome you all here, at the heart of the Philippines, Iloilo City. This has been a long time coming. It was in November 2019 in Chiang Mai, Thailand, during the 41<sup>st</sup> PCM when we announced that AQD would be hosting the 42<sup>nd</sup> PCM in Iloilo City. Unfortunately, the world's borders were closed, restricting us from traveling and gathering due to the COVID-19 pandemic. Since then, we have only met and discussed important matters virtually; thank you to modern technology. However, there's still magic in discussing the future directions of our Center in person and face-to-face. On behalf of the AQD and Secretariat working committees, we are beyond happy that you all get to join us today, no longer virtually but physically.

The SEAFDEC Program Committee is expected to review the activities done and assess the corresponding achievements of the SEAFDEC Programs. This is to ensure that the activities conducted by all SEAFDEC Departments find relevance and alignment with the needs of the SEAFDEC Member Countries. This meeting aims to be a venue to share ideas, comments, and suggestions on improving our programs. The recommendation of our member country representatives, local and international partners, and other collaborators are always valued and welcomed as it shapes and improves the implementation of our activities.

Speaking of programs and activities, AQD had been looking forward to bringing you all to Iloilo City, which, only an hour away, houses SEAFDEC Aquaculture Department's Tigbauan Main Station. A tour will be facilitated for you to visit the station on Wednesday morning, 7 December 2022. This meeting has read and heard about the achievements and results of research and development activities conducted by AQD. However, we have been looking forward for all of you to see our projects – beyond the presentations and working papers we've shared. We had been very proud of the improvements of the Department after almost five decades of its existence, staying true to our core mandates.

Recently, we have built new infrastructures to verify and demonstrate the technologies developed from our research. It may also serve as a training facility for interested participants from our local, regional, and international partners. Of course, this won't be possible without our external partners, the Government of Japan and the Philippine Government. With these facilities we have granted with, we aim to continue developing effective, efficient, and sustainable aquaculture technologies to aid the needs of our partners here in our home country and member countries in Southeast Asia.

As this year's host, AQD ensured a comfortable and safe stay for you here in Iloilo City. We also hope you enjoy all the activities planned for the following days, especially those who still stay with us for the next two meetings, the 25<sup>th</sup> Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership, and the 2022 Department Chief's Meeting.

Without further ado, ladies and gentlemen, welcome to the City of Love. Thank you, hoping for a good and productive days ahead.





### OPENING REMARKS

By *Ms. Malinee Smithrithee*,  
SEAFDEC Secretary-General

*Atty. Demosthenes Escoto*, Director of the Bureau of Fisheries and Aquatic Resources,  
*Mr. Dan Balio*, Chief of SEAFDEC Aquaculture Department,  
Distinguished Members of the SEAFDEC Program Committee, and country representatives,  
SEAFDEC Deputy Secretary-General and Advisor, SEAFDEC Department Chiefs and Deputy Chiefs, and  
SEAFDEC officials, Ladies and gentlemen, good morning.

On behalf of SEAFDEC, it is my honor to welcome all of you to the Forty-fifth Meeting of the SEAFDEC Program Committee, in this city of love, Iloilo, the Philippines which can be a feast of your eyes through the preservation of numerous local historic sites along with beautiful scenery. First of all, I would like to extend our gratitude to the SEAFDEC/AQD for your warm welcome and for hosting this first return to SEAFDEC committee meeting by the physical platform after years of challenges from the COVID–19. It is great to see so many of you in person.

Ladies and gentlemen, to review the progress of the projects in 2022 and endorse the proposed activities for 2023, our discussion would begin with the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP) Mechanism which is categorized into six SEAFDEC Strategies. The succeeding agenda would be the presentations of the progress and proposed activities under the Departmental Programs and Other Programs as well as those Pipelines Projects that are still in the project formulation process and would be submitted to the potential donors for securing funds. The outputs of the Meeting would be submitted to the forthcoming meeting of the SEAFDEC Council in 2023 for consideration and approval, as well as report to the ASEAN mechanism through the Twenty-fifth Meeting of the FCG/ASSP and subsequently the next ASEAN Sectoral Working Group on Fisheries or ASWGF<sub>i</sub> in 2023.

We are therefore asking for your utmost cooperation and active participation in the discussions, and please be assured that we would always value your recommendations that would pave the way towards the sustainable development of fisheries in our region and enhance the role of fisheries in ASEAN.

With that note, Colleagues, ladies, and gentlemen, I would like to extend my deep regards and wishes for a very fruitful and achievable accomplishment as planned, and I now declare the Forty-fifth Meeting of the SEAFDEC Program Committee open.

Thank you very much and good day!



## KEYNOTE SPEECH

By *Atty. Demosthenes R. Escoto*,  
Director of the Bureau of Fisheries and Aquatic Resources, Department of Agriculture  
On behalf of the President of the Philippines and Acting Secretary of the Department of Agriculture,  
*H.E. Ferdinand R. Marcos, Jr.*

Ladies and Gentlemen

I extend my congratulations to the member nations of the Southeast Asian Fisheries Development Center on the occasion of the organization's first physical meeting since the pandemic.

In the 55 years since the Republic of the Philippines joined 10 other nations in signing the SEAFDEC convention, the organization has served as an indispensable forum for shared prosperity and food security through the development of fisheries and aquaculture in Southeast Asia.

Through SEAFDEC, member nations advance scientific research, the sharing of knowledge, and the responsible management of our region's precious fisheries and aquaculture resources. By promoting and implementing policies grounded in these principles, SEAFDEC has helped to improve the lives of countless millions of people throughout Southeast Asia. Now more than ever, SEAFDEC must continue its commitment to the nations of the region. The member countries of our coalition face daunting challenges in the wake of the coronavirus pandemic. The region has experienced a loss of life nearly unfathomable in modern times, and – as we confront skyrocketing inflation as a result of rising fuel prices - much of the regional economy has stalled on the road to recovery. In laying out our plans for the months ahead, we must agree as to the requirements of the situation -- and the part each of the organization's Departments will take to give proper effect to whatever action we might undertake. Accordingly, over the next three days:

- We must review and evaluate the activities of the SEAFDEC Departments to make sure that there is complementation -- not duplication -- among their programs;
- Decide how the Departments might best advise and assist in the program formulation of member countries in the various fisheries fields;
- Establish and reach an accord on long-term plans for the development of the Departments and the implementation of the objectives of SEAFDEC so that funding assistance can be properly planned;
- And to ensure that the needs of all member countries are justly reflected in proposed programs of activities and financial allocations of the various Departments.

Southeast Asia's continuing economic recovery is a vivid reminder of the pivotal function that the region's fisheries and aquaculture has been performing in recent years. Few characteristics are more representative of Southeast Asia's spirit than patience and perseverance. Using wit, hard work, and initiative, our fisheries and aquaculture sectors have successfully demonstrated that trait of adapting while thriving in the face of adversity. The people and government of the Philippines reaffirm their pledge to working together to solve the substantive issues facing the sector in the years ahead.

Thank you.



## AGENDA

**Agenda 1:** Opening of the Meeting

**Agenda 2:** Adoption of Agenda and Arrangement of the Meeting

**Agenda 3:** Review of SEAFDEC Programs Implementation for the Year 2022 and Proposed Programs for the Year 2023

3.1 Programs under the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP) Mechanism

3.1.1 *Strategy I: Securing the sustainability of fisheries to contribute to food security, poverty alleviation and livelihood of people in the region*

- Strengthening a Regional Cooperation and Enhancing National Capacities to Eliminate IUU Fishing in Southeast Asia
- Harmonization and Enhancing Utilization of Fishery Statistics and Information
- Responsible Fishing Technology and Practice
- Research for Enhancement of Sustainable Utilization and Management of Sharks and Rays in the Southeast Asian Region
- Sustainable Utilization of Fisheries Resources and Resources Enhancement in Southeast Asia
- Fisheries Management Strategies for Pelagic Fish Resources in the Southeast Asian Region
- Management Scheme of Inland Fisheries in the Southeast Asian Region
- Small-scale Fisheries Management for Better Livelihood and Fisheries Resources
- Establishment and Operation of a Regional System of Fisheries *refugia* in the South China Sea and Gulf of Thailand
- Strengthening the Effective Management of Inland Fisheries and Aquaculture in AMS with GIS and RS Technology
- Sustainable Utilization of Anguillid Eels in the Southeast Asian Region
- Development of Stock Assessment Methods and Strengthening of Resources Management Measures for Tropical Anguillid Eel in Southeast Asia
- Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia
- ASEAN-JICA Capacity Building Project on IUU Fishing Countermeasures in Southeast Asia

3.1.2 *Strategy II: Supporting the sustainable growth of aquaculture to complement fisheries and contribute to food security, poverty alleviation and livelihood of people in the region*

- Sustainable Aquaculture through Cost-Effective Culture Systems, and Prompt and Effective Aquatic Animal Health Management

3.1.3 *Strategy III: Ensuring the food safety and quality of fish and fishery products for the Southeast Asian region*

- Enhancing Food Safety and Competitiveness of Seafood Products
- ASEAN-JICA Food Value Chain Development Project

3.1.4 *Strategy IV: Enhancing trade and compliance of the region's fish and fishery products with market requirements*

- Nil

3.1.5 *Strategy V: Addressing cross-cutting issues, such as labor, gender and climate change, where related to international fisheries*

- Assistance for Capacity Building in the Region to Address International Fisheries-related Issues

3.1.6 *Strategy VI: Empowering SEAFDEC to strengthen its roles in the region and to improve its services to Member Countries*

- Fisheries Resource Survey & Operational Plan for M.V. SEAFDEC 2

3.1.7 *New Project*

- USAID/SEAFDEC/Sustainable Fish Asia-SEA Project
- ASEAN-JICA Cooperation for Food Value Chain Development Project
- Promoting the Blue Economy and Strengthening Fisheries Governance of the Gulf of Thailand through the Ecosystem Approach to Fisheries (GoTFish Project)
- Blue Horizon: Ocean Relief through Seaweed Aquaculture
- Regional Technical Consultation on Aquatic Animal Health Emergencies in Southeast Asia

3.2 Departmental Programs

3.2.1 *Aquaculture Department*

- Quality Seed for Sustainable Aquaculture
- Healthy and Wholesome Aquaculture
- Maintaining Environmental Integrity through Responsible Aquaculture
- Meeting Social and Economic Challenges in Aquaculture
- Collaborative Projects with the Philippine Government

3.2.2 *Training Department*

- Promotion on Strengthening of SEAFDEC Visibility and Enhancing Human Capacity Building
- Improvement of Fisheries Technology and Reduction of the Impact from Fishing Activities
- USAID Sustainable Fish Asia Local Capacity Development Activity

3.3 Other Programs

- Implementing the Lower Mekong Fish Passage Initiative in Cambodia, Thailand, and Viet Nam
- Gender Dimension in the Value Chain of Small-scale Fisheries & Aquaculture in Southeast Asia
- Implementing the Strategic Action Programme for the South China Sea
- Survey to Estimate levels of Abandoned, Lost or otherwise Discarded Fishing Gear in Thailand Gillnet and Trap Fisheries
- Seminar-Workshop on Aquaculture Development in Southeast Asia (ADSEA)
- Collection of Research and Datasets from Data-poor Countries in Southeast Asia Related to SDG Indicator 14.4.1 and Formulation of a Thesaurus for Aquatic Genetic Resource

**Agenda 4:** Pipeline Projects and Emerging Needs for Preparation of Future Project Proposals

4.1 Promoting the blue economy and strengthening fisheries governance of the Gulf of Thailand through the Ecosystem Approach to Fisheries (GoTFish Project)

**Agenda 5:** Cooperation with Donors, Non-member Governments and International/Regional Organizations

- 5.1 FAO
- 5.2 USAID/RDMA
- 5.3 WWF
- 5.4 Others

**Agenda 6:** Other Matters

- 6.1 Monitoring and Evaluation of the Implementation of RES&POA-2030
- 6.2 Updating JTF Budget Request Process in Japan
- 6.3 The Outline of Japanese Trust Fund-7
- 6.4 Letter of Agreement to Support the Implementation of National Activities under SEAFDEC Projects
- 6.5 Others

**Agenda 7:** Conclusion and Recommendations of the Forty-fifth Meeting of the Program Committee

- 7.1 Adoption of the Report
- 7.2 Date and Venue of the Forty-sixth Meeting of the Program Committee

**Agenda 8:** Closing of the Program Committee Meeting





**PROJECTS UNDER THE FISHERIES CONSULTATIVE GROUP  
OF THE ASEAN-SEAFDEC STRATEGIC PARTNERSHIP (FCG/ASSP) MECHANISM  
FOR THE YEAR 2022–2023**

Strategy/Project Title		Lead Department	2022	2023	Appendix No.
<b>Strategy I: Securing the sustainability of fisheries to contribute to food security, poverty alleviation and livelihood of people in the region</b>					
1	Strengthening a Regional Cooperation and Enhancing National Capacities to Eliminate IUU Fishing in Southeast Asia	TD	Y	Y	1
2	Harmonization and Enhancing Utilization of Fishery Statistics and Information	SEC	Y	Y	2
3	Responsible Fishing Technology and Practice	TD	Y	Y	3
4	Research for Enhancement of Sustainable Utilization and Management of Sharks and Rays in the Southeast Asian Region	MFRDMD	Y	Y	4
5	Sustainable Utilization of Fisheries Resources and Resources Enhancement in Southeast Asia	TD	Y	Y	5
6	Fisheries Management Strategies for Pelagic Fish Resources in the Southeast Asian Region	MFRDMD	Y	Y	6
7	Management Scheme for Inland Fisheries in the Southeast Asian Region	IFRDMD	Y	Y	7
8	Small-scale Fisheries Management for Better Livelihood and Fisheries Resources	TD	Y	Y	8
9	Establishment and Operation of a Regional System of Fisheries <i>Refugia</i> in the South China Sea and Gulf of Thailand	TD	Y	N	9
10	Strengthening the Effective Management Scheme with GIS (Geographic Information System) & RS (Remote Sensing) Technology for Inland Fisheries and Aquaculture at AMS	TD	Y	N	10
11	Sustainable Utilization of Anguillid Eels in the Southeast Asian Region	IFRDMD	Y	Y	11
12	Development of Stock Assessment Method for Strengthening of Resources Management Measures of Tropical Anguillid Eels in AMS	SEC	Y	Y	12
13	Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia	TD	Y	Y	13
14	ASEAN-JICA Capacity Building Project on IUU Fishing Countermeasures in Southeast Asia	TD	N	Y	14
<b>Strategy II: Supporting the sustainable growth of aquaculture to complement fisheries and contribute to food security, poverty alleviation and livelihood of people in the region</b>					
15	Sustainable Aquaculture through Cost-Effective Culture Systems, and Prompt and Effective Aquatic Animal Health Management	AQD	Y	Y	15
<b>Strategy III: Ensuring the food safety and quality of fish and fishery products for the Southeast Asian region</b>					
16	Enhancing Food Safety and Competitiveness of Seafood Products	MFRD	Y	Y	16
17	ASEAN-JICA Food Value Chain Development Project	SEC	N	Y	17
<b>Strategy IV: Enhancing trade and compliance of the region's fish and fishery products with market requirements</b>					
	<i>Nil</i>				

Strategy/Project Title		Lead Department	2022	2023	Appendix No.
<b>Strategy V: Addressing cross-cutting issues, such as labor, gender and climate change, where related to international fisheries</b>					
18	Assistance for Capacity Development in the Region to Address International Fisheries-related Issues	SEC	Y	Y	18
<b>Strategy VI: Empowering SEAFDEC to strengthen its roles in the region and to improve its services to Member Countries</b>					
19	Fisheries Resource Survey & Operational Plan for M.V. SEAFDEC 2	TD	Y	Y	19

### New Projects

Strategy/Project Title		Lead Department	Period	Appendix No.
20	USAID/SEAFDEC/Sustainable Fish Asia-SEA Project	TD	2023–2027	20
21	Sustainable Management of Fisheries, Marine Living Resources and Their Habitats in the Bay of Bengal Region for the Benefit of Coastal States and Communities	TD	2023–2026	21
22	Promoting the Blue Economy and Strengthening Fisheries Governance of the Gulf of Thailand through the Ecosystem Approach to Fisheries (GoTFish Project)	TD	2023–2027	22
23	Blue Horizon: Ocean Relief through Seaweed Aquaculture	SEC, AQD	2023–2026	23
24	Regional Technical Consultation on Aquatic Animal Health Emergencies in Southeast Asia	AQD	2023	24

Y = Program implemented during the year

N = Program not implemented during the year

**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 202001011
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Strengthening regional Cooperation and Enhancing National Capacities to Eliminate IUU Fishing in Southeast Asia		
<b>Program Strategy No:</b>	I	<b>Total Period:</b>	2020–2024
<b>Lead Department:</b>	Training Department (TD)	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	Japanese Trust Fund (JTF)	<b>Total Project Budget:</b>	USD 450,000
<b>Project Partner(s):</b>	FAO, NOAA, USAID	<b>Budget for 2023:</b>	USD 90,000
<b>Lead Technical Officer:</b>	Kongpathai Saraphaivainch, (TD)	<b>Project Participating Country:</b>	All Members Countries

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

In the global and regional situation of Illegal, Unreported and Unregulated (IUU) fishing, SEAFDEC Training Department (TD) has been implementing the project titled “Promotion of Countermeasures to reduce IUU Fishing” in coordination and cooperation with international/regional fisheries organizations (FAO, NOAA, RPOA-IUU, *etc.*) and the SEAFDEC member countries to reduce IUU fishing activities in the region from 2013 to 2019 since implementation of activities under the first phase of JTF 6. The activities such as the development of a regional database on fishing vessels (Regional Fishing Vessels Record: RFVR), regional cooperation to support the implementation of Port State Measures (PSM) through the capacity development, and the development and promotion of the electronic ASEAN Catch Documentation Scheme (eACDS) were undertaken. To continue to support the member countries in the region for combating IUU fishing as recommended by the Council Meeting, this project titled “Strengthening a regional cooperation and enhancing national capacities to eliminate IUU fishing in Southeast Asia” is implemented under the JTF 6-II for the year 2020–2024. Under the overall objectives “Sustainable utilization and sound management of fisheries resources in the Southeast Asia”, the project expects four outputs; 1) enhancing RFVR, 2) strengthening national capacities in the implementation of PSM and MCS, 3) further promoting eACDS, and 4) coordinating and promoting a national/regional/international network for collaborative activities to combat IUU fishing.

### 2. Background and Justification

IUU fishing can take place in all capture fisheries. Efforts to conserve and manage fish stocks are undermined by IUU fishing, which can lead to the collapse of fisheries or can seriously impair efforts to rebuild fish stocks that have already been depleted. This may result in the loss of both short- and long-term social and economic opportunities and could have negative impacts on food security.

The international organization emphasize and implement activities relevant to combat IUU fishing such as the FAO Global Record of Fishing Vessels, Refrigerated Transport Vessels and Support Vessels; Global Information Exchange System (GIES) by FAO; ASEAN Roadmap on Combating IUU Fishing (2021-2025) which aims to enhance and strengthen collaborative efforts to combat IUU fishing in the region thereby improving fisheries management, sustaining fish resources, and optimizing the benefit of adopting responsible fishing practices.

In the Southeast Asian region, SEAFDEC organized the “High-level Consultation on Regional Cooperation in Sustainable Fisheries Development Towards the ASEAN Economic Community: Combating IUU Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products” in Bangkok, Thailand, on 3 August 2016. The ASEAN-SEAFDEC member countries declared and planned under relevant international laws and arrangements to combat IUU fishing in the Southeast Asian region and enhance the competitiveness of ASEAN fish and fishery products in the region and internationally.

Moreover, the ASEAN-SEAFDEC Regional Meeting on the Resolution and Plan of Action for ASEAN Region Towards 2030 held in September 2019 in Bangkok, Thailand, also emphasized on 1) Implement measures to prevent unauthorized fishing and eliminate illegal fishing practices, 2) Strengthen the implementation of measures and activities to combat IUU fishing by ensuring compliance with national laws and regulations, and the provisions of international instruments; encourage the development and implementation of national plans of action to combat IUU fishing; promote inter-agency coordination for effective implementation of laws and regulations; and enhance awareness and understanding of applicable international and regional instruments and agreements through information dissemination campaigns, 3) Establish and strengthen regional, sub-regional, and bi-lateral coordination on fisheries management and efforts to combat IUU fishing, 4) Mobilize regional/sub-regional collaboration frameworks and tools for combating IUU fishing, *e.g.* Regional Plan of Action to Promote Responsible Fishing Practices including Combating Illegal, Unreported and Unregulated Fishing (RPOA-IUU); ASEAN Regional Plan of Action for the Management of Fishing Capacity (RPOA-Capacity); Regional Fishing Vessels Record (RFVR); ASEAN Catch Documentation Scheme (ACDS), and the use of technologies to support monitoring and surveillance of fishing activities, *e.g.* Vessel Monitoring System (VMS), traceability systems, 5) Improve the capacity of relevant national authorities and strengthen their functions for regional and bilateral/sub-regional cooperation, to effectively implement the requirements of port State measures and flag State responsibilities, and 6) Apply traceability systems with mechanisms as needed to certify or validate the information for the whole supply chain, and establish regulations and enforcement schemes in line with international standards by harmonizing AMSs’ inspection systems and strengthen port inspections in the process as a means to improve traceability systems.

Following the directions of the “Resolution and Plan of Action for 2030” and the Declaration above mentioned, the Training Department (TD) has been implementing the project of “Strengthening regional cooperation and enhancing national capacities to eliminate IUU fishing in Southeast Asia” under the JTF 6-II for the year 2020–2024.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

The project is open and equalized for gender sensitivity. There is no limitation for men and/or women to participate in all activities.

### 5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification

#### 5.1 Logical Framework

GOAL (Overall Objectives)	Indicators	Means of Verification
Sustainable utilization and sound management of fisheries resources in Southeast Asia	<ul style="list-style-type: none"> <li>- Healthy fisheries resources</li> <li>- Regional / sub-regional cooperation in fisheries resources management</li> <li>- Responsible fisheries practice maintained</li> </ul>	<ul style="list-style-type: none"> <li>- Effective and efficient fisheries resources management</li> <li>- Improved regional cooperation in fisheries resources management</li> </ul>

<b>OUTCOME</b>	<b>Indicators</b>	<b>Means of Verification</b>
Countermeasures to reduce IUU Fishing in Southeast Asia	<ul style="list-style-type: none"> <li>- Effective and efficient implementation of National Plan of Action on IUU Fishing (NPOA-IUU)</li> <li>- All AMSs developed NPOA-IUU</li> <li>- Regional / sub-regional cooperation to combat IUU fishing</li> </ul>	<ul style="list-style-type: none"> <li>- Implementation plan of NPOA-IUU</li> <li>- NPOA-IUU developed in all AMSs</li> <li>- Improved a regional / sub-regional cooperation in Southeast Asia</li> </ul>
<b>OUTPUT 1</b>	<b>Indicators</b>	<b>Means of Verification</b>
Enhancing the utilization and improvement of Regional Fishing Vessels Record (RFVR) Database	<ul style="list-style-type: none"> <li>- Number of users accessing the RFVR Database through the website</li> <li>- Improved RFVR Database</li> </ul>	<ul style="list-style-type: none"> <li>- Increased number of RFVR Database usage</li> <li>- Updates of the information for RFVR Database</li> </ul>
<b>Activity 1</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 1.1:</b> Regional technical consultation to improve the utilization of RFVR	<ul style="list-style-type: none"> <li>- Regional technical consultation organized</li> <li>- Expected number (10) of participants from AMSs per meeting</li> </ul>	<ul style="list-style-type: none"> <li>- Consultation report</li> <li>- Number (10) of participants from AMSs per meeting</li> </ul>
<b>Activity 1.2:</b> National training to promote RFVR Database to ASEAN Member States (AMSs)	<ul style="list-style-type: none"> <li>- National training conducted</li> <li>- Expected number (20) of participants per training</li> </ul>	<ul style="list-style-type: none"> <li>- Training report</li> <li>- Number (20) of participants per training</li> </ul>
<b>Activity 1.3:</b> Sub-regional or bilateral meeting to develop the application of RFVR to support the Port State Measures (PSM) requirements (e.g. Myanmar and Thailand)	<ul style="list-style-type: none"> <li>- Sub-regional / bilateral meeting organized</li> <li>- Expected number (16) of participants per meeting (8 persons from each country)</li> </ul>	<ul style="list-style-type: none"> <li>- Meeting report</li> <li>- Number (16) of participants per meeting (8 persons from each country)</li> </ul>
<b>Activity 1.4:</b> Information, education and communication materials to support the RFVR Database developed	Information, education and communication materials disseminated	Number of production and dissemination of the materials
<b>OUTPUT 2</b>	<b>Indicators</b>	<b>Means of Verification</b>
Increased number of fisheries inspectors and strengthened implementation of PSM, and national capacity development of MCS in Southeast Asia	<ul style="list-style-type: none"> <li>- Expected number (more than 30) of fisheries officers understanding inspection duties of PSM</li> <li>- Smooth capacity building on the implementation of PSM</li> <li>- National capacity on MCS enhanced</li> </ul>	<ul style="list-style-type: none"> <li>- Number of fisheries officers (more than 30) understanding inspection duties of PSM</li> <li>- PSM in place</li> <li>- MCS in place</li> </ul>
<b>Activity 2</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 2.1:</b> Capacity development on port inspection to support the PSM Implementation including the introduction on the PSM implementation (in general) to non-ratified AMSs and capacity building on MCS	<ul style="list-style-type: none"> <li>- Capacity development trainings conducted</li> <li>- Number of trainings conducted</li> <li>- Expected number (18) of participants per training</li> </ul>	<ul style="list-style-type: none"> <li>- Training reports</li> <li>- Number of trainings at least 2 times for 5 years</li> <li>- Number of participants at least 36 persons in total</li> </ul>

<p><b>Activity 2.2:</b> Regional meeting to share information on detecting IUU fishing vessels for preventing the landing of fish and fishery products from IUU fishing vessels at ports in AMSs, and/or regional meeting to share information on MCS</p>	<ul style="list-style-type: none"> <li>- Regional meeting organized</li> <li>- Expected number (18) of participants per meeting</li> </ul>	<ul style="list-style-type: none"> <li>- Meeting report</li> <li>- Number (54) of participants in total</li> </ul>
<p><b>Activity 2.3:</b> Regional workshop on the review of national legal framework and procedures for the implementation of the PSM, including a gap analysis in the respective legal frameworks of the AMSs (together with 2.1)</p>	<ul style="list-style-type: none"> <li>- Regional workshop organized</li> <li>- Expected number (18) of participants per meeting</li> <li>- A gap analysis in legal frameworks conducted</li> </ul>	<ul style="list-style-type: none"> <li>- Workshop report</li> <li>- Number (at least 36) of participants in total</li> <li>- Gap analysis report</li> </ul>
<b>OUTPUT 3</b>	<b>Indicators</b>	<b>Means of Verification</b>
<p>Application of the electronic ASEAN Catch Documentation System (eACDS) and other tools for traceability to eliminate IUU fisheries products in AMSs</p>	<ul style="list-style-type: none"> <li>- Application of eACDS and other tools for traceability to eliminate IUU fisheries products developed</li> <li>- Elimination of IUU fisheries products enhanced through the implementation of eACDS in AMSs</li> </ul>	<ul style="list-style-type: none"> <li>- eACDS applications</li> <li>- Effective actions by AMSs</li> </ul>
<b>Activity 3</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<p><b>Activity 3.1:</b> Continued coordination, facilitation, development and expansion of eACDS in AMSs, particularly for Viet Nam, Malaysia, Myanmar, <i>etc.</i></p>	<p>eACDS further promoted</p>	<p>Implementation of eACDS</p>
<p><b>Activity 3.2:</b> Regional workshop to exchange information on fisheries catch documentation and traceability in AMSs</p>	<ul style="list-style-type: none"> <li>- Regional workshop organized</li> <li>- Expected number (20) of participants per workshop</li> </ul>	<ul style="list-style-type: none"> <li>- Workshop report</li> <li>- Number of participants (at least 30) in total</li> </ul>
<b>OUTPUT 4</b>	<b>Indicators</b>	<b>Means of Verification</b>
<p>National/regional/international network for collaborative activities to eliminate IUU fishing</p>	<p>Cooperation/collaboration with national/regional/international organizations enhanced</p>	<ul style="list-style-type: none"> <li>- Number of joint activities</li> <li>- Number of national/regional/international meetings</li> </ul>
<b>Activity 4</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<p><b>Activity 4.1:</b> Coordination with international/regional/national organizations (<i>e.g.</i> FAO, Regional Fisheries Management Organizations (RFMOs), Regional Fisheries Bodies (RFB) and national agencies) in and beyond the region to support AMSs in the implementation of relevant activities to eliminate IUU fishing</p>	<ul style="list-style-type: none"> <li>- List of international/regional/national organizations to collaborate on eliminating of IUU fishing developed</li> <li>- Number of relevant activities implemented in coordination with international/regional/national organizations</li> <li>- Number of reports or presentations on project activities to eliminate IUU fishing in the international/regional/national forum disseminated</li> </ul>	<ul style="list-style-type: none"> <li>- List of international/regional/national organizations</li> <li>- List of implemented activities</li> <li>- Reports or presentations on project activities</li> </ul>

<b>Activity 4.2:</b> Participation in national/regional/international meetings relevant to combating IUU fishing	- Participation of SEAFDEC staff in national/regional/international meetings - Expected number (at least 5) of meetings	- Meeting reports - Number (at least 5) of meetings in total
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## 5.2 Project Implementation Plan for 2020–2024

Activities	2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Activity 1:</b>																				
Activity 1.1																				
Activity 1.2																				
Activity 1.3																				
Activity 1.4																				
<b>Activity 2:</b>																				
Activity 2.1																				
Activity 2.2																				
Activity 2.3																				
<b>Activity 3:</b>																				
Activity 3.1																				
Activity 3.2																				
<b>Activity 4:</b>																				
Activity 4.1																				
Activity 4.2																				

## 5.3 Proposed Budget for 2020–2024

(Unit: USD)

Output	Activity	Y1 2020	Y2 2021	Y3 2022	Y4 2023	Y5 2024
<b>Output 1</b>	<b>Activity 1.1:</b> Regional Technical Consultation to Improve the Utilization of Regional Fishing Vessel Record 24 meters	20,000	10,000	10,000	10,000	10,000
	<b>Activity 1.2: (Option)</b> National training to promote Regional Fishing Vessels Record Database to AMSs	-	-	-	-	-
	<b>Activity 1.3: (Option)</b> Sub-regional or bilateral meeting to develop the application of RFVR to support the PSM requirements (e.g. Myanmar and Thailand)	-	-	-	-	-
	<b>Activity 1.4</b> Information, Education and Communication materials to support RFVR Database	-	-	1,000	-	-
<b>Output 2</b>	<b>Activity 2.1:</b> Capacity Building on Port Inspection to Support PSM Implementation including the Introduction on the PSM implementation (in general) to non-ratify AMSs, and capacity building on MCS	-	20,000	20,000	20,000	-
	<b>Activity 2.2:</b> Regional Meeting to share information on detecting IUU fishing vessels for preventing the landing of fish and fishery products from IUU fishing vessels at MCs' ports both PSMA ratify and non-ratify MCs, and/or regional meeting to share information on MCS	20,000	-	20,000	-	20,000



Output	Activity	Y1 2020	Y2 2021	Y3 2022	Y4 2023	Y5 2024
	<b>Activity 2.3:</b> Workshop on the review and collect the national legislation and procedures in relation with the implementation of the PSM includes gaps analysis in the respective the legal frameworks of the AMSs (together with 2.1)	-	-	-	-	-
<b>Output 3</b>	<b>Activity 3.1:</b> Facilitation and development eACDS for Viet Nam, Malaysia, Myanmar and <i>etc.</i> (in collaboration with MFRDMD)	47,000	57,000	15,000	57,000	37,000
	<b>Activity 3.2:</b> Regional Workshop on exchange information on fisheries catch documentation and traceability	-	-	21,000	-	20,000
<b>Output 4</b>	<b>Activity 4.1:</b> Coordination with International organizations <i>e.g.</i> FAO, Regional Fisheries Management Organizations (RFMOs), Regional Fisheries Bodies (RFB) and National agencies in and beyond the region in order to support AMSs on implementation of activities to eliminate IUU fishing.	-	-	-	-	-
	<b>Activity 4.2:</b> Participation in a national / regional / international meeting relevant to combating IUU fishing activities.	3,000	3,000	3,000	3,000	3,000
<b>Sub-total</b>		<b>90,000</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>	<b>90,000</b>

## PART II: PROJECT ACHIEVEMENTS IN 2022

### 1. Project Achievements in the Present Year (2022)

- Monitoring and facilitating AMSs for updating KDEs to the RFVR Database by themselves
- The Regional Workshop on Monitoring Control and Surveillance for Combating IUU Fishing in Southeast Asia was organized in August 2022
- The Regional Training Course on Port State Measures Inspection in Focus of Shipping Container for Fish and Fisheries Product was organized in September 2022
- The Online training on the use of eACDS application in the part of Movement Document (MD), Statement of Catch (SC), and Catch Certification (CC) for Myanmar was organized in January 2022
- The Online Training on Preparation and Installation of the eACDS Application to Server for Brunei Darussalam, Malaysia, and Viet Nam was organized in May, June, and July 2022 respectively
- The Regional Workshop to Exchange Information on Catch Documentation Scheme and Traceability of Fish and Fishery Products was organized in November 2022

### 2. Activities and Budget in the Present Year

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1:</b>								
Activity 1.1	O	1	1	3	1			-
<b>Output 2:</b>								
Activity 2.1	T	3	11	3	2	1	5	21,830
Activity 2.2	I	3	14	6	4	1	8	28,538

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 3:</b>								
Activity 3.1	II. Training activities	8	15	3	2			2,495

### 3. Expected Outcome/Outputs and Achievements

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Outcome</b>	Countermeasures to reduce IUU Fishing in Southeast Asia	
<b>Output 1:</b>	Enhancing the utilization and improvement of Regional Fishing Vessels Record (RFVR) Database	
Activity 1.1	- Monitor for uploading the KDEs in the RFVR database	- Facilitation for AMSs to upload the KDEs in the RFVR database by themselves
Activity 1.4	- Information, education and communication materials disseminated	- Production of User's Manual for the Regional Fishing Vessels Record (RFVR) Database System
<b>Output 2:</b>	Increased number of fisheries inspectors and strengthened implementation of PSM, and national capacity development of MCS in Southeast Asia	
Activity 2.1	- Increasing knowledge, skills, and experience of participants on inspection of fish and fisheries product importation <i>via</i> sea in container vessels, land and air transportation - Further strengthening of regional cooperation to support the implementation of PSM in Southeast Asia	- The Regional Training Course on Port State Measures Inspection in Focus of Shipping Container for Fish and Fisheries Product was organized from 13 to 15 September 2022
Activity 2.2	- Updated information on MCS implementation activities to combat IUU fishing among AMSs - Understanding fisheries management tools for combating IUU fishing - Capacity building needs on relevant MCS for combating IUU fishing ( <i>Appendix 1A</i> )	- The Regional Workshop on Monitoring Control and Surveillance for Combating IUU Fishing in Southeast Asia was organized from 23 to 24 August 2022
<b>Output 3:</b>	Application of the electronic ASEAN Catch Documentation System (eACDS) and other tools for traceability to eliminate IUU fisheries products in AMSs	

Activities	Expected Outcome/Outputs	Results/Achievements
Activity 3.1	<ul style="list-style-type: none"> <li>- Understanding the use of eACDS application version 2</li> <li>- Understanding on preparation and installation of eACDS application to server</li> <li>- Transferring of eACDS application as prototype for traceability of fish and fishery product to participating countries</li> <li>- Facilitation on implementation of eACDS for Cambodia as requested</li> </ul>	<ul style="list-style-type: none"> <li>- The Online training on the use of eACDS application in the part of Movement Document (MD), Statement of Catch (SC), and Catch Certification (CC) for Myanmar was organized in January 2022.</li> <li>- The Online Training on Preparation and Installation of the eACDS Application to Server for Brunei Darussalam, Malaysia, and Viet Nam was organized in May, June, and July 2022 respectively</li> <li>- Discussion with FiA, Cambodia on eACDS implementation in the part of Catch Declaration (CD) and confirmation of project site were made. Moreover, the Key Data Elements (KDEs) form was sent to Cambodia for collection information</li> </ul>
Activity 3.2	<ul style="list-style-type: none"> <li>- Updated information and implementation on traceability of fish and fishery products activities</li> <li>- Way forward to implementation traceability of fish and fishery products</li> </ul>	<ul style="list-style-type: none"> <li>- The Regional Workshop to Exchange Information on Catch Documentation Scheme and Traceability of Fish and Fishery Products was organized in November 2022</li> </ul>
<b>Output 4:</b>	National/regional/international network for collaborative activities to eliminate IUU fishing	
Activity 4.1	<ul style="list-style-type: none"> <li>- Good coordination with international/regional/national organizations to support AMSs in the implementation of relevant activities to eliminate IUU fishing</li> </ul>	<ul style="list-style-type: none"> <li>- Strengthened coordination with other international organizations for MCS and PSM activities</li> </ul>
Activity 4.2	<ul style="list-style-type: none"> <li>- Enhanced national capacities and updated information relevant to combat IUU fishing for project staff</li> <li>- Shared information on the implementation of combating IUU fishing activities</li> </ul>	<ul style="list-style-type: none"> <li>- Participation in the International Cooperation in Fisheries Enforcement Workshop on 12–14 January 2022 (online)</li> <li>- Participated in “Streamlining efforts to combat IUU fishing – the Global Capacity Development Portal” on 12 April 2022 which organized by FAO (online)</li> <li>- Participated in Training on Fisheries Traceability Technologies for Sustainable Fisheries Management through presented on “Electronic ASEAN Catch Documentation Scheme (eACDS) on 30 May 2022 which was organized by the USAID Sustainable Fish Asia (SUFIA) Local Capacity Development Confirmation. (online)</li> <li>- Participation in the Information Meeting on the 2009 FAO Agreement on Port State Measures (PSMA) on 21 June 2022 (online)</li> <li>- Participation in Regional Coordination Meeting for Asia on the Agreement on Port State Measures (PSMA) 11–15 July 2022 (online)</li> </ul>

#### 4. List of Publications in 2022

Publications	Type of Media	Attached e-file
Production of User’s Manual Regional Fishing Vessels Record (RFVR) Database System	Document	<a href="http://hdl.handle.net/20.500.12067/1785">http://hdl.handle.net/20.500.12067/1785</a>

## 5. Evaluation on Workshops/Training Courses by Participants of AMSs

Activities	Evaluation
<b>Output 2:</b>	
Activity 2.1	The Regional Training Course on Port State Measures Inspection in Focus of Shipping Container for Fish and Fisheries Product was organized for the SEAFDEC Member Countries. The evaluation was conducted <i>via</i> the Google platform. There were twelve (12) respondents in total. The results of the evaluation indicated that most of the participants (83.3%) understood the container inspection and more understood international cooperation and global initiative and the agreement on PSM for combating IUU fishing. The satisfaction of the practical session on container inspection and the quality of the instructors were very good, rated about 83.3% and 75% respectively while the satisfaction of training's day was very good, moderate about 50%, 25% and 17% respectively.
Activity 2.2	The Regional Workshop on Monitoring Control and Surveillance for Combating IUU Fishing in Southeast Asia was organized for the SEAFDEC Member Countries. The evaluation was conducted <i>via</i> the Google platform. There were twelve (12) respondents in total. The results of the evaluation indicated that most of the participants (75%) were satisfied that the information and/or skills presented were relevant and useful and increased their knowledge and skills in MCS. Most of the participants 58.3% and 33.3% were satisfied with the presenter(s) providing adequate time for questions and answers in rating very good and good respectively, while the meeting room, accommodation, and facilities were adequate and comfortable, rated about 66.7%.
<b>Output 3:</b>	
Activity 3.1	<p>- The Online Training on the Use of eACDS Application in the Part of Movement Document (MD), Statement of Catch (SC), and Catch Certification (CC) was organized for Myanmar. The online evaluation was conducted <i>via</i> the Google platform. There were ten (10) respondents in total. The results of the evaluation indicated that the most of participants (70%) understood the use of eACDS in part of the Movement Document (MD). The understanding in part of Statement of Catch (SC), and Catch Certification (CC) were good, rated about 60%. The satisfaction of the practical session on the use of eACDS in part of MD, SC, and CC was very good, rated about 60%, while the satisfaction of training's day and time per day was very good, rated about 70%.</p> <p>- The Online Training on the Preparation and Installation of the eACDS Application to the Server was organized for Brunei Darussalam, Malaysia, and Viet Nam. The online evaluation was conducted <i>via</i> the Google platform. There were twelve (12) respondents in total. The results of the evaluation indicated that most of the participants of 58% and 42% understood the preparation and installation of the eACDS application to the server in rating very good and good respectively. The satisfaction of the demonstration and practical session on the preparation and installation of the eACDS application to the server was very good and good, rated about 58% and 42% respectively, while the satisfaction of training's day and time per day was very good and good, rated about 42% and 50% respectively. However, the participants further expressed their concerns that if there was no COVID-19 pandemic, the training should have been organized face-to-face for better understanding in practical sessions</p>

## 6. Major Impacts/Issues

- All participation in the project activities is open to men and women. There were no specific gender issues in the implementation of the project activities
- The participants who attended the regional training course on port state measures inspection in the focus on shipping containers for fish and fisheries products can apply their knowledge, understanding, and experience to their job
- The participants in the online training on the use of eACDS application can be a trainer and transfer their knowledge and understanding to relevant stakeholders in their countries
- After attending the online training on the preparation and installation of the eACDS application to the server, Malaysia could install the eACDS application in their server

## PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

### 1. Project Summary in 2023

In 2023, the project titled “Strengthening regional cooperation and enhancing national capacities to eliminate IUU fishing in Southeast Asia” continues to develop the capacity of AMSs on MCS through the regional cooperation in the implementation of MCS. The implementation and promotion of eACDS is continued in the Member Countries as requested.

### 2. Outcome, Outputs and Activities and Proposed Budget

(Unit: USD)

Proposed Activity	Description	Proposed Budget
Outcome	Countermeasures to reduce IUU Fishing in Southeast Asia	
Output 1:	Enhancing the utilization and improvement of Regional Fishing Vessels Record (RFVR) Database	
Activity 1.4: Information, education, and communication materials for combating IUU fishing	Production of information, education, and communication material	1,000
Output 2:	Increased number of fisheries inspectors and strengthened implementation of PSM and MCS in Southeast Asia	
Activity 2.1: Capacity Building on Port Inspection to support PSM Implementation including the Introduction on the PSM implementation (in general) to non-ratify AMSs, and capacity building on MCS	Capacity building on MCS in Southeast Asia for AMSs is conducted  Estimated expenditures: - Airfares and transportation (for 20 persons): USD 6,500 - Accommodation (for 4 nights): USD 5,600 - DSA (for 3 days): USD 4,200 - Meeting package, etc.: USD 5,500 - Honorarium for resource person USD 7,200 Sub-total: USD 29,000	29,000
Activity 2.3: Workshop on the review and collect the national legislation and procedures in relation with the implementation of the PSM includes gaps analysis in the respective the legal frameworks of the AMSs	The regional workshop is organized to enhance knowledge in relevant subjects on international law of the sea  Estimated expenditures: - Airfares and transportation (for 20 persons): USD 6,500 - Accommodation (for 4 nights): USD 5,600 - DSA (for 3 days): USD 4,200 - Meeting package, etc.: USD 5,500 - Honorarium for resource person USD 8,200 Sub-total: USD 30,000	30,000
Output 3	Application of the electronic ASEAN Catch Documentation System (eACDS) and other tools for traceability to eliminate IUU fisheries products in AMSs	

(Unit: USD)

Proposed Activity	Description	Proposed Budget
Activity 3.1: Facilitation and development of eACDS for Viet Nam, Malaysia and Myanmar.	SEAFDEC/TD continues to facilitate, trial, monitor and transfer the eACDS application for Myanmar and support the implementation for Cambodia  Expected expenditures of facilitation participating countries:  <i>Myanmar</i> - Airfares and transportation (for 5 persons): USD 2,500 - Accommodation (for 4 nights): USD 2,000 - DSA (for 5 days): USD 1,500 - Training costs, etc.: USD 1,000 Sub-total: USD 7,000  <i>Cambodia</i> - Airfares and transportation (for 5 persons): USD 2,500 - Accommodation (for 4 nights): USD 2,000 - DSA (for 5 days): USD 1,500 - Training costs, etc.: USD 1,000 Sub-total: USD 7,000 x 2 times = USD14,000	21,000
Output 4	National/ regional/ international network for collaborative activities to eliminate IUU fishing	
Activity 4.2: Participation in a national / regional / international meeting relevant to combating IUU fishing activities	For strengthening cooperation with other organizations, enhancing capacity and updating information on IUU fishing related issues, the project staff participate in international meetings/workshops relevant to IUU fishing. Future capacity building needs to support the implementation of ASEAN AN-IUU network are identified in consultation with AMSs.  <b>Expected expenditures:</b> - Airfares and transportation: USD 1,010 - Accommodation (for 3 nights): USD 210 - DSA (for 4 days) USD 280 Sub-total: USD 1,500 x 2 persons x 3 times = USD 9,000	9,000

### 3. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Activity 1.4												
Activity 2.1												
Activity 2.3												
Activity 3.1												
Activity 4.1												
Activity 4.2												

### 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
Activity 1: Regional Fishing Vessels Record (RFVR)	
Activity 1.1 The Regional Meeting on Development and Improvement of RFVR is organized and aims to follow up, monitor and facilitate AMSs to upload the KDEs to the RFVR database	<ul style="list-style-type: none"> <li>- Supporting AMSs for the use of updated platform on RFVR database</li> <li>- Close monitoring on the use of updated platform on RFVR database to avoid information error</li> <li>- Information on possible collaborative work between SEAFDEC and other relevant organizations to share information on fishing vessels record at regional and global levels</li> </ul>



Planned activity	Expected Activity Results
Activity 1.4: Production of information, educational and communication materials for combating IUU fishing	<ul style="list-style-type: none"> <li>- A set of information, educational and communication materials</li> <li>- Promotion and dissemination of information on activities to combat IUU fishing to the public</li> </ul>
<b>Activity 2: Regional Cooperation to support implementation of PSM and MCS</b>	
Activity 2.1 Capacity building on MCS in Southeast Asia	<ul style="list-style-type: none"> <li>- Enhanced awareness, better understanding, skill development and implementation experience of MCS in Southeast Asia and applying for the Member Countries</li> </ul>
Activity 2.2 The Regional Meeting to share information on MCS	<ul style="list-style-type: none"> <li>- Sharing information, enhancement of skill and experience on the MCS implementation in Southeast Asia</li> <li>- Cooperation with partners to support the implementation of MCS</li> <li>- A set of new regional programs on capacity development for the effective implementation of national MCS in consultation with the Member Countries and collaborative partners.</li> </ul>
<b>Activity 3: Electronic ASEAN Catch Documentation Scheme (eACDS)</b>	
Activity 3.1 Facilitation and transfer of eACDS application for Brunei Darussalam, Viet Nam, Malaysia and Myanmar as well as other countries	<ul style="list-style-type: none"> <li>- Successful trial and improvement of eACDS in Brunei Darussalam, Viet Nam, Malaysia and Myanmar</li> <li>- Improved understanding on the use of eACDS application</li> <li>- Transferred eACDS system to Brunei Darussalam</li> <li>- A set of information on the needs of AMSs for improving national traceability system (in consultation with the Member Countries and collaborative partners)</li> </ul>
Activity 3.2 Regional workshop to exchange information on fisheries catch documentation and traceability in AMSs	<ul style="list-style-type: none"> <li>- Sharing information on eACDS implementation to AMSs and identifying recommendations for traceability in Southeast Asia for the future</li> </ul>
<b>Activity 4: Strengthen on Coordination with international/regional/national organizations</b>	
Activity 4.1 Coordination with international organizations <i>e.g.</i> FAO, Regional Fisheries Management Organizations (RFMOs), Regional Fisheries Bodies (RFB) and National agencies in and beyond the region in order to support AMSs in the implementation of activities to eliminate IUU fishing	<ul style="list-style-type: none"> <li>- Strengthening continued coordination/cooperation with partner organizations to support AMSs</li> <li>- Establishing good coordination with new partner (s) to support AMSs in the implementation of national countermeasures related to IUU fishing</li> </ul>
Activity 4.2 Participation in a national/regional/international meeting relevant to IUU fishing. To cooperate with other organizations, strengthen national capacities and update information on IUU fishing-related issues. Project staff participate in international meetings/workshops relevant to IUU fishing.	<ul style="list-style-type: none"> <li>- Strengthened network to combat IUU fishing</li> <li>- Strengthened cooperation with partners to combat IUU fishing in the region</li> <li>- Shared and exchanged information on combating IUU fishing in the region</li> </ul>

**The Results from a Discussion on Obstacles and Challenges of MCS Implementation and Identification Needs of MCS Capacity Building  
in the Regional Workshop on Monitoring Control and Surveillance for Combating IUU Fishing in Southeast Asia  
23–24 August 2022**

*Obstacles and Challenges of MCS Implementation*

<b>MCS Implementation/ activities</b>	<b>Obstacles and Challenges</b>	<b>Support activities</b>	<b>Requested by country</b>
Budget/Finance to conduct MCS activities such as E-logbook, in each AMS	<ul style="list-style-type: none"> <li>- Limited budget</li> <li>- Budget Adjustment due to COVID-19 pandemic</li> </ul>	<ul style="list-style-type: none"> <li>Find some donors (Australia, USA, Norway) to support the PSMA implementation</li> <li>- Innovation Fund from SEA IUU Fishing program supported by Australia</li> <li>- EU delegation for support MCS or combating IUU fishing</li> <li>- Norway (Norad)</li> <li>- USAID</li> <li>- Japanese Trust Fund</li> </ul>	- AMSs
A sufficient number of MCS staff	<ul style="list-style-type: none"> <li>- Limited the number of MCS staff</li> </ul>	<ul style="list-style-type: none"> <li>- Government should recruit MCS staff</li> <li>- AMS request FAO, SEAFDEC, NGO, and other agencies gap analysis and recommendation to your country</li> </ul>	- AMSs
The skill of human resources	<ul style="list-style-type: none"> <li>- Lack of understanding of the overview of MCS</li> <li>- Lack of the MCS skills</li> <li>- Limitations of information on MCS activities on Inland Fisheries</li> </ul>	<ul style="list-style-type: none"> <li>- Encourage countries to join regional organizations such as RPOA-IUU or some regional organizations to engage and seek potential funding</li> <li>- Improve the skill of staff <i>via</i> training and workshop by SEAFDEC</li> </ul>	- AMSs Potential Inputs: Training of Trainers for each AMS
Technology/Tools	<ul style="list-style-type: none"> <li>- Lack of appropriate equipment such as VMS</li> <li>- Limited skill of fishermen to understand/use the mobile device</li> <li>- High cost for fishermen and government</li> </ul>	<ul style="list-style-type: none"> <li>- Training for fishermen</li> <li>- Government assistant and support</li> </ul>	- AMSs
Law and regulation	<ul style="list-style-type: none"> <li>- Lack of enforcing the law and regulation</li> <li>- Lack of collaboration with several agencies</li> <li>- Lack of harmonized SOP between inter-agencies</li> </ul>	<ul style="list-style-type: none"> <li>- MOU and MOA among inter-agencies</li> </ul>	- AMSs



*Identification Needs of MCS Capacity Building*

No.	Capacity Needs	Timeframe (Immediately, Long term)	Responsible Agency	Requested by country
1	Technical assistance on NPOA capacity	Immediately	SEAFDEC etc.	PH
2	Capacity building on the e-traceability such as e-logbook, eACDS, etc.	Immediately	SEAFDEC, CCALMR, IOTC, Brunei Darussalam, Development Partner	PH, ID, MY, MM, VN
3	Training on risk analysis of the pattern of fishing operation in each fishing gear by using VMS and AIS	Long term	SEAFDEC, CAPFISH Project, IMCS, MRC	AMSs
4	Technical assistance with scientific data collection, stock assessment, and research survey for marine resources	Long term	SEAFDEC, CCALMR, DA-NFRDI (Department of Agriculture - National Fisheries Research and Development Institute (PH)), Biofish Center, WWF	MM, LA
5	- Sharing information on port inspection - Training on Inspection for foreign flag vessels (PSMA)	Immediately	SEAFDEC, CAPFISH Project, IOTC, NOAA, WCPFC	AMSs
6	Fisheries intelligence/technology/application with notification such as VMS, AIS, other new technology, etc. for surveillance and MCS integration	Immediately	SEAFDEC, NOAA, DOF-TH, etc.	ID, MM, VN, PH, BN, CM, MY

**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 202006007
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Harmonization and Enhancing Utilization of Fishery Statistics and Information		
<b>Program Strategy No:</b>	I	<b>Total Period:</b>	2020–2024
<b>Lead Department:</b>	Secretariat (SEC)	<b>Lead Country:</b>	Nil
<b>Donor/Sponsor:</b>	Japanese Trust Fund (JTF)	<b>Total Project Budget:</b>	USD 230,000
<b>Project Partner(s):</b>	FAO	<b>Budget for 2022:</b>	USD 44,000
<b>Lead Technical Officer:</b>	Saivason Klinsukhon (SEC)	<b>Project Participating Country(ies):</b>	All ASEAN Member States

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

Fishery statistics and information are essential for policy planning and management of fisheries toward sustainability. This project therefore focuses on supporting the on-going efforts of SEAFDEC in the regional compilation of fishery statistics in ASEAN Member States (AMSs), taking into consideration of the newly agreed statistics standards developed and recently adopted by FAO in 2019. This would ensure that fishery statistics submitted by AMSs for the regional compilation comply with the requirements at global level.

In addition to fishery statistics, the project supports the utilization of various data and information to generate information that could provide better knowledge on the status and trends of fisheries and aquaculture in the region. The information on fishery and aquaculture-related issues confronted in the region would be published in the third issue of the publication “Southeast Asian State of Fisheries and Aquaculture (SEASOFIA)” produced by SEAFDEC every 5-year (the first issue in 2012, second in 2017, and third in 2022). Furthermore, the project would support enhancing the visibility of SEAFDEC initiatives undertaken through SEAFDEC programs and projects, which would be also published in the SEAFDEC Special Publication “Fish for the People” (three issues per year, since 2002).

### 2. Background and Justification

SEAFDEC has been undertaking initiatives in compiling fishery statistics from the Member Countries bordering the South China Sea Areas since 1978. Harmonization of data is an important issue in order to facilitate the exchange and compilation of statistics at various levels, *i.e.* regional and international levels. SEAFDEC developed the “Regional Framework for Fishery Statistics of Southeast Asia”, *i.e.* on the “standard definitions and classifications” to be harmonized with the international standards and on “area of coverage” and “statistical usage” to be consistent with the areas of competence of SEAFDEC. The framework has been used for the compilation of fishery statistics from the Southeast Asian countries to SEAFDEC since 2008.

Nevertheless, after 2008, there was still more development of new standards by the Coordinating Working Party (CWP) on Fishery Statistics. In August 2017, SEAFDEC organized the “Regional Technical Consultation (RTC) on Fishery Statistics and Information in Southeast Asia”, where the Southeast Asian countries were updated with the recent development by the CWP of new global frameworks related to fishery statistics. During the RTC, the initial recommendations were provided to the participants on the new CWP standards. It was agreed that after the adoption of the new CWP standards (*i.e.* at the 26<sup>th</sup> Session of the Coordinating Working Party (CWP) on Fishery Statistics in 2019), SEAFDEC should organize a meeting among the members of the ASEAN Network on Fishery Statistics to revise the Regional Framework for Fishery Statistics of Southeast Asia. Other areas for improving regional fishery statistics were also discussed and agreed upon during the RTC, *e.g.* inclusion of statistics on fish trade and fish processing. This project is planned to support revising the Regional Framework for Fishery Statistics for Southeast Asia with the new global frameworks related to fishery statistics, as well as inclusion of other areas

that are important to provide information on the status of the fisheries sector in the region. “Fish for the People” would be incorporated under this project.

In addition, SEAFDEC published its publications entitled “Southeast Asian State of Fisheries and Aquaculture (SEASOFIA)” in 2012 and 2017, aiming to make use of statistics, other data and information to provide better understandings on the fisheries sector of the region. In order to continue the momentum of enhancing the utilization of fishery statistics, this project would facilitate the preparation and production of the next SEASOFIA in 2022. Furthermore, there is also a need to sustain the initiative on production of Special Publication.

The Project supports the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030, #6 “*Enhance regional fishery information systems and mechanisms to facilitate sharing, exchange and compilation of statistics and information required at the sub-regional and regional level, and apply where appropriate, regionally standardized definitions and classifications for statistical data to facilitate regional compilation, analysis, and data exchange*”.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



#### 4. Gender Sensitivity of the Project

The nature of project implementation in general is not gender sensitive; however, the revised Regional Framework for Fishery Statistics of Southeast Asia and SEASOFIA 2022 could incorporate the gender aspect in the activity.

### 5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification

#### 5.1 Logical Framework

GOAL (Overall Objectives, Impact)	Indicators	Means of Verification
Utilization of fishery statistics data and information for policy planning and management of fisheries toward sustainability	Fishery statistics data and information on the status and trends served as references for policy planning and fisheries management	Number of references made to the Fishery Statistics Bulletin, SEASOFIA 2022, and “Fish for the People”
OUTCOME	Indicators	Means of Verification
SEAFDEC fishery statistics data improved in line with the revised Regional Framework for Fishery Statistics of Southeast Asia	Data items reported based on the revised Regional Framework for Fishery Statistics of Southeast Asia	Number of data items reported by AMSs for the SEAFDEC Statistics Bulletin
OUTPUT 1	Indicators	Means of Verification
Regional Framework for Fishery Statistics of Southeast Asia revised	Revised Regional Framework for Fishery Statistics of Southeast Asia is harmonized with the new global standards	Adoption of the Regional Framework by AMSs
ACTIVITY 1	Indicators: key inputs	Means of Verification
<b>Activity 1.1:</b> Monitoring the development of global fishery statistics standards and participation in the relevant fora in the development and finalization of global frameworks on fishery statistics	SEAFDEC staff participated in the relevant international meetings (e.g. FAO CWP on Fishery Statistics), and information on regional standards shared	Meeting Reports

<b>GOAL (Overall Objectives, Impact)</b>	<b>Indicators</b>	<b>Means of Verification</b>
<p><b>Activity 1.2:</b> Regional Technical Consultation(s) to gather inputs for revising the regional Framework for Fishery Statistics of Southeast Asia</p> <p><i>Remarks: A series of RTC to be organized to update the Statistics Framework:</i> <i>Year 1: Overall workplan, Part of General Note, Marine and Inland Capture Production, and Export and Import of Fishery Commodities</i> <i>Year 2: Part of Aquaculture and Producer Price</i> <i>Year 4: Finalizing the revision of regional framework</i> <i>Year 5: Monitoring the new questionnaires</i></p>	<ul style="list-style-type: none"> <li>- Regional Technical Consultation organized</li> <li>- Revised Regional Framework drafted</li> <li>- Expected number (40 persons) of participants</li> </ul>	<ul style="list-style-type: none"> <li>- Consultation report(s)</li> <li>- Number of global standards accommodated in the revised Regional Framework</li> <li>- Revised Regional Framework (draft)</li> <li>- Number (40 persons) of participants</li> </ul>
<p><b>Activity 1.3:</b> Production and dissemination of the revised Regional Framework for Fishery Statistics of Southeast Asia</p>	<p>The revised Regional Framework published and disseminated in 2024</p>	<p>Number of production and dissemination of the revised Regional Framework</p>
<b>OUTPUT 2</b>	<b>Indicators</b>	<b>Means of Verification</b>
<p>Latest information on the status and trends of fisheries and aquaculture in the region disseminated to the public through the SEAFDEC publication “Southeast Asian State of Fisheries and Aquaculture 2022 (SEASOFIA 2022)”</p>	<p>SEASOFIA 2022 published as reference material on the status and trends of fisheries and aquaculture in the region</p>	<p>SEASOFIA 2022</p>
<b>ACTIVITY 2</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<p><b>Activity 2.1:</b> Consultations among SEAFDEC Departments to develop the outline and identify contributors for SEASOFIA 2022</p>	<p>The Consultation conducted in 2020</p>	<ul style="list-style-type: none"> <li>- Consultation reports</li> <li>- Outlines of SEASOFIA 2022</li> </ul>
<p><b>Activity 2.2:</b> Departments of input articles and consultations for finalizing the articles for SEASOFIA 2022</p>	<p>Consultation conducted in 2021 to finalize draft articles</p>	<ul style="list-style-type: none"> <li>- Consultation reports</li> <li>- Draft articles for SEASOFIA 2022</li> </ul>
<p><b>Activity 2.3:</b> Production and dissemination of SEASOFIA 2022</p>	<p>SEASOFIA 2022 published and disseminated in 2022</p>	<p>Number of production and dissemination of SEASOFIA 2022</p>
<b>OUTPUT 3</b>	<b>Indicators</b>	<b>Means of Verification</b>
<p>Information on fisheries issues and relevant regional initiatives disseminated to public through the SEAFDEC publication “Fish for the People”</p>	<p>Information on fisheries issues and relevant regional initiatives disseminated</p>	<p>SEAFDEC publication “Fish for the People”</p>

<b>GOAL (Overall Objectives, Impact)</b>	<b>Indicators</b>	<b>Means of Verification</b>
<b>ACTIVITY 3</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 3.1:</b> Preparation, production and dissemination of the publication “Fish for the People”	“Fish for the People” published and disseminated in three times per year (April, August, and December)	Number of production and dissemination of “Fish for the People”

## 5.2 Project Implementation Plan for 2020–2024

Activities	2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Output 1:</b>																				
Activity 1.1																				
Activity 1.2							*				**									
Activity 1.3																				
<b>Output 2:</b>																				
Activity 2.1																				
Activity 2.2																				
Activity 2.3																				
<b>Output 3:</b>																				
Activity 3.1																				

Remark: \* As the conduct of in-person meeting is not possible due to the Covid-19 pandemic, the consultation will be postponed to the 2<sup>nd</sup> Quarter of 2021.

\*\* The Second RTC which was originally scheduled in 2021 will be postponed to the 3<sup>rd</sup> quarter of 2022.

## 5.3 Proposed Budget for 2020–2024

(Unit: USD)

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2024)
Output 1	Activity 1.1	4,000	4,000	4,000	4,000	4,000
	Activity 1.2	25,000	25,000	-	25,000	25,000
	Activity 1.3	-	-	-	-	5,000
Output 2	Activity 2.1	10,000	-	-	-	-
	Activity 2.2	-	10,000	-	-	-
	Activity 2.3	-	-	10,000	-	-
Output 3	Activity 3.1	15,000	15,000	15,000	15,000	15,000
<b>Sub-Total</b>		54,000	54,000	29,000	44,000	49,000

## PART II: PROJECT ACHIEVEMENTS IN 2022

### 1. Project Achievements in the Present Year (2022)

In 2022, SEAFDEC continued coordination with the member countries and relevant organization to support the submission of national statistics for regional/international compilation. Specifically, SEAFDEC attended the FAO Intersessional Meeting of Aquaculture and Fisheries Subject Groups (20–23 June 2022, online meeting), the Twenty-seventh Session of Coordinating Working Party (27CWP) (24 June 2022, online meeting), and the FAO Workshop on Fisheries Data Collection and Statistics for Asia and Pacific (26–27 July 2022, online meeting) to share view situation on fishery statistics of the region.

SEAFDEC organized the Second Regional Technical Consultation on Fishery Statistics and Information in Southeast Asia on 23–26 August 2022 in Pattaya, Chonburi Province, Thailand where the RTC discussed and agreed on the revision of the Regional Framework for Fishery Statistics of Southeast Asia, specifically for the parts on marine and inland capture fisheries, aquaculture, fishers and fish farmers, producer price, and per capita fish consumption. The Consultation also supported the inclusion of new statistics items (e.g. statistics on small-scale and commercial fisheries, fishers and fish farmers disaggregated by nationality and gender, and per capita fish consumption) to recognize and highlight the importance of the contribution of fisheries to food security, small-scale fisheries, and gender inclusion.

For “Southeast Asian State of Fisheries and Aquaculture (SEASOFIA) 2022”, SEAFDEC published and disseminated the SEASOFIA 2022 to the Member Countries, partner organizations, fisheries institutions and libraries, and individual recipients, while the electronic format was made available for the download at the SEAFDEC Institutional Repository.

Furthermore, based on the project implementations, the outputs, outcomes and results of the projects were published through the SEAFDEC publications such as “Fish for the People”, in order to enhance its visibility to the member countries and other readers at regional and international levels. In 2022, three issues of “Fish for the People” (Volume 20 No.1, No.2 and No.3) were published and disseminated.

## 2. Activities and Budget in the Present Year

Activities	Type of activity	Number of Participants						Budget Spent * (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1:</b>								
Activity 1.1 Participation in the relevant fora in relation to development and finalization of global frameworks on fishery statistics	VI. Others	-	-	6	-	-	-	951 (estimated, to be updated)
Activity 1.2 Conduct Regional Technical Consultation to gather inputs for revision of the Regional Framework for Fishery Statistics for Southeast Asia	IV. Policy development activities	9	6	9	3	1	-	22,900 (estimated, to be updated)
<b>Output 2:</b>								
Activity 2.3 Production and dissemination of SEASOFIA 2022	III. Information activities	-	-	-	-	-	-	8,021 (estimated, to be updated)
<b>Output 3:</b>								
Activity 3.1 Preparation, production and dissemination of publication on Fish for the People	III. Information activities	-	-	-	-	-	-	13,000 (estimated)

\* Budget spent as of October 2021

## 3. Expected Outcome/Outputs and Achievements in the Present Year

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Outcome</b>		
<b>Output 1:</b>		
Activity 1.1	Information on the fishery statistics in the region shared with FAO during the APCAS Meeting	Strengthened cooperation between SEAFDEC and the Member Countries and relevant organizations on fishery statistics matters
Activity 1.2	Report of the Second RTC containing recommendations for revision of the Regional Frameworks on Fishery Statistics	Agreements among AMSs and SEAFDEC on the revision of the Regional Framework for Fishery Statistics of Southeast Asia specifically on marine and inland capture fisheries, aquaculture, fishers and fish farmers, producer price, and per capita fish consumption. The AMSs also supported the inclusion of new statistics items e.g. statistics on small-scale and commercial fisheries, fishers and fish farmers disaggregated by nationality and gender, and per capita fish consumption

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Output 2:</b>		
Activity 2.3	Production and dissemination of SEASOFIA 2022	SEASOFIA 2022 published and disseminated to the Member Countries, partner organizations, fisheries institutions and libraries, and individual recipients, while the electronic format was made available at the SIR for downloading
<b>Output 3:</b>		
Activity 3.1	Three issues of “Fish for the People” produced and disseminated to readers	Well disseminated the information of activities and achievements of SEAFDEC programs and projects in the countries and region through “Fish for the People”

#### 4. List of Publications in 2022

Publications	Type of Media	Attached e-file
1. Report of the Second Regional Technical Consultation on Fishery Statistics and Information in Southeast Asia	Technical Report	<a href="http://www.seafdec.org/2rtc-stat2022/">http://www.seafdec.org/2rtc-stat2022/</a>
2. Southeast Asian State of Fisheries and Aquaculture (SEASOFIA) 2022	Technical Report	<a href="https://repository.seafdec.org/handle/20.500.12066/6752">https://repository.seafdec.org/handle/20.500.12066/6752</a>
3. SEAFDEC Special Publication Fish for the People, Vol.20 No.1	Magazine	<a href="https://repository.seafdec.org/handle/20.500.12066/6984">https://repository.seafdec.org/handle/20.500.12066/6984</a>
4. SEAFDEC Special Publication Fish for the People, Vol.20 No.2 (under finalization)	Magazine	[URL]
5. SEAFDEC Special Publication Fish for the People, Vol.20 No.3 (under preparation)	Magazine	[URL]

#### 5. Evaluation on Workshops/Training Courses by Participants of AMSs

Activities	Evaluation
<b>Output 1:</b>	
Activity 1.1	No existing current method/mechanism to evaluate this activity
Activity 1.2	Suggested revision of the Regional Framework for Fishery Statistics for Southeast Asia that could serve as reference for revision of the framework
<b>Output 2:</b>	
Activity 2.3	SEASOFIA 2022 disseminated to the Member Countries and other relevant international, regional, and national organizations
<b>Output 3:</b>	
Activity 3.1	Number of publications disseminated to the Member Countries and other relevant international, regional, and national organizations

#### 6. Major Impacts/Issues

- Coordination for and participation in the fishery statistics-related meetings organized by other organizations (*i.e.* FAO) enabled SEAFDEC to be updated on relevant development at the global level, and to share information on the status and availability of fishery statistics in the AMSs
- The Second RTC on Fishery Statistics and Information in Southeast Asia was conducted (with both onsite and online modes) and came up with recommendations for revision of the Regional Fishery Statistics Framework that are harmonized with the standards, definitions, and classifications adopted at the global level. This would facilitate sharing and exchange of fishery statistics from the AMSs, maximizing the utilization of fishery statistics data as a basis for policy planning and management of fisheries.
- SEASOFIA 2022 provided useful information on the region’s fisheries and aquaculture production and utilization, recent issues, initiatives, and challenges faced in ensuring sustainable development of fisheries

and aquaculture; and future outlook and anticipated challenges. This publication would contribute to improving science-based policy planning and management of fisheries in order to support countries in achieving sustainable fisheries and enhancing the fisheries' contribution to food security in the future.

- The Special Publication “Fish for the People” promotes sustainable fisheries for food security in the Southeast Asian region through the article contributions of various authors who have significant experiences and work in the region in the sustainable development of fisheries and aquaculture. Key issues and challenges as well as ways forwards to promote sustainable development of fisheries on specific topics were highlighted in this publication.

### PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

#### 1. Project Summary in 2023

In 2023, SEAFDEC will continue to coordinate with the Member Countries and relevant organizations and participate in relevant regional/international fora to keep up with the new development in fishery statistics. Based on the results from discussion at the RTCs organized in 2021 and 2022, the 3<sup>rd</sup> Regional Technical Consultation on Fishery Statistics and Information in Southeast Asia will be organized under this project to finalize the revised version of the Regional Framework of Fishery Statistics in Southeast Asia and set of questionnaires that will be used for compiling annual statistics from the AMSs in the future. Furthermore, three issues of Special Publication “Fish for the People ” will be published and disseminated in the year 2023 to promote initiatives and activities undertaken by SEAFDEC to the wider audience in the countries and region.

#### 2. Outcome, Outputs and Activities and Proposed Budget

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Outcome</b>	SEAFDEC fishery statistics data improved in line with the revised Regional Framework for Fishery Statistics of Southeast Asia	
<b>Output 1:</b>	Regional Framework for Fishery Statistics for Southeast Asia revised	
Activity 1.1	<p>Participation in the relevant fora in relation to the development and finalization of global frameworks on fishery statistics</p> <p>SEAFDEC will participate in the international/regional fora to update the development of global frameworks related to fishery statistics, and to support the revision of the Regional Framework of Fishery Statistics for Southeast Asia with the new global frameworks.</p> <p><b>Estimate expenditures:</b></p> <ul style="list-style-type: none"> <li>- Travel costs USD 2,300</li> <li>- Daily subsistence allowances USD 700</li> <li>- Accommodation USD 500</li> <li>- Others USD 500</li> <li>Sub-total: USD 4,000</li> </ul>	<b>4,000</b>
Activity 1.2	<p>Organization of the Second Regional Technical Consultation to gather inputs for revising the Regional Framework for Fishery Statistics for Southeast Asia</p> <p>The third RTC will be conducted in 2023 with the participation of representatives from the ASEAN Member States to finalize the revision of the Regional Framework of Fishery Statistics in Southeast Asia and questionnaires. It is expected that the RTC will come up with the final version of the Regional Framework and questionnaires to enhance the regional compilation of fishery statistics in the future.</p> <p>Remarks: the third RTC will be organized in Thailand (for 3 days)</p>	<b>25,000</b>



(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
	<b>Estimate expenditures:</b> - Traveling costs USD 7,000 (1 prs. from each AMS and 1 prs. from each SEAFDEC Department) - Daily subsistence allowances USD 7,000 - Accommodation USD 6,000 - Meeting package (40 prs.) USD 3,800 - Others USD 1,200 Sub-total: USD 25,000	
<b>Output 3:</b>	SEAFDEC publication “Fish for the People”	
Activity 3.1	Preparation, production and dissemination of the publication “Fish for the People”  Three issues of SEAFDEC Special Publication “Fish for the People” will be published and disseminated  <b>Estimated expenditures:</b> - Printing (3 issues) USD 11,000 - Mailing USD 4,000 Sub-total: USD 15,000	<b>15,000</b>

### 3. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>												
Activity 1.1												
Activity 1.2												
<b>Outputs 3:</b>												
Activity 3.1												

### 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Activity 1</b> Monitoring of development of global fishery statistics and conduct regional fora to discuss on harmonization of Regional Framework for Fishery Statistics for Southeast Asia	
<b>Activity 1.1</b> Participation in the relevant fora in relation to the development and finalization of global frameworks on fishery statistics	- Strengthened coordination between SEAFDEC, the Member Countries and organizations on statistics-related matters - Updated on the recent development by the CWP of new global frameworks related to fishery statistics
<b>Activity 1.2</b> Conduct of Regional Technical Consultation to gather inputs for revising the Regional Framework for Fishery Statistics of Southeast Asia	- The final version of the revision Regional Framework of Fishery Statistics for Southeast Asia and a set of questionnaires
<b>Activity 3</b> Preparation and publication of “Fish for the People”	
<b>Activity 3.1</b> Preparation, publication and dissemination of “Fish for the People”	- Three issues of Special Publication “Fish for the People” published and disseminated

**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

		Project ID: 202001013	
<b>Program Categories:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Responsible Fishing Technology and Practice		
<b>Program Strategy No:</b>	I	<b>Total Duration:</b>	2020–2024
<b>Lead Department:</b>	Training Department (TD)	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	Japanese Trust Fund (JTF)	<b>Total Donor Budget:</b>	USD 300,000
<b>Project Partner:</b>	None	<b>Budget for 2023:</b>	USD 60,000
<b>Project leader:</b>	Nakaret Yasuk (TD)	<b>Involved Country:</b>	All Members Countries

## PART I: OVERALL PROJECT DESCRIPTION

### 1. Executive Summary

To meet the needs of responsible fishing technology and practices in the region, SEAFDEC has promoted a series of selective fishing devices such as ‘Turtle Excluder Devices (TEDs)’ for shrimp trawling, to ensure a harmless catch of marine turtles and to release them safely and properly since 1998. Subsequently, in 2000, SEAFDEC continued to promote the use of the ‘Juvenile and Trash Fishes Excluder Devices (JTEDs)’ in trawl fisheries and circle hooks in tuna longlining to address the problems of releasing juveniles and immature fish and to selectively harvest the target catch while reducing the level of unwanted catch in form of juveniles and immature and trash fish. During 2012–2015, SEAFDEC collaborated with FAO to implement the project entitled “Strategies for Trawl Fisheries By-catch Management” and the project entitled “Conducting Energy Audits for Thai Trawler” 2015.

SEAFDEC is continuing to promote the sustainable utilization of marine and coastal fisheries resources and ecosystems to avoid significant adverse impacts. The utilization of marine resources by application of environmentally friendly fishing gear and practices should be further developed and applied to enhance marine biodiversity and secure fish for the people as well as to improve the ocean health of the SEAFDEC member countries. Furthermore, taking into consideration, the efforts to prevent and significantly reduce marine debris will be exerted.

In addition, most of the capture methods used for fishing are, however, heavily dependent on the utilization of fossil fuels or petroleum. For many important fisheries, the high consumption of fuel constitutes a major constraint to their economic viability but also represents a significant source of greenhouse gas emissions. In general, active fishing gear like trawls and dredges can greatly impact the environment and require more amounts of fuel than other passive fishing gear such as traps and hooks or other stationary fishing gear.

To facilitate the adoption of the concept of Low Impact and Fuel Efficient (LIFE) Fishing as responsible fishing technology, the SEAFDEC Training Department (TD) would apply technological improvements (*e.g.*, LED in light fishing, Marking of fishing gear, Deck machinery, and its auxiliary devices) for appropriate fishery machinery onboard fishing vessels over the traditional fishing vessels. With such technological improvements, the changes in behavior and fishing practices can greatly result in more responsible fishing manners, mitigating damages to aquatic ecosystems, reducing emissions, and lowering fuel costs, and contribute to more economical and sustainable utilization of fisheries resources and better human well-being and livelihood of the fisherfolks in the Southeast Asian region. Through technical meetings/workshop/surveys/research/study, the project aims to; 1) promote responsible fishing technology and practices to mitigate fishing impacts on the marine ecosystem, 2) promote marine engineering technologies and their applicability in enhancing the capability of fuel consumption efficiency and safety in fishing operations, and 3) enhance human resource capacities on fish handling techniques onboard fishing vessels. It is also envisaged that the fishing and marine engineering technologies will be improved at national and regional levels as well as enhanced in human resources capacities in the Southeast Asian region.

## 2. Background and Justification

Southeast Asia is one of the world’s most biologically diverse, economically productive, and potentially vulnerable marine zones. The fishery production in the region exhibited a continuously increasing trend in terms of volume from 2012–2016. Marine fisheries greatly contribute to high-quality seafood and create employment and income for the livelihood of the fisherfolks, specifically in marine capture fisheries. Presently, marine fisheries resources in the Southeast Asian region are heavily exploited. It is vital that marine resources must be harvested responsibly and sustainably, and future fisheries development is governed by the availability of sustainable fish stock. Indisputably, fishing activities can sometimes adversely impact marine environments through excessive removals of ecologically and economically valuable species, and by direct physical contact with critical habitats, *e.g.*, bottom trawls. In addition, most of the capture methods used for fishing are, however, heavily dependent on the utilization of fossil fuels or petroleum. For many important fisheries, the high consumption of fuel constitutes a major constraint to their economic viability but also represents a significant source of greenhouse gas emissions. In general, active fishing gear like trawls and dredges can greatly impact the environment, and more amounts of fuel are required than other passive fishing gear such as traps and hooks or other stationary fishing.

In line with the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030 and corresponding to the United Nations’ Sustainable Development Goals 14 (Life Below Water: Conserve and sustainably use the oceans, seas, and marine resources), SEAFDEC maintains its continuation in promoting the sustainable utilization and protection of marine and coastal fisheries resources and the ecosystems to avoid significant adverse impacts. The utilization of marine resources and environmentally friendly fishing gear and practices should be further developed and applied to maintain biodiversity and secure fish for the people as well as to improve ocean health and enhance the contribution of marine biodiversity to the development of the SEAFDEC member countries. Furthermore, taking into consideration, the efforts to prevent and significantly reduce marine debris will be exerted.

The program of activities under this project will be implemented based on the current situation on the environmental impact of fishing gear and practices in the Southeast Asian region and national activities to mitigate those impacts on the marine ecosystem. The program of activities also includes research studies and the application and modification of marine engineering technologies on enhancing the capability of fuel consumption efficiency and safety in fishing operations, reducing the emission of greenhouse gas, and enhancing the safety at sea in fishing operations. Regional technical consultations and meetings along with the field practices will be periodically conducted to update the situation, share experiences, and monitor the project implementation with the member countries. Network establishment towards the national initiatives to improve/apply the fishing technologies for supporting fisheries management will also be made.

The project will be implemented by SEAFDEC/TD in collaboration with responsible national agencies of the member countries, relevant organizations, institutions, and other international partnerships (*e.g.*, FAO, UN Environment, GEF, etc.) at both regional and national levels. Human resource development through the staff exchange, expert dispatched and participation in the relevant meetings/workshops will be conducted.

## 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



## 4. Gender Sensitivity of the Project

The project will blend knowledge, skill and experience of senior researchers with the innovative idea of junior researchers to apply new/modern technologies to the project. Project involves men and women with neutral and equalized opportunities.

## 5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification

### 5.1 Logical Framework

<b>GOAL (Overall Objectives, Impact)</b>	<b>Indicators</b>	<b>Means of Verification</b>
Sustainable utilization and sound management to minimize impact of fisheries resources and marine ecosystem by strengthening responsible fishing technology and practice in Southeast Asia	Proportion of SEAFDEC Member Countries managed their fisheries by application of technologies to reduce impact in fishing technologies, optimized fuel consumption, enhance safety on fishing operation and handling techniques onboard fishing vessel	Report of the technologies to reduce impact in fishing technologies, optimized fuel consumption, safety on fishing operation and handling techniques onboard fishing vessel, presented in the Regional Technical Meeting
<b>OUTCOME</b>	<b>Indicators</b>	<b>Means of Verification</b>
Strategic actions for improving low impact fishing technologies are promoted by Governments and other stakeholders	Fisheries management by introducing technologies to reduce impact in fishing technologies, optimized fuel consumption, safety on fishing operation and handling techniques onboard fishing vessel	Fisheries regulation or measure apply technologies to reduce impact in fishing technologies, optimized fuel consumption, safety on fishing operation and handling techniques onboard fishing vessel, presented in the Regional Technical Meeting
<b>OUTPUT 1</b>	<b>Indicators</b>	<b>Means of Verification</b>
Fishing technologies ( <i>i.e.</i> fishing gear, fishing accessories, fishing practice) improved at national and regional level to reduce negative impacts to marine ecosystem	<ul style="list-style-type: none"> <li>- At least 3 Member Countries (MCs) have activities, research/training, by introducing of concept Low Impact and Fuel Efficient (LIFE) fishing technologies in their fishing operations in 5 years</li> <li>- IFCOME network to follow up the national initiative to improve/apply low impact fishing technologies to support fisheries management</li> </ul>	<ul style="list-style-type: none"> <li>- Report of the research or training activities/programs developed and conducted in SEAFDEC MCs and presented in the Regional Technical Meeting</li> <li>- Report on the research or study on the fishing technologies (<i>i.e.</i> fishing gear, fishing accessories, fishing practice) improved at national and regional level to reduce negative impacts to marine ecosystem</li> <li>- Number (60 persons) of fishing gear technologists will be members of IFCOME network</li> </ul>
<b>ACTIVITY 1</b>	<b>Indicators: key Inputs</b>	<b>Means of Verification</b>
<b>Activity 1.1:</b> Regional Technical Meeting to identify and information gathering of environmental impacts fishing gear and practices in Southeast Asia and national activities/legislation to reduce/mitigate impacts of fishing gear and practices to marine ecosystem	<ul style="list-style-type: none"> <li>- Inception meeting on the Regional Technical Meeting to identify and information gathering of environmental impacts fishing gear and practices in Southeast Asia and national activities/ legislation to reduce/mitigate impact of impacts fishing gear and practices to ecosystem</li> <li>- Project end-meeting on the Regional Technical Meeting to identify and information gathering of environmental impacts fishing gear and practices in Southeast Asia and national activities/ legislation to reduce/mitigate</li> </ul>	<ul style="list-style-type: none"> <li>- Meeting report(s) on the Regional Technical Meeting</li> <li>- Three (3) Member Countries (MCs) have activities, research/ training, by introducing of concept Low Impact and Fuel Efficient (LIFE) fishing technologies in their fishing operations in 5 years</li> <li>- Number (60 persons) of fishing gear technologists will be members of IFCOME network. List of them are appear in the Regional Technical Meeting reports</li> </ul>

<b>GOAL (Overall Objectives, Impact)</b>	<b>Indicators</b>	<b>Means of Verification</b>
	impact of impacts fishing gear and practices to ecosystem	
<b>Activity 1.2:</b> Research/study/survey on the appropriate technique to reduce/mitigate environmental impacts of fishing gear and practices to marine ecosystem	Two (2) Research/study/survey on the appropriate technique to reduce/mitigate environmental impacts of fishing gear and practices to marine ecosystem, <i>e.g.</i> light fishing, stationary fishing gear, marking of fishing gear, etc.	<ul style="list-style-type: none"> <li>- Scientific reports on the techniques to mitigate the environmental impacts of fishing gear and practices to marine ecosystem</li> <li>- Publication in journal or magazine</li> </ul>
<b>Activity 1.3:</b> Human resources development on techniques to reduce bycatch and discards, and mitigate impacts to habitat and vulnerable species	Regional technical training/workshop on techniques to reduce bycatch and discards, and mitigate impacts to habitat and vulnerable species	<ul style="list-style-type: none"> <li>- Report on the regional technical training/workshop on techniques to reduce bycatch and discards, and mitigate impacts to habitat and vulnerable species</li> <li>- Number of participants of SEAFDEC Member Countries participated in the meeting</li> <li>- Series of publication used in regional technical training</li> </ul>
<b>Activity 1.4:</b> Information dissemination on the fishing techniques, <i>i.e.</i> fishing gear, fishing accessories and fishing practices, to reduce bycatch and discards, and mitigate impacts to vulnerable species	Publication on the Regional technical meeting or training, research study and report on the fishing gear, fishing accessories and fishing practices, to reduce bycatch and discards, and mitigate impacts to vulnerable species	<ul style="list-style-type: none"> <li>- A series of publication on the fishing techniques, <i>i.e.</i> fishing gear, fishing accessories and fishing practices, to reduce bycatch and discards, and mitigate impacts to vulnerable species to disseminate through SEAFDEC website</li> <li>- Presentation or abstract or scientific paper presented in the national regional or international symposium/conference</li> </ul>
<b>OUTPUT 2</b>	<b>Indicators</b>	<b>Means of Verification</b>
Marine engineering technologies ( <i>i.e.</i> fuel efficiency, and greenhouse gas reduction and safety of fishing operation at sea) improved at national and regional level	<ul style="list-style-type: none"> <li>- At least 3 MCs have research/training activities on marine engineering techniques to improve fuel utilization and safety in fishing operation</li> <li>- Sixty (60) fisheries officers have been trained on the marine engineering techniques to improve fuel utilization and safety in fishing operation</li> </ul>	Report in the project end meeting on the Regional Technical Meeting on the fuel consumption and/or safety in fishing operation in Southeast Asia
<b>ACTIVITY 2</b>	<b>Indicators: key Inputs</b>	<b>Means of Verification</b>
<b>Activity 2.1:</b> Regional technical meeting on information gathering of the fuel consumption in fishing operation and/or safety on fishing operation of major fishing operation in Southeast Asia (2020 and 2024)	<ul style="list-style-type: none"> <li>- Inception meeting on the Regional Technical Meeting on the fuel consumption and/or safety in fishing operation in Southeast Asia in 2020</li> <li>- Project end meeting on the Regional Technical Meeting on the fuel consumption and/or safety in fishing operation in Southeast Asia in 2024</li> </ul>	<ul style="list-style-type: none"> <li>- Report on the regional technical meetings</li> <li>- Number (60 persons) of the marine engineers will be a member of IFCOME network</li> </ul>

<b>GOAL (Overall Objectives, Impact)</b>	<b>Indicators</b>	<b>Means of Verification</b>
<b>Activity 2.2:</b> Research/study/survey on the appropriate technique to manage the fuel consumption, carbon emission and/or safety on fishing operation	Two (2) Research/study/survey on the appropriate technique to manage the fuel consumption and/or safety in fishing operation	<ul style="list-style-type: none"> <li>- Report on the regional technical training/workshop on techniques to reduce bycatch and discards, and mitigate impacts to habitat and vulnerable species</li> <li>- Number of participants of SEAFDEC Member Countries participated in the meeting</li> <li>- Series of publication used in regional technical training</li> </ul>
<b>Activity 2.3:</b> Human resources development on techniques to manage the fuel consumption, carbon emission and/or safety on fishing operation	One (1) Regional technical training/workshop on techniques to manage the fuel consumption, carbon emission and/or safety on fishing operation	<ul style="list-style-type: none"> <li>- Report on the regional technical training / workshop on techniques to manage the fuel consumption, carbon emission and/or safety on the fishing operation</li> <li>- Number of participants of SEAFDEC Member Countries- participated in the training/workshop</li> <li>- Series of publication used in regional technical training/ workshop</li> </ul>
<b>Activity 2.4:</b> Information dissemination on techniques to manage the fuel consumption, carbon emission and/or safety on fishing operation	Publication or report on the regional technical meeting, training, research study on the techniques to manage the fuel consumption, carbon emission and/or safety on fishing operation	<ul style="list-style-type: none"> <li>- Series of publication on the fishing techniques, <i>i.e.</i> fuel consumption, carbon emission and/or safety on fishing operation</li> <li>- Presentation in the national regional or international symposium/conference</li> </ul>
<b>OUTPUT 3</b>	<b>Indicators</b>	<b>Means of Verification</b>
Regional and national human resources in fish handling techniques onboard fishing vessels improved	<ul style="list-style-type: none"> <li>- At least 3 MCs will be promoted fish handling onboard fishing vessels and drafting the training program in their fisheries.</li> <li>- Sixty (60) fisheries officers have been trained applicable fish handling on board fishing vessel training package for promotion in SEAFDEC MCs</li> </ul>	Report in the project end meeting
<b>ACTIVITY 3</b>	<b>Indicators</b>	<b>Means of Verification</b>
<b>Activity 3.1:</b> Human resource development on fish handling techniques onboard fishing vessels (Trainer level)	Three (3) regional training of trainers (TOT) on fish handling techniques onboard fishing vessels	<ul style="list-style-type: none"> <li>- Report on the regional training of trainers (TOT) on fish handling techniques onboard fishing vessels</li> <li>- Number of participants of SEAFDEC Member Countries participated in the training/workshop</li> <li>- Series of publication used in regional technical training/workshop</li> </ul>

GOAL (Overall Objectives, Impact)	Indicators	Means of Verification
<b>Activity 3.2:</b> Human resource development on fish handling techniques onboard fishing vessels (National Scale)	Two (2) National training courses on the fish handling onboard fishing vessels	<ul style="list-style-type: none"> <li>- Report on the regional training of trainers (TOT) on fish handling techniques onboard fishing vessels</li> <li>- Number of participants of SEAFDEC Member Countries participated in the training/workshop</li> <li>- Series of publication used in regional technical training/workshop</li> </ul>
<b>Activity 3.3:</b> Information dissemination on fish handling techniques onboard fishing vessels	Publication on the Regional technical meeting or training report	<ul style="list-style-type: none"> <li>- Series of publication on the fishing techniques, <i>i.e.</i> fuel consumption, carbon emission and/or safety on fishing operation</li> <li>- Presentation in the national regional or international symposium/conference</li> </ul>

## 5.2 Project Implementation Plan for 2020–2024

Activities	2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Output 1:</b>																				
Activity 1.1																				
Activity 1.2																				
Activity 1.3																				
Activity 1.4																				
<b>Output 2:</b>																				
Activity 2.1																				
Activity 2.2																				
Activity 2.3																				
Activity 2.4																				
<b>Output 3:</b>																				
Activity 3.1																				
Activity 3.2																				
Activity 3.3																				

## 5.3 Proposed Budget for 2020–2024

(Unit: USD)

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2024)
Output 1	Activity 1.1	20,000	-	6,500	-	20,000
	Activity 1.2	-	20,000	13,300	-	-
	Activity 1.3	-	-	200	20,000	-
	Activity 1.4	(Budget with Activity 1.1)	(Budget with Activity 1.2)	(Budget with Activity 1.2)	(Budget with Activity 1.3)	(Budget with Activity 1.1)
Output 2	Activity 2.1	20,000	-	-	-	20,000
	Activity 2.2	-	20,000	36,000	-	-
	Activity 2.3	-	-	500	20,000	-
	Activity 2.4	(Budget with Activity 2.1)	(Budget with Activity 2.2)	(Budget with Activity 2.2)	(Budget with Activity 2.3)	(Budget with Activity 2.1)
Output 3	Activity 3.1	20,000	-	500	-	20,000
	Activity 3.2	-	20,000	3,000	20,000	-

(Unit: USD)

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2024)
	Activity 3.3	(Budget with Activity 3.1)	(Budget with Activity 3.2)	(Budget with Activity 3.2)	(Budget with Activity 3.2)	(Budget with Activity 3.1)
<b>Sub-Total</b>		60,000	60,000	60,000	60,000	60,000

**PART II: PROJECT ACHIEVEMENTS IN 2022****1. Project Achievements in the Present Year (2022)**

The project entitled “Responsible Fishing Technology and Practices” was successfully implemented in the fishing technology improvement at the national and regional level to reduce negative impacts on the marine ecosystem. The project provided training courses on an energy audit to improve fuel consumption, carbon emission, safety in fishing operations, and fish handling techniques onboard fishing vessels, and conducted a research study on appropriate fish handling techniques systems for purse seiners. Under the project, the following activities were achieved in 2022.

- SEAFDEC participated in the FAO Expert Meeting on Fishing Gear Marking and Trial
- “Webinar on Sharing Knowledge and Experiences on Fishing Gear Marking” is organized for the SEAFDEC Member Countries in December 2022
- Study on increasing fuel efficiency by producing cooling media to reduce post-harvest loss and prolong freshness quality at premium quality was carried out from the 2<sup>nd</sup> quarter to the 4<sup>th</sup> quarter in Pattani Province, Thailand
- Online Regional Training Course on Energy Audits for Fishing Vessels was conducted on 21-23 June 2022
- Online Regional Training Course Onboard Fish Handling was conducted on 28-30 June 2022
- On-site training on fish handling onboard fishing vessels in Thailand was conducted on 8 July 2022 at the Prince of Songkhla University, Pattani Campus
- Dissemination of the fishing technology reference of 47 electronic publications to network of fishing technologist

**2. Activities and Budget in the Present Year**

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1:</b>								
Activity 1.1	I. Research and Development VI. Other				1			598
Activity 1.2	I. Research and Development				6			19,200 (Estimated)
Activity 1.3	II. Training activities			20 (Expected)				200 (Estimated)
Activity 1.4	III. Information activities			4	38			0.00
<b>Output 2:</b>								
Activity 2.2	I. Research and Development III. Information activities VI. Other	-	-	20	42	27	36	36,000 (Estimated)
Activity 2.3	II. Training activities	3	13	1	7	-	3	495 (Completed)
<b>Output 3:</b>								
Activity 3.1	II. Training activities	4	10	1	7	2	1	420 (Completed)
Activity 3.2	II. Training activities	-	-	-	4	21	16	1,831 (Completed)



### 3. Expected Outcome/Outputs and Achievements in the Present Year

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Outcome</b>		
<b>Output 1:</b> Fishing technologies (i.e. fishing gear, fishing accessories, fishing practice) improved at the national and regional level to reduce negative impacts on the marine ecosystem		
<b>Activity 1.1</b> Regional Technical Meeting to identify and information gathering of environmental impacts of fishing gear and practices in Southeast Asia and national activities/legislation to reduce/mitigate impacts of fishing gear and practices on the marine ecosystem	<ol style="list-style-type: none"> <li>1. A SEAFDEC researcher participated in the FAO Expert Meeting on Fishing Gear Marking and Trial</li> <li>2. SEAFDEC researchers participated in the GGGI APEC Virtual Workshop on the Best Practices to Prevent and Reduce ALDFG (17–19 May 2022)</li> <li>3. SEAFDEC researchers participated in the FAO Virtual Webinar on Fishing Gear Recycling: Technical/Scientific Discussion and Case Studies and Practical Examples (10–11 October 2022)</li> </ol>	Knowledge and updated information gained from the Meeting and Workshop were delivered to SEAFDEC MCs (Activities 1.4)
<b>Activity 1.2</b> 1.2.1 Knowledge and updated information gained from the Meeting and Workshop were delivered to SEAFDEC MCs (Activities 1.4)	<ol style="list-style-type: none"> <li>1. Report on the research study of the experiment on the comparative efficiency and impact of Vee type comparative efficiency and impact of Vee type and rectangular flat otter boards for trawling in the Gulf of Thailand by M.V. Plalung</li> <li>2. Innovation of otter boards</li> </ol>	<ol style="list-style-type: none"> <li>1. Materials necessary for experiments have been prepared, (M.V. Plalung, trawl nets, otter boards and research equipment e.g. depth sensors, trawl monitoring system)</li> <li>2. Researchers review secondary data to improve research method</li> <li>3. Revision of the experimental proposal (Remark: The experiment will be conducted in 2023)</li> </ol>
1.2.2 ALDFG data verifying, inputting to Google-form format and analysing (Activity is continued from 2021)	Draft report on the preliminary investigation to estimate the Abandoned, Lost and Discarded Traps (Pots) and Gillnets (ALDFG) along the coasts of Thailand	The report is expected to be completed in December 2022.

Activities	Expected Outcome/Outputs	Results/Achievements
<p><b>Activity 1.3</b> Webinar to share knowledge and experiences on fishing gear marking is organized in December 2022</p>	<ol style="list-style-type: none"> <li>1. Improved knowledge and the updated situation on lost fishing gear and/or fishing gear marking</li> <li>2. Network of lost fishing gear and/or fishing gear marking</li> </ol>	<p>On-going process:</p>
<p><b>Activity 1.4</b> Information dissemination on the fishing techniques, <i>i.e.</i> fishing gear, fishing accessories and fishing practices, to reduce bycatch and discards, and mitigate impacts to vulnerable species</p>	<p>Enhanced knowledge and awareness built on the fishing techniques, <i>i.e.</i> fishing gear, fishing accessories and fishing practices, to reduce bycatch and discards, and mitigate impacts to vulnerable species</p>	<p>Project staff distributed the 47 electronic publications of the 5 topics;</p> <ol style="list-style-type: none"> <li>1. SEAFDEC e-reference of Fishing Technology</li> <li>2. Fishing Gears Effected to Benthic Habitat form trawl fishing operation</li> <li>3. Making of Fishing gear and ALDFG</li> <li>4. Responsible Purse seine Fisheries</li> <li>5. Fishing Technology to Reduce Marine Mammal as Incidental Catch</li> </ol>
<p><b>Output 2:</b> Marine engineering technologies (<i>i.e.</i> fuel efficiency, green-house gas reduction and safety of fishing operations at sea) improved at national and regional levels</p>		
<p><b>Activity 2.2</b> Research/study/survey on appropriate techniques to manage the fuel consumption, carbon emission, and/or safety of fishing operations</p>		
<p><b>Activity 2.2.1</b> Sherbet ice system onboard for Purse Seine</p>	<ol style="list-style-type: none"> <li>1. Improvement of fuel efficiency in the fisheries sector through the development and promotion of fish handling tools for better cold chain conditions in preserving and transporting fishery products.</li> <li>2. Reduction of carbon emission from fishing vessels and impacts of a shortage on the labor of fishing vessels and reduction of postharvest loss from at sea and transportation process.</li> <li>3. To prolong shelf life and the freshness of catch by preserving and implementing the</li> </ol>	<p>Ongoing process:</p> <ol style="list-style-type: none"> <li>1. Sherbet ice machine was delivered to SEAFDEC/TD in early October 2022</li> <li>2. Machine testing in the workshop was carried out after when arriving to ensure that the machine is operated properly and reliable.</li> <li>3. The machine installation on a purse seine fishing vessel expected to complete within the second quarter of 2023</li> </ol>

Activities	Expected Outcome/Outputs	Results/Achievements
	<p>development tool and technique.</p> <p>4. Gathering and disseminating the information and results on the implementation of the study program to the SEAFDEC member countries.</p>	
<p><b>Activity 2.2.2</b> Promote and demonstration of the responsible fishing practices through the utilize of SEAFDEC training vessel (M.V. Plalung) (Activity is continued from 2021)</p>	<ol style="list-style-type: none"> <li>1. Improve the capacity building for fishing practices among SEAFDEC staff, fishing communities, fishing vessel owners, fishers, and fisheries officers by demonstration the operation of M.V. Plalung as the training model to promote at the important fishing port of Thailand <i>e.g.</i>, Rayong and Trat, and organize/conduct an open house including trawl fishing demonstration.</li> <li>2. Exchange of views, ideas, techniques, and methods of responsible fishing practices into the importance fishing fleet of Thailand.</li> </ol>	<p>Activity is continued from 2021 and completed in the first quarter of 2022</p> <ol style="list-style-type: none"> <li>1. There were four (4) cruises continuously conducted from the 4<sup>th</sup> quarter of 2021 to 1<sup>st</sup> quarter of 2022. Cruises aimed to demonstrate the extend the responsible technologies knowledge, experiences, and the concept of LIFE (Low Impact and Fuel-Efficient) to fishing communities, fishing vessel owners, fishers, and stakeholders. List of cruises are as follows:               <ol style="list-style-type: none"> <li>a. M.V. Plalung cruise No. 1-1/2021, from 29 November to 3 December 2021 (5 days). Training program for SEAFDEC researcher and crew.</li> <li>b. Cruise M.V. Plalung No. 2-2/2021, from 21 to 23 December 2021, 3 days) Training program for SEAFDEC researcher and crew</li> <li>c. Cruise M.V. Plalung No. 3-1/2022 (Period from 13 to 20 February 2022, 8 days) Training program, Open house visit, and demonstration for local fishermen</li> <li>d. Cruise M.V. Plalung No. 4-2/2022, on 31 March 2022 (1 day). The demonstration program for Minister Advisor and Thai Fisheries Association.</li> </ol> </li> <li>2. The Report "Promote responsible fishing through the utilization of SEAFDEC Training Vessels (M.V. Plalung)" is completed.</li> </ol>
<p><b>Activity 2.2.3</b> Improve energy efficiency onboard the propulsion system (Activity is continued from 2021)</p>	<ol style="list-style-type: none"> <li>1. Reduce the negative impact on the environment utilizing the existing technology and preparation for the next level.</li> <li>2. Improve the thrust efficiency, propeller efficiency, the rising of thrust directly affecting the hull.</li> <li>3. The information will be disseminated to SEAFDEC member countries, the private sector, and the fisheries in Southeast Asia.</li> </ol>	<p>Activity has been continued from 2021. SEAFDEC/TD by the Marine Engineering Section is improving the propulsion system of M.V. Plalung by installing the jet nozzle and hydrodynamic rudder. The improvement is expected to be completed in December 2022.</p>

Activities	Expected Outcome/Outputs	Results/Achievements
<p><b>Activity 2.3:</b> Human resources development on techniques to manage the fuel consumption, carbon emission, and/or safety on the fishing operation.</p> <p>(Online Training Course on Energy Audits for Fishing Vessels, 21-23 June 2022)</p>	<ol style="list-style-type: none"> <li>1. Promote responsible fishing on the importance of fishing vessel energy audits to support the elimination of climate change and methods to reduce greenhouse gas in the capture fishery at low carbon levels through the online training.</li> <li>2. The successful participants improved their capacity to develop a clear plan of action for disseminating the knowledge of the energy audit and increasing fuel efficiency in fishing vessels in their respective countries.</li> <li>3. Improving energy efficiency used and energy-saving technical knowledge was useful and effective for skippers/vessel owners to reduce the current cost of energy used in fishing vessels.</li> <li>4. The capacity for technical knowledge and information was enhanced through the training workshop to improve the energy efficiency of their future work.</li> </ol>	<ol style="list-style-type: none"> <li>1. Sixteen (16) participants from 7 SEAFDEC member countries enhanced human resource capacities on the techniques to manage fuel consumption, and carbon emission, which would help reinforce extension and promotion activities in their respective countries</li> <li>2. A total of twenty-seven (27) persons participated in the meeting. (SEAFDEC member countries, SEAFDEC/TD, Australia, and Finland).</li> <li>3. Training report submitted</li> <li>4. Clip VDO on the regional training program distributed</li> </ol>
<p><b>Activity 2.4:</b> Information dissemination on techniques to manage fuel consumption, carbon emission, and/or safety of fishing operation</p>	<p>Publication or report on the regional technical meeting, training, research study on the techniques to manage the fuel consumption, carbon emission and/or safety on fishing operation</p>	<p>Training report and Clip VDO of the Online Regional Training Course on Energy Audits for Fishing Vessels</p>
<p><b>Output 3:</b> Regional and national human resources in fish handling techniques onboard fishing vessels improved</p>		

Activities	Expected Outcome/Outputs	Results/Achievements
<p><b>Activity 3.1:</b> Online Regional Training Course Onboard Fish Handling (28–30 June 2022) (Trainer level)</p>	<ol style="list-style-type: none"> <li>1. The participants from the Member Countries obtained knowledge and experience from presentations and discussions to improve enhanced technical knowledge and practical skills in the reduction of post-harvest losses.</li> <li>2. The participants from the member countries applied the basic principle to improve the fisheries product related to the hygiene and good practices of fish handling onboard fishing vessels.</li> <li>3. The participants from the member countries obtained the information and details related to the theory good onboard fish handling practices.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fourteen (14) participants from 7 SEAFDEC Member Countries enhanced human resource capacities in the reduction of post-harvest losses which would help reinforce extension and promotion activities in their respective countries</li> <li>2. A total of twenty-five (25) persons participated in the meeting.</li> <li>3. Training report submitted</li> <li>4. VDO Clip on the regional training program distributed</li> </ol>
<p><b>Activity 3.2:</b> On-site training on fish handling onboard fishing vessels in Thailand (8 July 2022) (National Scale)</p>	<ol style="list-style-type: none"> <li>1. Enhanced technical knowledge and practical skills on the reduction of post-harvest losses which will help reinforce extension and promotion activities in Thailand.</li> <li>2. Improved awareness of hygiene fish handling and good practices of fish handling on-board and fishing fleets in Thailand.</li> <li>3. Technical information on onboard fish handling for fishing vessels and at the landing site was disseminated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Thirty-six (36) participants from stakeholders, fishing vessel owners, fishermen, teachers, and students from Prince of Songkla University Pattani Campus enhanced human resource capacities in the reduction of post-harvest losses. which would help reinforce extension and promotion activities in their respective countries</li> <li>2. A total of Thirty-six (36) persons participated in the meeting.</li> <li>3. Training report submitted</li> <li>4. VDO Clip on the onsite training program distributed</li> </ol>
<p><b>Activity 3.2:</b> Information dissemination on fish handling techniques onboard fishing vessels</p>	<p>Publication or report on the regional technical meeting, training, research study on the techniques to manage the fuel consumption, carbon emission and/or safety on fishing operation</p>	<ol style="list-style-type: none"> <li>1. Training report and VDO Clip of Online Regional Training Course Onboard Fish Handling (28–30 June 2022) were reported and disseminated online</li> <li>2. On-site training on fish handling onboard fishing vessels in Thailand (8 July 2022) was reported and disseminated online</li> </ol>

#### 4. List of Publications in 2022

Publications	Type of Media	Attached e-file
1. Meeting Report on the Expert Meeting on Fishing Gear Marking and Trial	Meeting report	
2. Report on the Promote responsible fishing through the utilization of SEAFDEC Training Vessels (M.V. Plalung)	Activity report	
3. Report Online Training Course on Energy Audits for Fishing Vessels	Training Report	
4. Report Online Regional Training Course on Onboard Fish Handling	Training Report	
5. Report Onsite training on fish handling onboard fishing vessels	Training Report	

#### 5. Evaluation on Workshops/Training Courses by Participants of AMSs

Activities	Evaluation
<b>Output 1:</b>	
Activity 1.1	No workshop/training in 2022
Activity 1.2	Research activities (no participants)
Activity 1.3	A webinar on sharing knowledge on fishing gear marking is organized for the SEAFDEC Member Countries researchers in December 2022
<b>Output 2:</b>	
Activity 2.1	No workshop/training in 2022
Activity 2.2	<p>The research study on the sherbet ice system onboard of Purse Seine is ongoing. Currently, it is in the process of performance trial and testing. It is expected that the system is installed on the purse seine fishing vessel before the end of the year.</p> <p>Eighty two (82) participants from Thailand including Thai fishers, university students and officers of Department of Fisheries Thailand participated in the activity to promote and demonstrate the responsible fishing practices through the utilization of SEAFDEC training vessel (M.V. Plalung) The participants were satisfied with the trawl fishing demonstration by M.V. Plalung expressed that the adjustable gallows hanging devices and the hydraulic net drum were very useful during the hauling procedure, and they can reduce manpower. Fishermen can likely apply it to commercial fishing vessels. In terms of accommodation, it was comfortable and the fishermen recognized the effectiveness of the V- Shape otter board.</p>
Activity 2.3	<p>Sixteen (16) participants from 7 SEAFDEC member countries participated in the Online Training Course on Energy Audits for Fishing Vessels. The participants expressed their satisfaction with the professional arrangement and management of the training course and fulfilled their expectations on the updated situation of global issues on energy saving on fishing vessels. They actively participated in the training and discussions. MCs expressed their interest in research/study/awareness building enhancement on energy audits.</p> <p>The attended participants preferred to improve or update their knowledge or technology by gathering the energy audit for fishing vessels and making a co-working network concerning the topics. Important knowledge or technologies that participants expected were fulfilled including energy efficient technologies and greenhouse gas emission reduction methods, and advanced auditing techniques for an energy assessment of fishing vessels. They preferred SEAFDEC to organize or co-working on energy-saving technologies by transferring knowledge such as adaptation of real-time energy measuring, refrigeration system, V-shape otter board, etc.</p>

Activities	Evaluation
<b>Output 3:</b>	
Activity 3.1	Fourteen (14) participants from 7 SEAFDEC member countries participated in the Online Regional Training Course Onboard Fish Handling. The participants improved or updated their knowledge or technology by gathering the fishing handling and making a co-working network concerning fish handling topics. Important knowledge or technologies that participants expected were fulfilled, including fish freshness analysis both k-value and TVBN methods, and advanced techniques <i>e.g.</i> , innovations in fish handling technology. And they also preferred a face-to-face training course in Thailand that they could learn and obtain experience in the testing system and the actual operation/practices of fish freshness <i>e.g.</i> , freshness analysis, Ikejime, refrigeration system, sherbet ice system, flake ice system, etc.
Activity 3.2	<p>Thirty-six (36) participants from stakeholders, fishing vessel owners, fishermen, teachers, and students from Prince of Songkla University Pattani Campus attended the on-site training on fish handling onboard fishing vessels in Thailand.</p> <p>The participants requested SEAFDEC/TD for the onsite training activities in other provinces because it is a very useful activity. The young generation of fishermen can enhance their technical knowledge and practical skills in the reduction of post-harvest losses which helps reinforce extension and promotion activities in their respective areas as well as change the perspectives and attitudes of fishermen related to fish preservation and technique.</p>

## 6. Major Impacts/Issues

1. The experiment on the comparative efficiency and impact of Vee type and rectangular flat otter boards for trawling in the Gulf of Thailand by M.V. Plalung was adapted. The activities in 2022 aimed to prepare the research equipment used for supporting the research study of the comparative efficiency and impact of Vee type and rectangular flat otter boards for trawling experiments in the Gulf of Thailand by M.V. Plalung.
2. In order to avoid the duplication of the activities related to the Abandoned, Lost and Discarded Fishing Gear and/or the Marking of Fishing Gear will be implemented under the project Sustainable Management of Fisheries, Marine Living Resources and Their Habitats in the Bay of Bengal Region for the Benefit of Coastal States and Communities (BOBLME) and the project Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia. In this connection the technical workshop on develops the working plan on lost fishing gear and/or fishing gear marking study at the pilot site to prepare the collaborative study on lost fishing gear and fishing gear marking in SEAFDEC Member Countries (activities 1.1) is cancelled.
3. The promotions on the Marking of Fishing Gear are pending because the manual for marking fishing gear is producing by FAO. After manual is published, SEAFDEC will collaborate with FAO to provide and technical support to distribute manual to SEAFDEC Member Countries.
4. The study on the appropriate technique to manage the fuel consumption, carbon emission, and/or safety of fishing operations (sherbet ice system onboard purse seiner) was a delay in the shipping process of the sherbet ice machine ordered from abroad. The machine also needed to test in the workshop before installation in the purse seiner. Therefore, the study plan has been adapted and expected to complete in 2023
5. Activities 2.3, 3.1, and 3.2 had no specific impact on the project activities. All activities previously mentioned were smoothly and successfully carried out.

## PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

### 1. Project Summary in 2023

In 2023, the project further emphasizes on energy optimization, improve fish handling and preservation techniques onboard, and promote responsible fishing technology through the trainings and studies. The proposed activities for the year 2023 consist of:

1. Conducting research on the comparative efficiency and impact of Vee type and rectangular flat otter boards for trawling experiments in the Gulf of Thailand by M.V.Plalung.
2. Sea trial for the trawl monitor system (Scanmar) by M.V.Plalung.
3. Conducting the study on the utilization of M.V. Plalung and promoting the visibility of SEAFDEC on the economic return and performance of innovative fishing vessels.
4. Conducting the Sherbet ice system onboard for Purse Seine and following.

5. Research the innovation and technology for optimizing energy, safety at sea, reducing labor onboard, and techniques to improve the quality of fish and onboard fish preservation.
6. Conducting the Regional Training Course (optimizing energy use, safety at sea, and fish handling onboard) for the SEAFDEC Member Countries.
7. Conducting one (1) onsite training program on optimizing energy and onboard fish handling.

## 2. Outcome, Outputs and Activities and Proposed Budget

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Outcome</b>		
<b>Output 1:</b>	Fishing technologies ( <i>i.e.</i> fishing gear, fishing accessories, fishing practice) improved at national and regional level to reduce negative impacts to marine ecosystem	
Activity 1.2	Experiment on the comparative efficiency and impact of Vee type and rectangular flat otter boards for trawling experiment in the Gulf of Thailand by M.V. Plalung  <b>Estimated expenditures:</b> - DSA: USD 2,000 - Accommodation: USD 1,500 - Fishing Material & Research Supplies: USD 8,000 - Fuel costs: USD 5,000 - Transportation: USD 300 - Others: USD 2,600 Sub-total: USD 19,400	20,000
Activity 1.2.2	Sea trial for trawl monitor system (Scanmar ) by M.V.Plalung  <b>Estimated expenditures:</b> - DSA: USD 167 - Fuel costs: USD 273 - Other: USD 161 Sub-total: USD 600	
Activity 1.4	Information dissemination on the fishing techniques, <i>i.e.</i> , fishing gear, fishing accessories and fishing practices, to reduce bycatch and discards, and mitigate impacts to vulnerable species The research study is reported.	
<b>Output 2:</b>	Marine engineering technologies ( <i>i.e.</i> fuel efficiency, and green-house gas reduction and safety of fishing operation at sea) improved at national and regional level	
Activity 2.1	Research/study/data collections on alternate/replaced ice and the utilization of fish handling tools and friendly environment <i>e.g.</i> , chilly seawater, sherbet ice, and liquid Nitrogen system onboard for specific and target species/fishing vessels.	
Activity 2.2	2.2.1 Study on fishing operations of M.V. Plalung on the costs and revenue at the fishing port for the income and returned from the fishing operations for one month, concurrently inspecting the performance of innovative fishing vessels and promoting the visibility of SEAFDEC  <b>Estimated expenditures:</b> - Fuel costs: USD 4,000 - Travel costs: USD 2,000 - DSA: USD 2,000 - Accommodation: USD 1,000 - Material: USD 4,000 - Other: USD 500 Sub-total: USD 13,500	22,000



(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
	<p>2.2.2 a) Study on the Sherbet ice system onboard for Purse Seine continued from year 2022 (24,366 USD budget from year 2022)            b) Following-up and data collection on the sherbet ice system onboard of Purse Seine</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Travel costs USD 800</li> <li>- DSA USD 1,000</li> <li>- Accommodation USD 1,200</li> <li>- Material USD 500</li> <li>Sub-total USD 3,500</li> </ul> <p>2.2.3 Research the innovation and technology for optimizing energy, safety at sea, reducing labor onboard, and techniques to improve the quality of fish and onboard fish preservation.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Travel costs USD 1,000</li> <li>- DSA USD 1,500</li> <li>- Accommodation USD 1,500</li> <li>- Material USD 1,000</li> <li>Sub-total USD 5,000</li> </ul>	
Activity 2.3	<p>Human resources development on techniques to manage the fuel consumption, carbon emission, and/or safety of fishing operations.</p> <p>2.3.1 Regional training course on the optimizing energy use, safety at sea, for the SEAFDEC Member Countries.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Airfare USD 2,500</li> <li>- Accommodation USD 2,000</li> <li>- DSA USD 3,000</li> <li>- Training expense USD 4,000</li> <li>- Material USD 2,000</li> <li>- Other USD 1,500</li> <li>Sub-total USD 15,000</li> </ul>	15,000
Activity 2.4	<p>Information dissemination on techniques to manage fuel consumption, carbon emission, and/or safety in the fishing operation</p> <p>Report on M.V. Plalung fishing operations for promoting the visibility of SEAFDEC and its training vessel, Research/study/data collections on innovation and technology for optimizing energy/techniques to improve the quality of fish and fish preservation, and the Integrated Regional Onsite Training Course (optimizing energy use, safety at sea, and fish handling onboard) for the SEAFDEC Member Countries, video clip, articles and research papers.</p>	
<b>Output 3:</b>	Regional and national human resources in fish handling techniques onboard fishing vessels improved	
Activity 3.1	Human resource development on fish handling techniques onboard fishing vessels (for trainer's level) (This activity is conducted with Activity 2.3)	
Activity 3.2	<p>Human resource development on fish handling techniques onboard fishing vessels (at national levels)</p> <p>3.2.1 Onsite training program on fish handling techniques onboard fishing vessels.</p>	3,000

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
	<b>Estimated expenditures:</b> - Travel costs USD 350 - DSA USD 1,000 - Accommodation USD 800 - Training expense USD 300 - Material USD 400 - Other USD 150 Sub-total USD 3,000	
Activity 3.3	Information dissemination on fish handling techniques onboard fishing vessels.  Report of the onsite training program on optimizing energy and onboard fish handling (for Thailand), video clip, and article	

### 3. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>												
Activity 1.1												
Activity 1.2												
Activity 1.3												
Activity 1.4												
<b>Output 2:</b>												
Activity 2.1												
Activity 2.2												
Activity 2.3												
Activity 2.4												
<b>Output 3:</b>												
Activity 3.1												
Activity 3.2												
Activity 3.3												

### 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Activity 1</b>	
<b>Activity 1.2</b> Research/study/survey on the appropriate technique to reduce/mitigate environmental impacts of fishing gear and practices to the marine ecosystem	1. Report of the research study on the comparative efficiency and impact of Vee type and rectangular flat otter boards for trawling experiment in the Gulf of Thailand by M.V. Plalung 2. Innovation of otter boards
<b>Activity 1.4</b> Information dissemination on the fishing techniques, <i>i.e.</i> fishing gear, fishing accessories and fishing practices, to reduce bycatch and discards, and mitigate impacts to vulnerable species	Scientific reports on the techniques to mitigate the environmental impacts of fishing gear and practices to the marine ecosystem
<b>Activity 2</b>	
<b>Activity 2.2</b> Research/study/survey on appropriate techniques to manage the fuel consumption, carbon emission, and/or safety of fishing operations	1. Reduction of the impacts and management of the fuel consumption, carbon emission, and/or safety of fishing operations/preservation onboard. 2. Reduction of the operational costs from fishing operations/fish handling and preservation process and transportation activities

Planned activity	Expected Activity Results
<p><b>Activity 2.3</b> Human resources development on techniques to manage the fuel consumption, carbon emission, and/or safety of fishing operation</p>	<ol style="list-style-type: none"> <li>1. Report Regional Training Course (optimizing energy use, safety at sea, and fish handling onboard) for the SEAFDEC Member Countries.</li> <li>2. Expected twenty (20) participants from the SEAFDEC member countries participated in the Regional Training Course.</li> </ol>
<p><b>Activity 2.4</b> Information dissemination on techniques to manage the fuel consumption, carbon emission, and/or safety on the fishing operations/practices.</p>	<ol style="list-style-type: none"> <li>1. Demonstration of M.V. Plalung fishing operations to promote the visibility of SEAFDEC and its training vessel.</li> <li>2. Report on follow-up and data collection of the research/study on the sherbet ice system onboard of Purse Seine</li> </ol>
<p><b>Activity 3</b></p>	
<p><b>Activity 3.1</b> Human resource development on fish handling techniques onboard fishing vessels (Trainer level)</p>	
<p><b>Activity 3.2</b> Human resource development on fish handling techniques onboard fishing vessels (National scale)</p>	<ol style="list-style-type: none"> <li>1. Expected twenty (20) participants from private sector, fishing vessel owner, student, and stakeholder participated in the onsite Training program.</li> <li>2. Report of the onsite training program on optimizing energy and onboard fish handling.</li> </ol>
<p><b>Activity 3.3</b> Information dissemination on fish handling techniques onboard fishing vessels</p>	<p>Report of the onsite training program on optimizing energy and onboard fish handling.</p>

**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 202004005
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Research for Enhancement of Sustainable Utilization and Management of Sharks and Rays in the Southeast Asian Region		
<b>Program Strategy No:</b>	I	<b>Total Period</b>	2020–2024
<b>Lead Department:</b>	Marine Fishery Resources Development and Management Department (MFRDMD)	<b>Lead Country:</b>	Malaysia
<b>Donor/Sponsor:</b>	Japanese Trust Fund (JTF)	<b>Total Project Budget:</b>	USD 225,000
<b>Project Partner(s):</b>	Training Department (TD) and Secretariat (SEC)	<b>Budget for 2023:</b>	USD 48,000
<b>Lead Technical Officer:</b>	Wahidah Mohd Arshaad (MFRDMD)	<b>Project Participating Countries:</b>	Cambodia, Indonesia, Malaysia, Myanmar, Thailand, Philippines and Viet Nam

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

In the last few decades, the increase in shark landing to meet the demand for fins and other downstream products of sharks and rays has caused a decrease in several shark and ray resources worldwide. To ensure the survival and sustainable utilization of these resources, many governments in the Southeast Asian region have taken several important steps to mitigate the decrease of the resources. SEAFDEC has undertaken the important effort of formulating the Regional Plan of Action (RPOA-Sharks) to conserve and manage sharks and rays in the region. RPOA-Sharks emphasizes the need to manage and exploit the shark resources at a sustainable level while safeguarding the livelihood of the fishers in the region.

Although sharks and rays are not the targeted fishes for most fisheries in the region, any decision made on regulating the international trade by listing several common species in CITES Appendix II will affect the livelihood of traditional fishers and traders. Therefore, the governments need to collect landing and biological data on these species and prepare management plans when required. Identifying species of elasmobranchs (sharks & rays) is fundamental to data collection and law enforcement related to CITES. Expertise on identification and biological data collection on sharks and rays in the region needs to be strengthened. In addition, information on the utilization of by-catch sharks and rays will be collected and compiled to enhance understanding of the importance of sharks and rays in the Southeast Asian region and the necessity of fisheries management measures.

### 2. Background and Justification

Information on the biodiversity of sharks and rays varies across the Southeast Asian region. Indonesia recorded the highest diversity with 114 species from seven orders and 27 families, followed by the Philippines with 96 species (nine orders and 27 families), Thailand 76 species (8 orders and 21 families), Viet Nam 70 species (7 orders and 23 families), Malaysia 68 species (7 orders, 19 families), Myanmar 64 species (8 orders and 19 families), Brunei Darussalam 45 species (6 orders and 15 families), and Cambodia with 26 species from 5 orders and 10 families. Many species still need to be confirmed and are most probably misidentified. In general, data collections and shark and ray studies are limited in many countries in the region, such as Brunei Darussalam, Myanmar, Cambodia, and Viet Nam. Only a few countries such as Indonesia, Malaysia, and Thailand have historical data and more comprehensive studies on this group of fish. Most countries in this region still record the landing of sharks and rays by group (sharks and rays) not up to species level. Some countries still do not include sharks and rays landing in their national statistics. Other information such as biological data, stock structure, and spatial and temporal distribution of sharks and rays is still lacking in some countries.

Since the landing of sharks and rays recorded less than 2% of the total marine landing commonly (except in Indonesia normally more than 5% relative to bony fishes), most countries did not allocate specific funding or budgets to conduct data collection up to species level, special training on taxonomy or specific research on resources of sharks and rays. Landing sites are also scattered, and there are too many private landing sites in some countries. Most countries are also facing a lack of expertise and competent officers in elasmobranch taxonomy as well as references in their national languages.

However, the pressure on the international trade of sharks and rays is growing. Until 2017, 11 species of sharks and 18 species of rays were listed under CITES. They are basking shark (*Cetorhinus maximus*), the whale shark (*Rhincodon typus*), oceanic whitetip shark (*Carcharhinus longimanus*), porbeagle shark (*Lamna nasus*), scalloped hammerhead shark (*Sphyrna lewini*), smooth hammerhead shark (*Sphyrna zygaena*), great hammerhead shark (*Sphyrna mokarran*), great white shark (*Carcharodon carcharias*), silky shark (*Carcharhinus falciformis*), pelagic thresher (*Alopias pelagicus*), bigeye thresher (*A. superciliosus*), and thresher shark (*A. vulpinus*). All those shark species were listed in Appendix II. For rays, all six species of sawfishes (family Pristidae) were listed in Appendix I, all nine species of mobula rays, and all three species of manta rays in Appendix II. However, some species such as scalloped hammerhead sharks (*Sphyrna lewini*), mobula rays, and thresher sharks are considered as common species in some countries in the region, such as in Indonesia. In CoP-18 CITES held at Geneva in 2019, two species of Mako sharks (*Isurus oxyrinchus* and *Isurus paucus*) and all species of guitarfishes (*Glaucostegus* spp.) and wedgefishes (*Rhinidae* spp.) were adopted to be included in Appendix II CITES. In this regard, the countries need to conduct Non-Detrimental Findings (NDFs) study by species if the products of those species are for the export purpose. To fulfill NDFs requirements and other management purposes, the countries need to collect landings, biological, socio-economic, and trade data on these CITES-listed species and prepare management plans when required. Expertise on identification, landings, and biological data needs to be strengthened. In addition, information on the utilization of sharks and rays is very useful in order to enhance understanding of the importance of the socio-economy of sharks and rays in the Southeast Asian region.

These activities correspond to the ASEAN-SEAFDEC RES&POA-2030, Resolution (No. 12: Strengthen knowledge, including local knowledge, and science-based development and management of fisheries by enhancing the national capacity to collect, analyses, and share fisheries data and information) and Plan of Action (No.5: Strengthen the collection of data and information, where relevant, on species under international concern, e.g., sharks and rays, sea turtles, catadromous eels, aquatic mammals, etc., and harmonize/standardize data collection methods among countries in the region); (No. 82: Strengthen cooperation and mechanism among AMSS to work towards common positions that could be reflected in international fish trade-related fora, e.g., World Trade Organization (WTO), Food and Agriculture Organization of the United Nations (FAO)/COFI Subcommittee on Fish Trade, Office International des Epizooties (OIE), Codex Alimentarius Commission (CAC), and Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)) on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030, and the United Nations' Sustainable Development Goals (SDGs), particularly SDG 14: Life below Water.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

This is a gender-sensitive project where women and men are given an equal opportunity to be involved. Gender-sensitive indicators will be analyzed from socio-economic survey data, and capacity development programs will be conducted. The development of socio-economic survey questionnaires will include gender-sensitive questions. The sex-disaggregated data will also be collected for all activities implemented.

## 5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification

### 5.1 Logical Framework

<b>GOAL (Overall Objectives, Impact)</b>	<b>Indicators</b>	<b>Means of Verification</b>
Sustainable Utilization of Sharks and Rays in the Southeast Asian region.	<ul style="list-style-type: none"> <li>- Incomes of workers (<i>e.g.</i>, fishers, traders, processors, etc.) related to the fishery industry will not decrease through sustainable fishery production</li> <li>- Number of AMSs incorporating the management advice on resource utilization in their national policies</li> </ul>	<ul style="list-style-type: none"> <li>- Historical by-catch data on sharks and rays provided by enumerators</li> <li>- Data from socio-economic surveys of workers (<i>e.g.</i>, fishers, traders, processors, etc.) related to the fishery industry in Southeast Asia</li> <li>- NPOA and NDF</li> </ul>
<b>OUTCOME</b>	<b>Indicators</b>	<b>Means of Verification</b>
Stock assessments and management advice for Sharks and Rays in the Southeast Asia region	<ul style="list-style-type: none"> <li>- Number of stock assessments and number of publications for shark and ray management</li> <li>- ASEAN Member States (AMSs) implement the strategic program for improving landing data, biological information, marketing and trade channels as well as fishers' livelihood</li> <li>- Well arrangement of fisheries statistics for important species though correct identification by enumerators and easily accessed electrical materials</li> <li>- Establishment of National/state repositories</li> </ul>	<ul style="list-style-type: none"> <li>- Conference presentations, publications, technical reports, and scientific papers</li> <li>- Government made policies or regulations on the conservation and management based on the latest available information</li> </ul>
<b>OUTPUT 1</b>	<b>Indicators</b>	<b>Means of Verification</b>
Capacity development in taxonomy, new species/record identifications, and management of major shark species	<ul style="list-style-type: none"> <li>- About 40 experts well trained during four on-site trainings (10 persons/training: north-Viet Nam, Philippines, Yalong, and Kalimantan) and one workshop (for 16 persons/workshop) conducted</li> <li>- Improved fisheries, customs, and knowledge of enforcement officers in identifying CITES-listed species during an inspection at sea and ports.</li> <li>- Effective fishery management of important species through clarification of their genetic structures.</li> <li>- Clarification of genetic structure for major shark species in the Southeast Asian region</li> </ul>	<ul style="list-style-type: none"> <li>- Conference presentations</li> <li>- SOP (Standard Operating Procedure),</li> <li>- Technical reports and scientific papers</li> </ul>
<b>ACTIVITY 1</b>	<b>Indicators</b>	<b>Means of Verification</b>
<b>Activity 1.1:</b> One training course and workshop on chondrichthyan taxonomy and biology	<ul style="list-style-type: none"> <li>- A five-day regional training will be conducted at MFRDMD in 2022</li> </ul>	<ul style="list-style-type: none"> <li>- Training report</li> <li>- At least 2 participants of participating Member Countries and TD</li> </ul>

<b>GOAL (Overall Objectives, Impact)</b>	<b>Indicators</b>	<b>Means of Verification</b>
<b>Activity 1.2:</b> On-site training on taxonomy and biology at selected landing sites	Four-day trainings will be conducted in 5 countries ( <i>i.e.</i> , Cambodia, Indonesia, Philippines, Myanmar, and Viet Nam), and shared, exchanged, and improved the data and information collections in 2021, 2022 and 2023	- Training reports - At least 10 local officers at each training
<b>Activity 1.3:</b> Meetings on chondrichthyan research and Access and Benefit Sharing in the region	Regional meetings will be organized by MFRDMD to compile and sharing information in 2020 and 2024	- Meeting reports - At least 2 participants of participating Member Countries, TD and Secretariat
<b>Activity 1.4:</b> Publication of updated guidebook on the identification of chondrichthyans in the region	One new guidebook will be published to update the latest information, including new species and new records in the region in 2024	Guidebook in the last year of the project (2024)
<b>Activity 1.5:</b> Supporting data collection at least one site in Indonesia, Malaysia, Myanmar, Philippines, Viet Nam, and Thailand (Proposed by TD and MFRDMD)	Targeting at least one site/year from 2020, 2021, 2022, 2023, and 2024	Long-term landing data is beneficial for estimating stock and biomass using models like the Bayesian Surplus Production model and Bayesian State-Space Surplus Production Model
<b>Activity 1.6:</b> Training workshops on sharks for stock assessment models (Proposed by TD)	Four-day training workshops in 2021 and 2023.	- Workshop reports - Participants of participating Member Countries, TD and Secretariat
<b>OUTPUT 2</b>	<b>Indicators</b>	<b>Means of Verification</b>
Confirmation of stock structures for at least two common species of sharks/rays and one CITES listed species in participating countries (shared-stock or separate stocks)	Biomass at least two common species estimated from 2022	Information on the biomass of six common species in participating countries
<b>ACTIVITY 2</b>	<b>Indicators</b>	<b>Means of Verification</b>
<b>Activity 2.1:</b> Study of stock structures of selected species of sharks and rays by genetic markers	12 populations for mtDNA studies in 3 species ( <i>Chiloscyllium hasseltii</i> , <i>Carcharhinus sorrah</i> , and <i>Sphyrna lewini</i> ) in the four regions (WCPM, ECPM, Kota Kinabalu, and Tawau)	- Study report - Report presented at international fora and published
<b>OUTPUT 3</b>	<b>Indicators</b>	<b>Means of Verification</b>
Development of socio-economic studies in the northern part of Viet Nam, Western part of Myanmar, and Celebes Island or Kalimantan Indonesia using methods such as Multifactor Partitioning Analysis	Enhancement of legal exports on products of sharks and rays in the SAE region through development of NDF documents.	Government transparencies in marketing and trade control of CITES-listed species and endangered species

GOAL (Overall Objectives, Impact)	Indicators	Means of Verification
<b>ACTIVITY 3</b>	<b>Indicators</b>	<b>Means of Verification</b>
<b>Activity 3.1:</b> Survey on fishers' dependencies, marketing and trade of sharks and rays in the region/country visited	Five regions covered: mid-Viet Nam, north-Viet Nam, Irrawaddy, Mindanao (Sulu and Sulawesi Seas), and Bali in years 2021, 2022 and 2023	<ul style="list-style-type: none"> <li>- Survey report</li> <li>- Information on marketing trade and channels of sharks and rays in participating countries</li> <li>- Development of NDF documents for selected CITES-listed species is widespread in this region, such as <i>Sphyrna lewini</i>, <i>Alopias pelagicus</i>, <i>Alopias superciliosus</i>, <i>Carcharhinus falciformes</i>, <i>Mobula japonica</i>, and <i>M. thurstoni</i>.</li> </ul>

## 5.2 Project Implementation Plan for 2020–2024

Activities	2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Output 1:</b>																				
Activity 1.1																				
Activity 1.2																				
Activity 1.3																				
Activity 1.4																				
Activity 1.5																				
Activity 1.6																				
<b>Output 2:</b>																				
Activity 2.1																				
<b>Output 3:</b>																				
Activity 3.1																				

## 5.3 Proposed Budget for 2020–2024

(Unit: USD)

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2024)
Output 1	Activity 1.1			25,000		
	Activity 1.2		5,000	5,500	8,000	
	Activity 1.3	25,000				26,000
	Activity 1.4					2,000
	Activity 1.5	5,000	5,000	5,000	5,000	6,000
	Activity 1.6		21,500		22,000	
Output 2	Activity 2.1	10,000	10,000	10,000	10,000	10,000
Output 3	Activity 3.1		3,000	3,000	3,000	
<b>Sub-Total</b>		40,000	44,500	48,500	48,000	44,000

## PART II: PROJECT ACHIEVEMENTS IN 2022

### 1. Project Achievements in the Present Year (2022)

#### Sub-activity 1.1: One training course and workshop on chondrichthyan taxonomy and biology

The workshop titled “The Regional Training and Workshop on Chondrichthyan Taxonomy, Biology and Data Collection” was organized on 2–6 October 2022 at SEAFDEC/MFRDMD. Two participants from each AMS were invited including two participants from SEAFDEC/TD. Overall objective was to enhance human resource development in elasmobranch taxonomy and biology as well as technique in data collection of sharks and rays up to species level. Specific objectives were:



- i. To conduct a training course on chondrichthyans taxonomy and biology for new participants.
- ii. To train trainees in the appropriate techniques in recording the morphometric and meristic data at landing sites.
- iii. To train trainees in collecting and preserving specimens as well as to collect tissue samples for DNA study.
- iv. To train trainees in management of data recorded at landing sites for NDFs and other purposes.

The training provided the lectures on taxonomy, biology, preservation of specimens, data management, and standard operating procedure (SOP) on data collection up to species level. As practicals at the laboratory, the identification of common sharks and rays species commonly found in coastal waters in this region, SOP for collecting tissue samples for DNA analysis, selecting of samples at landing site, and measurement technique of sharks and rays at landing sites was lectured during these activities.

#### **Sub-activity 1.2: On-site training on taxonomy and biology at selected landing sites.**

MFRDMD organizes a training course titled ‘On-Site Training on Chondrichthyns Taxonomy and Biology’ in January 2023. This activity is conducted in collaboration with the Department of Fisheries, Myanmar. Overall objective is to enhance human resource development in elasmobranch taxonomy and biology and specific objectives are;

- i. To conduct a training course on chondrichthyans taxonomy and biology for DoF Myanmar staffs
- ii. To train trainees in the appropriate techniques in recording the morphometric and meristic data and
- iii. To train trainees in collecting and preserving specimens as well as to collect tissue samples for DNA study

The training provided the lectures on taxonomy, biology, data management, and standard operating procedure (SOP) on data collection up to species level. As practicals at the laboratory, the identification of sharks and rays species caught by trawlers and other gears, SOP for collecting of tissue samples for DNA analysis, selecting of samples at landing site, and measurement technique of sharks and rays at landing sites were lectured respectively. Additionally, DNA tissues samples of sharks, rays and skates were also collected for DNA bar-coding analysts at this site.

#### **Sub-activity 1.5: Supporting data collection at least one site in Indonesia, Malaysia, Myanmar, Philippines, Viet Nam, and Thailand (proposed by TD and MFRDMD)**

Monthly data from January until August 2022 were successfully collected at two (2) sites; Tawau and Kota Kinabalu (Sabah, Malaysia), which comprises 8 species of rays and 2 species of sharks, 19 species of rays and 17 species of sharks respectively. The dominant species of rays collected from Tawau were *Maculabatis gerrardi*, *Gymnura zonura* and *Neotrygon orientalis*, and the dominant species of sharks were *Carcharhinus sorrah* and *Sphyrna lewini*. While in Kota Kinabalu, the dominant species of rays were *Neotrygon orientalis*, *Telatrygon zugei* and *M. gerrardi*, and the dominant of species of sharks were *Chiloscyllium punctatum*, *Carcharhinus sorrah* and *Chiloscyllium plagiosum*.

#### **Sub-activity 2.1: Study of stock structures of selected species of sharks and rays by genetic markers**

This project continued the study on stock structures of two shark species (*C. hasseltii* and *C. sorrah*) and one CITES listed species (*S. lewini*) implemented in 2020. The project involved four sampling locations namely 1) Kuantan, Pahang; 2) Larut Matang, Perak; 3) Kota Kinabalu and 4) Sandakan, Sabah. All sampling locations were in Malaysia and covered the Andaman Sea, South China Sea, and the Sulu Sea.

The project finished collecting 35 samples (target level) of the above three (3) shark species from Kuantan by the end of 2022, but one shark-*S. lewini*-sampling was not completed in Perak, which collected only seven samples yet. To achieve the target number of samples from the locations, MFRDMD added one ray species-*Maculabatis gerrardi*- into the list of target species, and then 16 (sixteen) samples of *M. gerrardi* were collected from Larut Matang until the end of August 2022. Meanwhile, DNA sampling in Sabah (Kota Kinabalu and Sandakan) was continuously conducted in collaboration with the Department of Fisheries Sabah in the fourth quarter of 2022.

The study used the mitochondrial DNA *D-loop* region. DNA PCR analysis of the samples collected from Kuantan and Perak was completed, and the DNA sequences were proceeding, involving the collected samples from Sabah.

#### **Sub-activity 3.1: Survey on fishers’ dependencies, marketing and trade of sharks and rays in the region/country visited**

The survey was planned to clarify the information of fishers’ dependencies, marketing, and trade of CITES-listed sharks and rays from the sights of social science, which planned that the candidate site was Pontianak-Indonesia in the third quarter of 2022. This activity was not implemented because the pilot counterparts was still in social confusion under the post Covid-19 pandemic, and MFRDMD was re-structuring the survey formation in collaboration with TD.

As a pilot activity, MFRDMD conducted nursery ground surveys for sharks and rays in Pahang located east-coast of Malaysia in collaboration with the DoF Malaysia in the first, third and fourth quarters of 2022. A result of the survey is published as a technical report from MFRDMD in 2023.

As the relevant activity, MFRDMD held a workshop titled ‘Workshop on Taxonomy, Creel and Genetic of Sharks and Rays’ in collaboration with WWF-Malaysia and University Malaysia Terengganu (UMT) in March 2022 at MFRDMD. There were 14 participants from WWF-Malaysia, UMT and MFRDMD.

## 2. Activities and Budget in the Present Year

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1:</b>								
<b>Activity 1.1</b> One training course and workshop on chondrichthyan taxonomy and biology.	T	X	X	X	X	X	X	25,000
<b>Activity 1.2</b> On-site training on taxonomy and biology at selected landing sites.	T	X	X	X	X	X	X	5,500
<b>Activity 1.5</b> Supporting data collection at least one site in Indonesia, Malaysia, Myanmar, Philippines, Viet Nam and Thailand (Proposed by TD and MFRDMD)	R		4	2	2			5,000
<b>Output 2:</b>								
<b>Activity 2.1</b> Study of stock structures of selected species of sharks and rays by genetic markers	R		1	3	1			10,000
<b>Output 3:</b>								
<b>Activity 3.1</b> Survey on fishers’ dependencies, marketing and trade of sharks and rays in the region/country visited	R			3	1			3,000

## 3. Expected Outcome/Outputs and Achievements in the Present Year

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Outcome</b>		
<b>Output 1:</b>		
<b>Activity 1.1</b> On-site training on taxonomy and biology at selected landing sites	<ul style="list-style-type: none"> <li>- Two participants from each participating member country.</li> <li>- The training enhanced human resource and capacities in elasmobranch taxonomy and biology.</li> </ul>	‘The Regional Training and Workshop on Chondrichthyan Taxonomy, Biology and Data Collection’ was organized on 2–6 October 2022 at SEAFDEC/MFRDMD. Two participants from each AMS and SEAFDEC/TD were invited. Overall objective was to enhance human resource development in elasmobranch taxonomy and

Activities	Expected Outcome/Outputs	Results/Achievements
		biology as well as technique in data collection of sharks and rays up to species level.
<b>Activity 1.2</b> On-site training on taxonomy and biology at selected landing sites	<ul style="list-style-type: none"> <li>- The training enhanced human resource capacities in elasmobranch taxonomy and biology as well as technique in data collections of sharks and rays up to species level.</li> <li>- At least 10 local officers attended the training.</li> </ul>	MFRDMD will organize ‘On-Site Training on Chondrichthyns Taxonomy and Biology’ in January 2023. This activity will be conducted in collaboration with the Department of Fisheries, Myanmar.
<b>Activity 1.5</b> Supporting data collection at least one site in Indonesia, Malaysia, Myanmar, Philippines, Viet Nam and Thailand (Proposed by TD and MFRDMD)	At least one site of long-term landing data collection for estimating stock and biomass	Monthly Sharks and Rays landing data from January to August at species level were collected successfully at two (2) sites (Tawau and Kota Kinabalu)
<b>Output 2:</b>		
<b>Activity 2.1</b> Study of stock structures of selected species of sharks and rays by genetic markers	<ul style="list-style-type: none"> <li>- Specimen collection</li> <li>- PCR and DNA sequence analysis</li> </ul>	<ul style="list-style-type: none"> <li>- <i>M. gerrardi</i>.-60-Samples, which had been added as an additional target species, were successfully collected at Kuantan and Perak, and DNA sampling in Sabah (Kota Kinabalu and Sandakan) was also conducted in collaboration with the Department of Fisheries Sabah.</li> <li>- The study used the mitochondrial DNA <i>D-loop</i> region. DNA PCR analysis of samples collected from Kuantan and Perak were completed, and the DNA sequences were analyzed including the samples from Sabah.</li> </ul>
<b>Output 3:</b>		
<b>Activity 3.1</b> Survey on fishers’ dependencies, marketing and trade of sharks and rays in the region/country visited	The dependencies of fishers assessed; the impacts on socio-culture-economy of fishers after several shark, and ray species listed in CITES; the major actors in domestic marketing of sharks and rays, especially CITES-listed species; the trade channels and practices for sharks and rays; and the international trade of sharks and rays at the study areas	The survey has not been conducted because the lead counterparts have been still in social confusion under the post Covid-19 pandemic, and MFRDMD was re-structuring the survey formation in collaboration with TD.

#### 4. List of Publications in 2022

Publications	Type of Media	Attached e-file
1. Wahidah M. A., Hamizah-Nadia A., & Abd-Haris-Hilmi A. A. 2022. Part II: Issues and Challenges in Sustainable Development of Fisheries of Southeast Asian, Subtopic 3: Marine Species Under International Concern, 3.1 Sharks and Rays. The Southeast Asian State of Fisheries and Aquaculture (SEASOFIA) 2022. Southeast Asian Fisheries Development Center, Bangkok, Thailand.	Technical article	
2. Conservation and management of sharks and rays. SEAFDEC annual Report 2022. (In draft)	Annual report	

Publications	Type of Media	Attached e-file
3. Pemuliharaan dan Pengurusan Ikan Yu dan Pari. Laporan Tahunan DoF Malaysia 2022. (In draft)	Annual report	

### 5. Evaluation on Workshops/Training Courses by Participants of AMSs

Activities	Evaluation
<b>Output 1:</b>	
Activity 1.1	These results were not evaluated by AMS participants yet. The workshop was held successfully as the in-person form from AMS countries at MFRDMD, even under the post Covid-19 pandemic. In this workshop, MFRDMD presented several practical training courses covering the broad range of technical methods about sharks and rays' research activity which consist of preservation of specimens, data management, and standard operation procedure (SOP) on data, identification of sharks and rays species, collecting of tissue samples for DNA analysis, selecting of samples at landing site and measurement techniques. It will be surely useful for AMSs members, its researchers and technical officers to update the research skills of sharks and rays research activity. MFRDMD has evaluated the workshop as "good"
Activity 1.2	This results were not evaluated by AMSs participants yet. And we have evaluate ourself that the on-site training course could contribute to the practical research skills and analysis method of sharks and rays to target contrie's researchers and technical officers. MFRDMD has evaluated the on-site training as "good".
Activity 1.5	N/A
<b>Output 2:</b>	
Activity 2.1	N/A
<b>Output 3:</b>	
Activity 3.1	N/A

### 6. Major Impacts/Issues

Under the situation of the Covid-19 pandemic, MFRDMD was unable to conduct some of the activities as initially planned in 2022, which was not only just the direct effect of resutricitions but also the after-effects of post pandemic social-situation. A social survey was supposed to launch immediately after lifting the related restrictions of Covid-19, but ist counterpart for this survey was unacceptable due to the instability of the post pandemic situation. It was not easy to implement the social-survey without counterparts, then MFRDMD reconsidered the research activity plan with TD as an alternative solution.

Collecting the specimens of *S. lewini* (CITES listed) for DNA analysis was quite difficult because there were rarely landings in the limited season and places. MFRDMD collected some samples in cooperation with local staff, but the target numbers of samples were not fulfilled yet, and did not collect samples from several target places. To fulfill the target numbers and the collecting places, MFRDMD altered a target species as an alternative solution.

These project activities enhanced cooperation between women and men. The Main Technical Officer (one female) played a crucial role in implementing the activities and was assisted by both women (two females) and men (one males) with equal opportunity to participate during the project implementation.

## PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

### 1. Project Summary in 2023

In 2023, MFRDMD will conduct two on-site trainings on taxonomy and biology at the selected landing sites (Yangon, Myanmar) to enhance human resource capacities in elasmobranch taxonomy and biology as well as a technique in data collection of sharks and rays up to species level. The first on-site training is conducted in January 2023 which activity was originally planned in 2022, while the second on-site training is planned in third quarters of 2023 so as to enhance human resource capacities in elasmobranch taxonomy and biology as well as a technique in data collection of sharks and rays up to species level. TD and MFRDMD continue to support landing data collections in the selected participating countries. A training workshop on sharks for stock assessment models like Bayesian Surplus Production model and Bayesian State Space Surplus Production Model is planned in the second

quarter of 2023. This project also continues the study on stock structures of one species of shark and one species of ray (*C. sorrah* and *M. gerrardi*), and one CITES-listed species (*S. lewini*) respectively. With regard to the social survey on fishers' dependencies, marketing and trade, the research framework is reconsidered in collaboration with TD. Also as a pilot activity, two series of nursery ground surveys of sharks and rays are proceeding in Nenasi, Pahang, in collaboration with DoF Malaysia and other related organizations.

## 2. Outcome, Outputs and Activities and Proposed Budget

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Outcome</b>	Stock assessments and management advice for sharks and rays in the Southeast Asia region	
<b>Output 1:</b>	Capacity development in taxonomy, new species/record identifications, and management of major shark species	
<b>Activity 1.1</b> One training course and workshop on chondrichthyan taxonomy and biology	MFRDMD organizes one on-site training on taxonomy and biology at selected landing sites (Myanmar).  <Estimates> - Hotel accommodation (4 persons): USD 700 - DSA & Terminal allowances: USD 1,570 - Airfare (4 person): USD 1,600 - DSA for 3 local delegates: USD 324 - Airfare for 3 local delegates: USD 150 - Hotel accommodation for 3 local delegates: USD 140 - Samples: USD 1,300 - Meeting-related costs and miscellaneous: USD 2,006  Sub-total: USD 8,000	<b>8,000</b>
<b>Activity 1.5</b> Supporting data collection at least one site in Indonesia, Malaysia, Myanmar, Philippines, Viet Nam, and Thailand (Proposed by TD and MFRDMD)	Targeting at least one site/year from 2020, 2021, 2022, 2023 and 2024  <Estimates> Enumerators: USD 5,000  Sub-total: USD 5,000	<b>5,000</b>
<b>Activity 1.6</b> Training workshops on sharks for stock assessment models (Proposed by TD)	The training on sharks for stock assessment models is organized to analyze the data collected during the JTF 6 activities.  <b>Estimated expenditures:</b>  <b>Travel Costs (MCs+TD+Instructor):</b> - Airfare: (7 countries + TD + 2 Instructors); (Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Thailand, Viet Nam and TD): USD 5,100 - DSA & terminal allowances: USD 3,510 - Accommodations: USD 3,850 - Allowance instructor: USD 1,080 <b>Travel Costs (MFRDMD):</b> - Airfare: USD 400 - DSA & terminal allowances: USD 1,980 - Accommodations (officers): USD 2,450 - Transport (rental): USD 750 <b>Meeting Arrangements:</b> - Meeting package: USD 1,900 - Meeting-related costs: USD 510 - Communications and miscellaneous: USD 470 <b>Sub-total: USD 22,000</b>	<b>22,000</b>

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Output 2:</b>	Confirmation of stock structures for at least two common species of sharks/rays and one CITES listed species in participating countries (shared-stock or separate stocks)	
<b>Activity 2.1</b> Study of stock structures of selected species of sharks and rays by genetic markers	12 populations for mtDNA studies in 3 species ( <i>C. hasseltii</i> , <i>C. sorrah</i> , and <i>S. lewini</i> ) in the 4 regions (WCPM, ECPM, Kota Kinabalu, and Tawau)  MFRDMD continues sample analysis using DNA molecular markers.  <Estimates> <i>Research Expenses:</i> - Consumable equipment supplies: USD 2,500 - Samples: USD 800 <i>Extraction kit:</i> USD 600 - Hire of supporting staff (6 months): USD 2,700 <i>Consultant Fees:</i> - Sequencing: USD 3,400  <b>Sub-total: USD 10,000</b>	<b>10,000</b>
<b>Output 3:</b>	Development of socio-economic studies in the northern part of Viet Nam, Western part of Myanmar and Celebes Island or Kalimantan Indonesia using methods such as Multifactor Partitioning Analysis	
<b>Activity 3.1</b> Survey on fishers' dependencies, marketing and trade of sharks and rays in the region/country visited	The overall objective of the survey is to collect information on socio-culture-economic, marketing, and trade data in Pontianak, Indonesia.  <Estimates> <i>Travel Costs (MFRDMD):</i> - Airfare: USD 1,000 - DSA & terminal allowances: USD 660 - Accommodations: USD 700 <i>Travel Costs (Local):</i> - DSA: USD 250 - Accommodations: USD 350 - Miscellaneous: USD 40  <b>Sub-total: USD 3,000</b>	<b>3,000</b>

### 3. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>												
Activity 1.2												
Activity 1.5												
Activity 1.6												
<b>Output 2:</b>												
Activity 2.1												
<b>Output 3:</b>												
Activity 3.1												

#### 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Activity 1</b>	
<b>Activity 1.2.</b> On-site training on taxonomy and biology at selected landing sites	<ul style="list-style-type: none"> <li>- The training enhanced human resource capacities in elasmobranch taxonomy and biology as well as technique in data collections of sharks and rays up to species level.</li> <li>- At least 10 local officers attended the training.</li> </ul>
<b>Activity 1.5.</b> Supporting data collection at least one site in Indonesia, Malaysia, Myanmar, Philippines, Viet Nam and Thailand (Proposed by TD and MFRDMD)	<ul style="list-style-type: none"> <li>- Status of data collections up to species level, marketing, and trade information, as well as issues on CITES-related sharks and rays in the region.</li> </ul>
<b>Activity 1.6.</b> Training workshops on sharks for stock assessment models (Proposed by TD)	<ul style="list-style-type: none"> <li>- One workshop report</li> <li>- One participant from each participating member country, TD and Secretariat attended.</li> <li>- The training enhanced human resource capacities on stock assessment models for sharks and rays</li> </ul>
<b>Activity 2</b>	
<b>Activity 2.1.</b> Study of stock structures of selected species of sharks and rays by genetic markers	<ul style="list-style-type: none"> <li>- Equipment, chemicals, disposable laboratory consumables, kit, and samples for genetic structure study of 3 shark species purchased</li> <li>- Findings from PCR and DNA sequence analysis</li> </ul>
<b>Activity 3</b>	
<b>Activity 3.1</b> Survey on fishers' dependencies, marketing and trade of sharks and rays in the region/country visited	<ul style="list-style-type: none"> <li>- Reconsidering of a social research action plan with TD as follows.               <ul style="list-style-type: none"> <li>i) marketing and trade in Pontianak, Indonesia;</li> <li>ii) A commodity chain-marketing channels and structures.</li> </ul> </li> </ul>

**PROJECT DOCUMENT  
ACHIEVEMENTS FOR YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 202001014
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Sustainable Utilization of Fisheries Resources and Resources Enhancement in Southeast Asia		
<b>Program Strategy No:</b>	I	<b>Total Period:</b>	2020–2024
<b>Lead Department:</b>	Training Department	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	Japanese Trust Fund (JTF)	<b>Total Project Budget:</b>	USD 400,000
<b>Project Partner(s):</b>	None	<b>Budget for 2023:</b>	USD 80,000
<b>Lead Technical Officer:</b>	Sukchai Arnupapboon (RDDH acting/TD)	<b>Project Participating Country:</b>	All Members Countries

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

The fisheries resources are a primary source of protein and contribute to the wellbeing and livelihoods of people. Thus, they are significant in the social and economic aspects of the world. However, the growing human populations as well as development of aquaculture and fishery-related industries in Southeast Asia during the past several decades have made great demands on marine fish and fishery products which resulted in the overexploitation of many species as well as deterioration of marine habitats and ecosystems. To conserve the fisheries resources, sustainable resource management is urgently needed.

Over the past decade, SEAFDEC and its Member Countries have conducted several activities at national and regional level aiming at the sustainable utilization and enhancement of marine and coastal fisheries resources and the ecosystem, *e.g.* exploring under-utilized offshore fisheries resources, carrying out fisheries and environment survey, assessing stock of economic species, installing enhanced fisheries resources tools, developing plans of action, organizing meeting, workshop and training course, etc. However, marine catch statistics of Southeast Asian fisheries are still in the declining trend although the number of fishing vessel continues to increase. Therefore, the sustainable utilization and enhancement of marine and coastal fisheries resources are ongoing challenged in the region.

In this connection, SEAFDEC/TD formulated the new project entitled “Sustainable Utilization of Marine Fisheries Resources and Resource Enhancement in Southeast Asia” in 2020, and it will terminate in 2024. The expected output for this project is to strengthen sustainable management of marine fisheries resources in Southeast Asia by improved technical and research capacities through organizing capacity building training courses, meeting and seminar, conducting fisheries and environment research surveys, developing the application of Fisheries Geographic Information System (FGIS) and Remote Sensing (RS), publishing SOPs for evaluating the implementation of enhanced fisheries resources activities, etc.

### 2. Background and Justification

Over a half of the world’s people obtains a significant source of protein from seafood. In Southeast Asia, this proportion is significantly higher. The Southeast Asian region is blessed with the high abundance of fisheries resources because the coastal ecosystem in the region is very productive, and the high biodiversity of marine fish species provides multiple ecosystems which are suitable habitats for fisheries resources.

However, over several decades, fisheries in Southeast Asia have exceeded its point of sustainability. Some of the commercially important fish resources in the region have declined due to various factors, *e.g.* overfishing, illegal fishing, use of destructive fishing practices and environmental degradation. In support of ending the decline of fisheries resources in Southeast Asia, SEAFDEC has conducted a series of activities to promote sustainable



fisheries for fishers and fishing communities in the region, for example, SEAFDEC under the JTF-6 conducted two (2) projects, namely “Off-shore Fisheries Resource Exploration in Southeast Asia” and “Promotion of Sustainable Fisheries Resources Enhancement Measures in Critical Habitats/Fishing Grounds in Southeast Asia” over the last 7 years. These were implemented in line with the United Nations’ Sustainable Development Goals 14 (Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable development) and the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030.

Based on the lessons learnt from the activities promoting sustainable fisheries, it reveals that effective strategies and management as well as science-based knowledge on marine resources are a prerequisite for the sustainable fisheries. The effective strategies and management could not be developed if there is no support of science-based knowledge on marine resources.

Hence, the project entitled “Sustainable Utilization of Marine Fisheries Resources and Resources Enhancement in Southeast Asia” mainly aims to improve science-based knowledge and build technical capacity of Fisheries Officers and Researchers in the Member Countries to conduct related research.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



#### 4. Gender Sensitivity of the Project

Project involves men and women with neutral and equalized opportunities.

### 5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification

#### 5.1 Logical Framework

GOAL (Overall Objectives, Impact)	Indicators	Means of Verification
Sustainable utilization of marine fisheries resources in Southeast Asia	The livelihood for marine fishers is secured and stable	Catch and data on marine fisheries in Southeast Asia
OUTCOME	Indicators	Means of Verification
Strengthened management of marine fisheries resources in Southeast Asia through improved technical capacities	<ul style="list-style-type: none"> <li>- Management of marine fisheries resources improved</li> <li>- Scientific research reports</li> </ul>	Comments and recommendations from the Member Countries at SEAFDEC Program Committee Meeting (PCM)
OUTPUT 1	Indicators	Means of Verification
Technical capacities of human resources ( <i>i.e.</i> junior fisheries officers and researchers) to conduct marine fisheries resources and oceanographic research/survey improved in Southeast Asia	Number of competent researchers and effective marine fisheries resources and oceanographic research/survey	<ul style="list-style-type: none"> <li>- Good data collections and analysis</li> <li>- Appropriate survey plan</li> <li>- Appropriate sampling gear and oceanographic equipment</li> </ul>

<b>ACTIVITY 1</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 1.1:</b> Regional training on design of sampling gear on board fisheries resource survey	<ul style="list-style-type: none"> <li>- One (1) regional training on design of sampling gear for onboard fisheries resources research survey conducted</li> <li>- Expected number (11) of persons trained</li> </ul>	<ul style="list-style-type: none"> <li>- Training report</li> <li>- Number of participants</li> </ul>
<b>Activity 1.2:</b> Regional training on fisheries oceanographic survey	<ul style="list-style-type: none"> <li>- One (1) regional training on relationship between ocean environment variability and fisheries resource abundance and oceanographic sampling conducted</li> <li>- Expected number (11) of persons trained</li> </ul>	<ul style="list-style-type: none"> <li>- Training report</li> <li>- Number of participants</li> </ul>
<b>Activity 1.3:</b> Regional training on research cruise planning for marine fisheries resources and oceanographic survey	<ul style="list-style-type: none"> <li>- One (1) regional training on research cruise planning for marine fisheries resources and oceanographic survey conducted</li> <li>- Expected number (11) of persons trained</li> </ul>	<ul style="list-style-type: none"> <li>- Training report</li> <li>- Number of participants</li> </ul>
<b>Activity 1.4:</b> Regional training on data collection for fisheries resources stock assessment	<ul style="list-style-type: none"> <li>- One (1) regional training on data collection and fisheries resources stock assessment conducted</li> <li>- Expected number (11) of persons trained</li> </ul>	<ul style="list-style-type: none"> <li>- Training report</li> <li>- Number of participants</li> </ul>
<b>Activity 1.5:</b> Regional training on marine pollution	<ul style="list-style-type: none"> <li>- One Regional Training Course on Marine Debris and Microplastics</li> <li>- Sampling collection and Analysis conducted</li> <li>- Expected number (11) of persons trained</li> <li>- One (1) marine debris and microplastic survey conducted in ASEAN water</li> </ul>	<ul style="list-style-type: none"> <li>- Training report</li> <li>- Number of participants</li> </ul>
<b>Activity 1.6:</b> IEC materials for regional trainings	<ul style="list-style-type: none"> <li>- IEC materials for regional trainings developed and utilized in the above-mentioned trainings</li> </ul>	<ul style="list-style-type: none"> <li>- IEC materials (<i>i.e.</i> handbooks, textbooks, SOPs, references, etc.)</li> </ul>
<b>OUTPUT 2</b>	<b>Indicators</b>	<b>Means of Verification</b>
Technical knowledge, technical skills and field experience of SEAFDEC staff and Member Countries' researchers improved	<ul style="list-style-type: none"> <li>- Participation in research/survey cruises and a regional/international</li> <li>- Meeting</li> </ul>	<ul style="list-style-type: none"> <li>- Successful research cruises</li> <li>- Active participation in research/survey and meeting</li> <li>- Good data collections and analysis</li> </ul>
<b>ACTIVITY 2</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 2.1:</b> Participation of SEAFDEC staff or/and Member Countries' researchers in a research/ survey cruise	SEAFDEC staff and member countries researchers 15 persons participated in 5 research/survey cruises in 5 years (3 persons/year)	<ul style="list-style-type: none"> <li>- Cruise reports</li> <li>- Scientific/research papers and articles</li> </ul>
<b>Activity 2.2:</b> Participation of SEAFDEC staff or/and Member Countries' researchers in a regional / international meeting on fisheries resources and stock assessment	<ul style="list-style-type: none"> <li>- SEAFDEC staff and member countries researchers 5 persons participated in regional / international meetings 5 meeting in 5 years (1 person/year)</li> </ul>	<ul style="list-style-type: none"> <li>- Report on meeting participation</li> </ul>

<b>OUTPUT 3</b>	<b>Indicators</b>	<b>Means of Verification</b>
Research cruise plan for research/training vessels of SEAFDEC and Member Countries developed	- Research cruise plan developed	- Research cruise plan - Comments and recommendations from a research vessel Captain and Chief Researcher
<b>ACTIVITY 3</b>	<b>Indicators</b>	<b>Means of Verification</b>
<b>Activity 3.1:</b> Technical consultation meeting to develop a research cruise plan for research/training vessels of SEAFDEC and Member Countries	- Five technical consultation meetings to develop a research cruise plan for research / training vessels of SEAFDEC and Member Countries organized (one meeting in every year) - Expected total number (20) of participants. (each year 4 persons)	- Meeting reports - Research cruise plan - Number (20) of participants
<b>OUTPUT 4</b>	<b>Indicators</b>	<b>Means of Verification</b>
Scientific knowledge to support fisheries management on transboundary fisheries resources in Sub-region	Sub-region has updated the status of transboundary fisheries resources in Southeast Asia	Report of the status of transboundary fisheries resources in Southeast Asia
<b>ACTIVITY 4</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 4.1:</b> Sub-regional Consultation Workshop on Developing a Plan of Activity for Transboundary Fisheries Resources	- Updated information on the transboundary fisheries resource issues - Plan of activity - Expected number (15) of participants	- Workshop reports - Technical reports
<b>Activity 4.2:</b> Participation in a national / regional / international seminar	- Expected number (at least 2) of oral presentation by SEAFDEC MCs researcher - Expected number (10) of participants	- Seminar report - Presentation handout
<b>Activity 4.3:</b> Training courses or technical meeting	- our events (training courses or technical meeting) will be conducted - Expected number (24) of participants	- Training Report - Meeting report
<b>OUTPUT 5</b>	<b>Indicators</b>	<b>Means of Verification</b>
Application of Fisheries Geographic Information System (FGIS) and Remote Sensing (RS) for monitoring marine fisheries resources and environment in Southeast Asia	Application of Fisheries Geographic Information System (FGIS) and Remote Sensing (RS) for monitoring marine fisheries resources and environment developed	Application of Fisheries Geographic Information System (FGIS) and Remote Sensing (RS) for monitoring marine fisheries resources and environment
<b>ACTIVITY 5</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 5.1:</b> Regional consultation workshop or training course or technical meeting on utilization of FGIS and RS to improve fisheries management (Year 2020–2024)	- Four (4) events (regional training course or technical meeting) on utilization of FGIS and RS organized - Expected number (20) of participants	- Training report - Technical reports

<b>Activity 5.2:</b> Participation in a national / regional / international meeting to disseminate the FGIS and RS to improve fisheries management in SEA	- SEAFDEC participated in the five (5) trainings, meetings, or seminar	- Back to office report
<b>OUTPUT 6</b>	<b>Indicators</b>	<b>Means of Verification</b>
Technical capacities of human resources to conduct resource enhancement	- Number of competent researchers - The resource enhancement evaluated	- Training report - Evaluate artificial reefs installation to enhance marine resources
<b>ACTIVITY 6</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 6.1:</b> Regional Consultation Workshop on Developing a Plan of Activities for Resources Enhancement in Southeast Asian region	- One regional Consultation Workshop organized - Expected number (20) participants	- Workshop reports - Draft Plan of Activities on resources enhancement in the Southeast Asian region, 2021–2023
<b>Activity 6.2:</b> Training course/ Workshop/ Meeting/ Research Study (Year 2021–2023)	- Three events (Training course/research study) regarding fisheries resources conducted in the 2 <sup>nd</sup> , 3 <sup>rd</sup> and 4 <sup>th</sup> year - At least one research study is published	- Training Reports - Published research study
<b>Activity 6.3:</b> Seminar on the Resources enhancement in Southeast Asia (Year 2024)	- One seminar to share the knowledge of fisheries resources enhancement among Southeast Asian researchers is conducted - Expected number 20 participants	- Seminar report - Technical report

## 5.2 Project Implementation Plan for 2020–2024

Activities	2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Output 1:</b>																				
Activity 1.1																				
Activity 1.2																				
Activity 1.3																				
Activity 1.4																				
Activity 1.5																				
Activity 1.6																				
<b>Output 2:</b>																				
Activity 2.1																				
Activity 2.2																				
<b>Output 3:</b>																				
Activity 3.1																				
<b>Output 4:</b>																				
Activity 4.1																				
Activity 4.2																				
Activity 4.3																				
<b>Output 5:</b>																				
Activity 5.1																				
Activity 5.2																				
<b>Output 6:</b>																				
Activity 6.1																				
Activity 6.2																				
Activity 6.3																				

### 5.3 Proposed Budget for 2020–2024

(Unit: USD)

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2024)
Output 1	Activity 1.1	15,000				
	Activity 1.2		15,000			
	Activity 1.3					18,000
	Activity 1.4				18,000	
	Activity 1.5	5,000	5,000	20,000	2,000	2,000
	Activity 1.6					
Output 2	Activity 2.1	5,000	2,500	2,500	2,500	2,500
	Activity 2.2	2,500	2,500	2,500	2,500	2,500
Output 3	Activity 3.1	5,000	5,000	5,000	5,000	5,000
Output 4	Activity 4.1	15,000				
	Activity 4.2		15,000			
	Activity 4.3			15,000	15,000	15,000
Output 5	Activity 5.1	12,000	12,000	13,000	13,000	13,000
	Activity 5.2	3,000	3,000	2,000	2,000	2,000
Output 6	Activity 6.1	17,500				
	Activity 6.2		20,000	20,000	20,000	18,000
	Activity 6.3					2,000
Sub-Total		80,000	80,000	80,000	80,000	80,000

## PART II: PROJECT ACHIEVEMENTS IN 2022

### 1. Achievements of the Project Implementation for the present year (2022)

The project aimed to improve science-based skill and build capacity of fisheries officers/researchers to conduct a research survey. In 2022, three (3) main activities were undertaken including:

- 1) Human resource development: It was conducted through organizing four (4) Regional Training Courses namely, “The Regional Training Course on Marine Debris and Microplastics Sampling Collection and Analysis”, “The Regional Training Course on the Second Session of the 2 Year Regional Training Course on Fish Population Dynamics and Fisheries Management Using R-statistical Program”, “The Regional Training Course on GIS for Aquaculture” and “The Regional Training Course on Determining Spawning-nursing Ground and Season Using Larvae Survey Results”. Additionally, a number of SEAFDEC and SEAFDEC MCs researchers were also supported to improve their skill and knowledge of marine research survey through joining a research cruise in the Gulf of Thailand;
- 2) Development of three (3) research cruise plans using M.V. SEAFDEC 2;
- 3) Enhancement of SEAFDEC visibility through participation in the 7<sup>th</sup> Marine Science Conference and research symposium, Thailand

A total of 72 trainees attended the SEAFDEC training courses. Their skill and knowledge on marine debris analysis, fishery stock assessment, GIS management and larvae result analysis were improved.

A discussion on a fisheries resource survey in the shallow water in Myanmar, an acoustic survey cruise for the biomass distribution of sardines in the Philippine Waters and Andaman Sea, and fisheries resource survey was initiated. Draft survey plans were developed, and the planned research cruise could be carried out in 2023.

SEAFDEC participated in 7<sup>th</sup> Marine Science Conference organized in Thailand, to improve knowledge as well as enhance the SEAFDEC visibility. 20 collaborative research studies carried out by M.V. SEAFDEC 2 in 2018 were presented. 20 collaborative research studies VDO presentation were produced and are available for researchers of the MCs to revisit on the SEAFDEC website.

## 2. Activities and Budget in the Present Year

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1:</b>								
Activity 1	T	7	3	3	3			15,379
<b>Output 2:</b>								
Activity 2.1	R		3		5			1,879
Activity 2.2	I				1			2,533
<b>Output 3:</b>								
Activity 3.1	I, C	15	20	5	9			3,473
<b>Output 4:</b>								
Activity 4.3	T	6	7	3	2			7,725
<b>Output 5:</b>								
Activity 5.1	T	5	5	2	2			15,000 (Estimated)
<b>Output 6:</b>								
Activity 6.2	T	10	10	2	2			29,115 (Estimated)

### Remarks:

Activity 5.1: The Regional Training Course on GIS for Aquaculture will be organized in December 2022 (date: tbc) with 1 Fisheries Officer/Researcher from SEAFDEC MCs will be invited to participate in the training.

Activity 6.2: The Regional Training Course on Determining Spawning-nursing Ground and Season Using Larvae Survey Results will be organized from 28 November to 3 December 2022 (date: tbc) with 2 Fisheries Officer/Researcher from SEAFDEC MCs will be invited to participate in the training.

## 3. Achievements and Expected Outcomes/Outputs of the Activity

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Outcome</b>		
<b>Output 1:</b>		
Activity 1.5: The Regional Training Course on Marine Debris and Microplastics Sampling collection and Analysis	<ul style="list-style-type: none"> <li>- Improved skill and knowledge on marine debris survey to researchers of SEAFDEC MCs.</li> <li>- Strengthen the network of scientists/researchers in marine debris and microplastics in Southeast Asia</li> <li>- Research publication of marine debris or microplastics published</li> </ul>	<ul style="list-style-type: none"> <li>- ten (10) Trainees enhanced skill and knowledge on sampling technique, laboratory analysis and data processing of floating debris, benthic litter and microplastic</li> <li>- The network among scientists/researchers in field of marine debris and microplastics in the Southeast Asian region were strengthened. They shared knowledge and experience during the course and in advance through the internet platform.</li> <li>- Sample of microplastic contamination in the sea surface collected in the inner Gulf of Thailand were completely sorted. Currently, the sorted sample were brought to Japan for FTIR analysis</li> </ul>
<b>Output 2:</b>		
Activity 2.1: Participation of SEAFDEC staff or/and Member Countries' researchers in a research/survey cruise	Technical staff of TD and the MCs participated in the cruise survey e.g. M.V. SEAFDEC 2 and other National Research Vessels	Three (3) researchers from SEAFDEC MCs and 5 from SEAFDEC participated in M.V. SEAFDEC 2 on the comparison on the catch per unit effort of fisheries resources by trawling between research vessels of SEAFDEC Training Department and the Department of Fisheries Thailand operated in the Gulf of Thailand

Activities	Expected Outcome/Outputs	Results/Achievements
<p>Activity 2.2: Participation of SEAFDEC staff or/and Member Countries' researchers in a regional / international meeting on fisheries resources and stock assessment</p>	<p>Technical staff of TD participated in an international symposium or meeting to promote the results of the sustainable utilization of fisheries resources and resources enhancement in Southeast Asia</p>	<p>SEAFDEC staff participated in the 15<sup>th</sup> Annual Meeting of Asian Fisheries Acoustics Society (AFAS) to promote the study on hydroacoustic as well as enhance the visibility of SEAFDEC at Asian level</p>
<p><b>Output 3:</b></p>		
<p>Activity 3.1: Research cruise plan for research/training vessels of SEAFDEC and Member Countries developed</p>	<p>- Survey plan development, monitoring and evaluation progress of fisheries resource survey in the Southeast Asian countries supported</p>	<p>- SEAFDEC completed 4 drafted cruise survey as follows;  a) Drafted cruise survey for the Philippines  b) Drafted cruise survey for Myanmar  c) Draft cruise survey for Thailand  d) Draft shipboard survey "Marine Environment and Fishery Resources Survey by Using a Research Vessel and Evaluate the Impacts of Microplastics on the Fisheries Resources under the SEAFDEC JAIF Project Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia." Cruise survey is expected to conduct in 2023</p> <p>- SEAFDEC completed a final cruise survey of M.V. SEAFDEC 2 as follow;  a) The comparison on Catch Per Unit Effort (CPUE) of Fisheries Resources Survey by Trawling between M.V. SEAFDEC 2 and Research Vessel of Department of Fisheries Thailand. The cruise conducted from 23–28 January 2022. The result is reported in the Activity 4.1</p> <p>- SEAFDEC encouraged MCs to utilize SEAFDEC research vessel with showing the details of SEAFDEC research vessel's capacities through the dissemination of the results of the collaborative research survey on marine fisheries resources and marine environment in the Gulf of Thailand 2018 at 7<sup>th</sup> Marine Science Conference. SEAFDEC MCs were invited to join the conference <i>via</i> online platform. Twenty 20 research studies were presented at the conference and presentation clips have been uploaded to SEAFDEC website.</p>

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Output 4:</b>		
<p>Activity 4.1 Research on the Comparison the Catch Per Unit Effort of Fisheries Resources by Trawling between Research Vessel of SEAFDEC Training Department and Department of Fisheries Thailand</p>	<ul style="list-style-type: none"> <li>- Technical Report on the Comparison the Catch Per Unit Effort of Fisheries Resources by Trawling between Research Vessel of SEAFDEC Training Department and Department of Fisheries Thailand</li> <li>- Sample of marine debris and microplastic collected from the cruise</li> </ul>	<ul style="list-style-type: none"> <li>- Completed the sea trial to compare the Catch Per Unit Effort of Fisheries Resources by Trawling between the Research Vessels of SEAFDEC/TD and Research Vessel of Department of Fisheries Thailand.</li> <li>- Technical Report on the Comparison the Catch Per Unit Effort of Fisheries Resources by Trawling between Research Vessel of SEAFDEC Training Department and Department of Fisheries Thailand. Researcher recommended to further compare the CPUE because number of trawl fishing operation is not sufficient to make conclusion.</li> <li>- Study microplastic contamination in sea surface layer collected by Neuston net. Sample of the marine debris and microplastic collected from the cruise for further analysis</li> </ul>
<p>Activity 4.3: The Regional Training Course on the Second Session of the 2 Year Regional Training Course on Fish Population Dynamics and Fisheries Management Using R-statistical Program</p>	<ul style="list-style-type: none"> <li>- Improved knowledge of human resources and researchers from the SEAFDEC MCs on fish population dynamics and fisheries management using R-statistical program</li> <li>- Strengthened network of human resources and researchers on fish population dynamics and fisheries management in the Southeast Asian Region</li> </ul>	<ul style="list-style-type: none"> <li>- The training course was attended by 18 trainees in total from Cambodia, Malaysia, Philippines, Thailand and Viet Nam including 2 observers from SEAFDEC/MFRDMD. During the training course, all trainees and observers learned the practical of stock assessment data analysis using R language including the data preparation. The participants discussed on the stock assessment methods including the practical method from their experiences together and with resource person. Moreover, the topic on the ecological aspect including the data analysis and result interpretation to support stock assessment was provided to all participants and observers.</li> <li>- These activities were useful for exchanging the knowledge among the participants and strengthening the connection between researchers of member countries as well.</li> </ul>
<b>Output 5:</b>		
<p>Activity 5.1 The Regional Training Course on GIS for Aquaculture</p>	<ul style="list-style-type: none"> <li>- Human resource development regarding the utilization techniques of GIS for Marine Resources Management promoted</li> <li>- Strengthened network of human resources and researchers on the utilization of GIS in fisheries management</li> </ul>	<ul style="list-style-type: none"> <li>- Enhanced knowledge of trainees on the utilization of GIS for Aquaculture</li> <li>- The network of FGIS and RS researchers in the region was strengthened on the discussion and experience sharing during the training program</li> </ul> <p>(Expected results/achievements as to be organized in December 2022)</p>



Activities	Expected Outcome/Outputs	Results/Achievements
<b>Output 6:</b>		
Activity 6.2.1 The Regional Training Course on Determining Spawning-nursing Ground and Season Using Larvae Survey Results	<ul style="list-style-type: none"> <li>- Survey activities of fish larvae and spawning ground and season in Southeast Asian region improved and standardized</li> <li>- Information of spawning ground and season in Southeast Asian region increased</li> <li>- The network of fish larvae researchers in Southeast Asia developed</li> </ul>	<ul style="list-style-type: none"> <li>- Twenty (20) trainees enhanced their skills on sampling collection and spawning-ground potential surface analysis through Maxent plugin program and back calculation to spawning ground using age data and current data</li> <li>- The network among scientists/researchers in the field of fish larvae in the Southeast Asian region was strengthened with sharing knowledge and experience during the course and in advance through internet platform.</li> <li>- (Expected results/achievements as to be organized on 28 November to 3 December 2022)</li> </ul>
Activity 6.2.2 The SOPs for Evaluation of Artificial Reefs Installation to Enhance Marine Resources  (Activity is continued from 2021)	<ul style="list-style-type: none"> <li>- Evaluation SOPs of Artificial Reefs Installation to Enhance Marine Resources</li> <li>- Article in journal (Proposed title: How to evaluate the performance of Fish Enhancing Devices (FEDs): from socioeconomics to scientific perspectives)</li> <li>- Increase number of success resource enhancement activities in the Southeast Asia to promote and dissemination</li> </ul>	<ul style="list-style-type: none"> <li>- Complete with the environmental survey activities in the Baan Klong Makham, Had Lek Subdistrict, Klong Yai District, Trat Province, where fishers are interested to enhance fisheries resources by FEDs deployment.</li> <li>- The result from the survey is being analyzed.</li> </ul>

**Remarks:**

*Activity 5.1: The Regional Training Course on GIS for Aquaculture will be organized in December 2022 (date: tbc) with 1 Fisheries Officer/Researcher from SEAFDEC MCs will be invited to participate in the training.*

*Activity 6.2.1: The Regional Training Course on Determining Spawning-nursing Ground and Season Using Larvae Survey Results plan to organize from 28 November to 3 December 2022 (date to be confirmed) with 2 Fisheries Officer/Researcher from SEAFDEC MCs will be invited to participate in the training.*

*Activity 6.2.2: The SOPs for Evaluation of Artificial Reefs Installation to Enhance Marine Resources is three (3) year activity, from 2021 to 2023*

**4. List of Completed Publications in 2022**

Publications	Type of Media	Attached e-file
1. 20 presentation VDO of 20 research studies of the collaborative research survey on marine fisheries resources and marine environment in the Gulf of Thailand 2018	Videos	(E-presentation)
2. Training report on the Regional Training Course on Marine Debris and Microplastics Sampling collection and Analysis	Hard copy	(E-Copy)
3. Training report on the Second Session of the 2 Year Regional Training Course on Fish Population Dynamics and Fisheries Management Using R-statistical Program	Hard copy	(E-Copy)
4. Training report on The Regional Training Course on GIS for Aquaculture	Hard copy	(E-Copy)
5. Training report on the Regional Training Course on Determining Spawning-nursing Ground and Season Using Larvae Survey Results	Hard copy	(E-Copy)

## 5. Evaluation from Participants of Member Countries for WS and Training Course

Activities	Evaluation
<b>Output 1:</b>	
Activity 1.5	About 90% of the participants of the Regional Training Course on Marine Debris and Microplastics Sampling Collection and Analysis expressed their satisfactory to gain the expected skill in attending the Training Course. The success of training could be observed by the results of their response on the evaluation question and score of pre- and post-test. Average scores of pre- and post-test from trainees were 13.56 and 20.94, respectively (point increasing 54.42%). The 6-day training duration and the organized month were appropriate. In overall, the Training Course was well-organized. Lastly, Trainees suggested that the Training Course should include the onboard practices on marine debris floating observation into the syllabus.
<b>Output 4:</b>	
Activity 4.3	The post test score suggests the significant improvement of participant’s knowledge comparing to the pre-test score, from 5.03 to 7.37. Thus, the course was successfully organized to achieve the objectives in the improving and strengthening participant’s knowledge and skills related to stock assessment using R statistical program. The participants also noted that the time for such kind of course was too short as they had basic/limited knowledge on R program and stock assessment, which required the longer time period for understanding the program.
<b>Output 5:</b>	
Activity 5.1	Training course is ongoing
<b>Output 6:</b>	
Activity 6.2	Training course is ongoing

## 6. Major Impacts/Issues

To conserve and enhance the fisheries resources, sustainable resource management is urgently needed. However, the management of fisheries resources is not effective if there is no scientific information support. In this connection, SEAFDEC improved skill of Fisheries Officers/Researchers of SEAFDEC MCs to determine and study on the stock status, spawning season-area and apply with GIS knowledge and skill for carrying capacity of coastal aquaculture through organizing the training courses as well as strengthening research network among participants attended the training courses.

Under this project, SEAFDEC has been engaged in not only research activities on fishery resource but also research activities on environment. Marine debris and microplastics are contaminated in various places. They cause harm to marine mammals, fish, and invertebrates, and death by entanglement, asphyxiation, or blockage of organs are common. SEAFDEC enhanced human resources capacity on sampling and analysis of marine debris and microplastics and related subject. After participating in the training course, those trainees could monitor the marine debris and microplastics situation in their respective country and strengthen the network of marine debris and microplastics researchers in the Southeast Asia region.

Lastly, this project supported the MCs to develop a national fisheries resources survey by using M.V. SEAFDEC 2 in Myanmar, the Philippines and Thailand. The research cruises in Myanmar and the Philippines were requested for a survey on marine environment and fisheries abundance by using hydro acoustic such as scientific echosounder, and the research cruise in Thailand was requested for a survey by using midwater trawl fishing operation. Due to the Covid-19 situation, three planned cruises were postponed to 2023. Cost sharing for the utilization of M.V. SEAFDEC 2 between SEAFDEC and the Member Countries remain as one of significant issues. In addition, the expected survey costs in 2022 were higher than usual because of the higher fuel price and the expenses for COVID-19 state quarantine. Additional cruise survey to support SEAFDEC JAIF Project Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia is pending in order to revise the overall budget. The cruise expected to conduct in 2023.

## PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

### 1. Project Summary in 2023

The planned activities emphasize to improve the knowledge of Fisheries Officers/Researchers through organizing the four (4) physical training courses both lectures and practical classes as well as building capacity of Fisheries Officers/Researchers through participating the onboard survey. The activities are as follows.

- Regional training course on data collection for fisheries resources stock assessment
- Regional training course on fish population dynamics and fisheries management using poor data condition model.
- Regional training course on GIS for Marine Resources Management
- Regional training course on Artificial Reef design and site selection
- Support Researchers of the Member Countries to participate in the onboard survey and continue support Member Countries to prepare the cruise plan

Additionally, the Project will encourage the MCs to carry out a national fisheries and marine environmental survey and support SEAFDEC's staff and Researchers of MCs to participate in the seminars, meetings or workshops (both onsite and online) in order to disseminate research knowledge and project results.

### 2. Outcome, Outputs and Activities and Proposed Budget

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Outcome</b>	Strengthened management of marine fisheries resources in Southeast Asia through improved technical capacities	
<b>Output 1:</b>	Technical capacities of human resources ( <i>i.e.</i> junior fisheries officers and researchers) to conduct marine fisheries resources and oceanographic research/survey improved in Southeast Asia	
Activity 1.4	<p>Regional training course on data collection for fisheries resources stock assessment</p> <p>Regional training course on data collection for fisheries resources stock assessment is designed for the fisheries officer who is responsible in the statistics and data collections. The training course focuses on data collection technique.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Travel costs: USD 8,000</li> <li>- Daily subsistence allowances: USD 2,500</li> <li>- Accommodation: USD 4,500</li> <li>- Resource Persons: USD 1,000</li> <li>- Others (<i>e.g.</i> stationery, refreshments, etc.): USD 2,000</li> </ul> <p><b>Sub-total: USD 18,000</b></p>	<b>20,000</b>
Activity 1.5	<p>Research study to support the reduction of marine debris and microplastics in Southeast Asia</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>-Equipment USD 500</li> <li>-Field survey USD 1,500</li> </ul> <p><b>Sub-total: USD 2,000</b></p>	
Activity 1.6	<p>IEC materials for regional trainings</p> <p>Report and presentation of the regional training program of the project will be disseminated through SEAFDEC website</p> <p><b>Sub-total: USD 0</b></p>	

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Output 2:</b>	Technical knowledge, technical skills and field experience of SEAFDEC staff and Member Countries' researchers improved	
Activity 2.1	<p>Participation of SEAFDEC staff or/and the MCs researchers in a research/survey cruise</p> <p>This activity supports researchers of SEAFDEC or/and the MCs for participating in the research cruise to improve their research skills and obtain the experience in the fisheries resource and environment survey.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Traveling costs: USD 1,000</li> <li>- Daily subsistence allowances: USD 1,000</li> <li>- Accommodation: USD 200</li> <li>- Others: USD 300</li> </ul> <p><b>Sub-total: USD 2,500</b></p>	<b>5,000</b>
Activity 2.2	<p>Participation of SEAFDEC staff or/and the MCs in a regional or international meeting on fisheries resources and stock assessment</p> <p>This activity supports researchers of the SEAFDEC MCs and SEAFDEC/TD technical staff to participate in an international/regional/national meeting /workshop / symposium to promote the results of fisheries resources survey or stock assessment study in Southeast Asia.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Traveling costs: USD 500</li> <li>- Daily subsistence allowances: USD 500</li> <li>- Accommodation: USD 1,000</li> <li>- Others: USD 500</li> </ul> <p><b>Sub-total: USD 2,500</b></p>	
<b>Output 3:</b>	Research cruise plan for research/training vessels of SEAFDEC and the Member Countries developed	
Activity3.1	<p>Technical consultation meeting to develop a research cruise plan for research/training vessels of SEAFDEC and the MCs.</p> <p>a) This activity supports fisheries officer(s) of the SEAFDEC MCs to participate in a technical consultation meeting to develop a national research cruise plan for research/training vessels of SEAFDEC and the MCs.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Accommodation: USD 1,000</li> <li>- Local transportation: USD 500</li> <li>- Others (e.g. stationery, refreshments, etc.): USD 500</li> </ul> <p><b>Sub-total: USD 2,000</b></p> <p>b) SEAFDEC researchers visits the MCs and participates in a technical consultation meeting to develop a research cruise plan for research/training vessels of SEAFDEC and the Member Countries.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Traveling costs: USD 1,000</li> <li>- Daily subsistence allowances: USD 500</li> <li>- Accommodation: USD 1,000</li> <li>- Others: USD 500</li> </ul> <p><b>Sub-total: USD 3,000</b></p>	<b>5,000</b>

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Output 4:</b>	Scientific knowledge to support the fisheries management on transboundary fisheries resources in the sub-region enhanced	
Activity 4.3	<p>Regional training course on fish population dynamics and fisheries management using poor data condition model.</p> <p>Regional training on fish population dynamics and fisheries management using poor data condition model is designed for stock assessment researcher. The training course focuses on assessment when the number of existing data collected continuously less than 3 years.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Traveling costs: USD 7,000</li> <li>- Daily subsistence allowances: USD 3,000</li> <li>- Accommodation: USD 4,000</li> <li>- Others (e.g. stationery, refreshments, etc.): USD 1,000</li> </ul> <p><b>Sub-total: USD15,000</b></p>	<b>15,000</b>
<b>Output 5:</b>	Application of Fisheries Geographic Information System (FGIS) and Remote Sensing (RS) for monitoring marine fisheries resources and environment in Southeast Asia learnt	
Activity 5.1	<p>Regional training course on GIS for Marine Resources Management</p> <p>SEAFDEC/TD organizes the regional training course on GIS for Marine Resources Management. GIS researcher of the SEAFDEC MCs participates in the training course to improve their knowledge and enhance experience to apply GIS and RS to support the fisheries management.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Traveling costs: USD 6,020</li> <li>- Daily subsistence allowances: USD 1,500</li> <li>- Accommodation: USD 2,730</li> <li>- Resource Persons: USD 1,500</li> <li>- Others (e.g. stationery, refreshments, etc.): USD 1,250</li> </ul> <p><b>Sub-total: USD 13,000</b></p>	<b>15,000</b>
Activity 5.2	<p>Participation in a national/regional/international meeting to disseminate the project activities and results.</p> <p>Two (2) researchers of SEAFDEC participate in a meeting or workshop or training on the utilization techniques of FGIS and RS to improve fishing ground exploration and fisheries management in Southeast Asia.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Traveling costs: USD 1,000</li> <li>- Daily subsistence allowances: USD 500</li> <li>- Accommodation: USD 400</li> <li>- Others: USD 100</li> </ul> <p><b>Sub-total: USD 2,000</b></p>	

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Output 6:</b>	Resource enhancement through the installation of artificial habitat improved	
Activity 6.2	<p>Activity 6.2.1. Regional Training Course on Fisheries Resource Enhancement</p> <p>SEAFDEC/TD in collaboration with SEAFDEC/MFRDMD organizes a regional training course on Artificial Reef design and site selection. Researchers of the SEAFDEC MCs attend the training to build capacity on artificial reef designing and site selection at SEAFDEC/MFRDMD.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Traveling costs: USD 12,000</li> <li>- Daily subsistence allowances: USD 3,000</li> <li>- Accommodation: USD 3,000</li> <li>- Resource Persons: USD 1,000</li> <li>- Others (e.g. stationery, refreshments, etc.): USD 1,000</li> <li><b>Sub-total: USD20,000</b></li> </ul>	<b>20,000</b>
	<p>Activity 6.2.2 The SOPs for Evaluation of Artificial Reefs Installation to Enhance Marine Resources (Activity is continued from 2022)</p> <p>In 2023 the data analysis is planned to complete. Article in journal (Proposed title: How to evaluate the performance of Fish Enhancing Devices: from socioeconomics to scientific perspectives, SEAFDEC research will involve this paper as co-other) will be published and present in the Regional Training Course on Fisheries Resource Enhancement (Activity 6.2.1)</p>	

### 3. Implementation Plan of Activities in 2022

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>												
Activity 1.4												
Activity 1.5												
Activity 1.6												
<b>Output 2:</b>												
Activity 2.1												
Activity 2.2												
<b>Output 3:</b>												
Activity 3.1												
<b>Output 4:</b>												
Activity 4.3												
<b>Output 5:</b>												
Activity 5.1												
Activity 5.2												
<b>Output 6:</b>												
Activity 6.2												

### 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Output: 1</b>	
<b>Activity 1.4</b>	<ul style="list-style-type: none"> <li>- Fisheries officer and researcher of SEAFDEC Member Countries improved their skill and experience on data collection for stock assessment.</li> <li>- The network of scientists/researchers in Southeast Asia developed.</li> <li>- Training report and publication as reference for the improvement of data collection for stock assessment in Southeast Asia.</li> </ul>
<b>Activity 1.5</b>	<ul style="list-style-type: none"> <li>- Research publication of combating marine debris or microplastics published</li> </ul>

Planned activity	Expected Activity Results
<b>Activity 1.6</b>	- Report and presentation of the regional training course on data collection for stock assessment was disseminated to participant and available to download at SEAFDEC/TD website
<b>Output: 2</b>	
<b>Activity 2.1</b>	- Technical staff of TD and the Member Countries joined a cruise survey, e.g. M.V. SEAFDEC 2 and other National Research Vessels
<b>Activity 2.2</b>	- Technical staff of TD participated in an international symposium or meeting to promote the results of the sustainable utilization of fisheries resources and resources enhancement in Southeast Asia
<b>Output: 3</b>	
<b>Activity 3.1</b>	- Survey plan development, monitoring and evaluation progress of fisheries resource survey in the Southeast Asian countries supported
<b>Output: 4</b>	
<b>Activity 4.2</b>	<ul style="list-style-type: none"> <li>- Improved knowledge of human resources and researchers from the SEAFDEC Member Countries on fish population dynamics and fisheries management using poor data condition model</li> <li>- Strengthened network of human resources and researchers on fish population dynamics and fisheries management in the Southeast Asian region</li> </ul>
<b>Output: 5</b>	
<b>Activity 5.1</b>	<ul style="list-style-type: none"> <li>- Human resource development regarding the utilization techniques of GIS for Marine Resources Management promoted</li> <li>- Strengthened network of human resources and researchers on the utilization of GIS in fisheries management</li> </ul>
<b>Activity 5.2</b>	- One (1) or two (2) researcher(s) of SEAFDEC participated in a meeting or workshop or training on the utilization techniques of FGIS and RS to improve fishing ground exploration and fisheries management in Southeast Asia
<b>Output: 6</b>	
<b>Activity 6.2</b>	<ul style="list-style-type: none"> <li>- Improved understanding on Artificial reef design and site selection technique</li> <li>- Information of Artificial reefs in Southeast Asian region updated</li> <li>- Network of Artificial reefs in Southeast Asia strengthened</li> <li>- The SOPs for Artificial Reefs Installation to Enhance Marine Resources: Case Study of Fish Enhancing Devices and Article in journal (Proposed title: How to evaluate the performance of Fish Enhancing Devices: from socioeconomics to scientific perspective)</li> </ul>

**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 202004006
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Fisheries Management Strategies for Pelagic Fish Resources in the Southeast Asian Region		
<b>Program Strategy No:</b>	I	<b>Total Period:</b>	2020–2024
<b>Lead Department:</b>	Marine Fishery Resources Development and Management Department (MFRDMD)	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	Japanese Trust Fund (JTF)	<b>Total Project Budget:</b>	USD 280, 000
<b>Project Partner(s):</b>	None	<b>Budget for 2023:</b>	USD 52,000
<b>Lead Technical Officer:</b>	Mohammad Faisal bin Md Saleh (MFRDMD)	<b>Project Participating Country(ies):</b>	Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Thailand, and Viet Nam

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

This project aims to evaluate the pelagic fish resources in the Southeast Asian region in order to establish a sustainable management strategy for the pelagic fisheries. The transboundary fishes like mackerel, tuna and anchovies, which are the major targeted species chosen for this project based on the abundance of those species in the ASEAN Member States (AMSs), require efficient fisheries management strategies of their stocks. This project also involves the genetic component of the targeted one pelagic species in the Southeast Asian region and is developing the life-history study of the targeted species through age determination analysis. The information on the life history of major neritic tunas in the region was uninvestigated in most of the AMSs.

MFRDMD is responsible for this project to manage and coordinate all project activities with the financial support from the Government of Japan (JTF). Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Thailand, and Viet Nam are involved throughout this project in providing information and samples required. This project entitled “Fisheries Management Strategies for Pelagic Fish Resources in the Southeast Asian Region” aims at:

1. To evaluate the current status of three small pelagic species through stock assessment and risk assessment studies.
2. To evaluate the current status of two neritic tuna species through stock assessment and risk assessment studies.
3. To clarify the stock structure for neritic tuna species in the Southeast Asian region.
4. To carry out the life-history study for neritic tuna species in the Southeast Asian region.

As the keys to the fishery management and policies, stock assessments and risk assessments are considered as important starting points in providing the best scientific information to support the sustainable management of pelagic fishes in the Southeast Asian region.

### 2. Background and Justification

The previous JTF projects namely JTF 2 and JTF 6 undertook research on major targeted pelagic fishes in the Southeast Asian region with the different goals. The JTF 2 project aimed to ascertain the migration route and existence/absence of sub-populations of small pelagic fishes in the ASEAN region. Meanwhile, the JTF 6 project, which aimed to develop the reliable management strategies for purse seine fisheries in the Southeast Asian region,



collected the fundamental information on purse seine fisheries (catch and effort data, biological data of species caught by purse seine gear) associated to the multispecies situation of pelagic fishes in the Southeast Asian region. Further study is required to acquire more extensive information and data for the assessment and management of four dominant pelagic species in the Southeast Asian region. In line with previous programmes as well as to strengthen the initiatives taken, thus there is a need to carry out the stock assessment (SA) and risk assessment (RA) for the pelagic fishery. This new project targets two neritic tuna species and two small pelagic species dominated the catch in each AMS in the Southeast Asian region.

The transboundary fish (*i.e.* tunas, anchovies and mackerels) are the economically important pelagic species that are high consumptions within the Southeast Asian countries, as well as dominated the fishery exports of the Southeast Asian countries to other regions of the world. In 2014, the neritic tuna contributed approximately 40% of the region’s total marine tuna production, with the value of around USD 1 million (SEASOFIA 2017). Shorthead anchovy (*Encrasicholina heteroloba*) and Indian anchovy (*Stolephorus indicus*) are two dominant anchovies in the Southeast Asian region. Nevertheless, *Encrasicholina punctifer* dominated the landing in the northern part (Kelantan) of the East Coast of Peninsular Malaysia (Mohammad Faisal, 2016). Throughout 2002-2013, the production values (in US Dollars) of anchovies in the South China Sea fluctuated but gradually increased, while in the Andaman Sea, the values appeared to be stable and consistent (SEAFDEC 2002-2013). Mackerels contributed approximately 60% to the total small pelagic species production in 2014. *Rastrelliger* spp. contributed nearly 77% to the region’s total mackerel production, with Indonesia as the largest producer (Fishery Statistical Bulletin of Southeast Asian 2014, SEAFDEC 2016a).

This project corresponds to ASEAN-SEAFDEC Resolution 2030 No. 12 (strengthened knowledge including local knowledge, and science-based development and management of fisheries by enhancing the national capacity to collect, analyze, and share fisheries data and information) and ASEAN-SEAFDEC Plan of Action 2030 No. 4 (establish reference points, and come up with estimated biomass or capacity level to determine the maximum sustainable yield, allowable biological catch, or allowable effort for marine and inland fisheries) and No. 27 (foster cooperation with other countries for conduct of stock assessment on straddling, transboundary, highly migratory, and shared fishery resources as appropriate, to serve as inputs for formulating science-based fishery management plan; and strengthen sub-regional and bilateral cooperation including inter-agency cooperation for management of such resources) as well as the United Nations’ Sustainable Development Goals (SDGs), particularly “SDG 14 Life Below Water.”

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

This is a gender-sensitive project where women and men are given equal opportunity to be involved. Gender-sensitive indicators will be analyzed from fisheries data and capacity development programs will be conducted. Fisheries data which integrate gender information through quantitative and qualitative aspects will be analyzed. The sex disaggregated data will also be collected for all activities implemented.

### 5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification

#### 5.1 Logical Framework

GOAL	Indicators	Means of Verification
Sustainable Utilization of Pelagic Fishes in the Southeast Asian region	Incomes of workers ( <i>e.g.</i> , fishers, traders, processors, etc.) related in the pelagic fishery industry will increase through sustainable fishery production	Official statistical data on fisheries and data from socio-economic surveys of workers ( <i>e.g.</i> fishers, traders, processors, etc.) related in the fishery industry in the Southeast Asia

<b>OUTCOME</b>	<b>Indicators</b>	<b>Means of Verification</b>
Efficient Management Strategies for Small Pelagic Fishes and Neritic Tunas in the Southeast Asia region are adopted by governments and fishers	Number of AMSs incorporating the management advice on resource utilization in their national policies	FMPs (Fishery Management Plans) for pelagic fishes by each AMSs
<b>OUTPUT 1</b>	<b>Indicators</b>	<b>Means of Verification</b>
Stock Assessments and Risk Assessments for small pelagic fishes in the Southeast Asian region	Number of assessments for small pelagic fish in SCS and AS (for targeted species, <i>i.e.</i> , anchovies and mackerels/scads)	Conference presentations and technical reports
<b>ACTIVITY 1</b>	<b>Indicators: key Inputs</b>	<b>Means of Verification</b>
<b>Activity 1.1:</b> Stock Assessments and Risk Assessments for small pelagic fishes in the Southeast Asian region	Number of targeted species in the region (anchovies and mackerels/scads)	Practical workshop and country/technical report
<b>Activity 1.2:</b> Workshops for small pelagic fishes in the Southeast Asian region	2 workshops (1 internal workshop and 1 regional workshop)	Workshop reports
<b>Activity 1.3:</b> Meetings for small pelagic fishes in the Southeast Asian region	3 Core Expert Meetings	Meeting reports
<b>OUTPUT 2</b>	<b>Indicators</b>	<b>Means of Verification</b>
Stock Assessments and Risk Assessments for major neritic tuna species in the Southeast Asian region	Number of assessments at least 2 major species of neritic tuna in SCS and AS to be carried out	Conference presentations and technical reports
<b>ACTIVITY 2</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 2.1:</b> Stock Assessments and Risk Assessments for neritic tunas in the Southeast Asian region	Number of targeted species in the region (at least two)	Practical workshop and country/technical report
<b>Activity 2.2:</b> Clarification of the stock structure for one neritic tuna species in the Southeast Asian region	- Number of regions studied for Microsatellite DNA for Kawakawa - Microsatellite DNA conducted in 12 locations in SCS, AS and SSS	Genetic workshop and scientific paper
<b>Activity 2.3:</b> Life-history study for major neritic tuna species in the Southeast Asian region	Number of specimens studied for tuna in ECPM (Tok Bali/Kuantan): 1 stock – in Tok Bali/Kuantan	Practical workshop and technical report
<b>Activity 2.4:</b> Workshops for major neritic tuna species in the Southeast Asian region	4 workshops including stock assessment and genetic (2 internal workshops and 2 regional workshops)	Workshop reports

## 5.2 Project Implementation Plan for 2020–2024

Activities	2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Output 1:</b>																				
Activity 1.1																				
Activity 1.2																				
Activity 1.3																				
<b>Output 2:</b>																				
Activity 2.1																				
Activity 2.2																				
Activity 2.3																				
Activity 2.4																				

### 5.3 Proposed Budget for 2020–2024

(Unit: USD)

Output	Activities	Year 1	Year 2	Year 3	Year 4	Year 5
		(2020)	(2021)	(2022)	(2023)	(2024)
Output 1:	Activity 1.1	5,550	8,050	5,550	8,900	5,550
Stock Assessments and Risk Assessments for small pelagic fishes in the Southeast Asian region	Stock Assessments and Risk Assessments for small pelagic fishes					
	Activity 1.2		18,000			
	Workshops for small pelagic fishes					
	Activity 1.3	25,000		25,000		25,000
	Meetings for small pelagic fishes					
Output 2:	Activity 2.1	3,450	5,950	3,450	6,900	3,450
Stock Assessments and Risk Assessments for major neritic tuna species in the Southeast Asian region	Stock Assessments and Risk Assessments for neritic tunas					
	Activity 2.2	9,000	9,000	13,000	10,000	5,000
	Clarification of the stock structure for one neritic tuna species					
	Activity 2.3	17,000	6,500	4,500	6,200	2,000
	Life-history study for major neritic tuna species					
	Activity 2.4		13,000		20,000	15,000
	Workshops for major neritic tuna species					
<b>Sub-Total</b>		60,000	60,500	51,500	52,000	56,000

## PART II: PROJECT ACHIEVEMENTS IN 2022

### 1. Project Achievements in the Present Year

MFRDMD continued to direct the collaboration project for shared pelagic fish stock in the Southeast Asian region, titled “Fisheries Management Strategies for Pelagic Fish Resources in the Southeast Asian Region” under the JTF6-II. With its context, MFRDMD initiated the activities to evaluate the pelagic fish resources to establish sustainable management strategies for the pelagic fisheries in this region.

In 2022, this project continued the data compilations using questionnaires since last year, and conducted the analysis approached by genetics and age compositions for selected small pelagic species and major neritic tuna species. Meanwhile, the project led the stock assessments of three small pelagic species (*Rasterilliger kanagurta*, *Rastrelliger brachysoma* and *Decapterus spp.*) applying Harvested Feedback Control analysis, Monte Carlo CMSY analysis and Surplus Production Model analysis. As the project outreach, a training course of stock and risk assessments applying the ASPIC model for two tuna-like species (*Scomberomorus guttatus* and *Scomberomorus guttatus*) was successfully organized in the last quarter of 2021, in collaboration with the DoF Malaysia. And as the outcome of this activity, MFRDMD published the technical report of stock and assessment of Narrow-barred Spanish mackerel resources based on the ASPIC model.

To exchange the stock status information with AMSs, MFRDMD conducted two regional meetings in the third quarter of 2022, which focused on neritic tunas and small pelagic as outputs of the stock assessment. A meeting titled “the second Core Expert Meeting on Fisheries Management Strategies for Pelagic Fish Resources in the Southeast Asian Region” took place with a physical-video hybrid conference because of the situation of the Covid19 pandemic. Additionally, the neritic tuna meeting titled “the seventh meeting of Scientific Working Group on Neritic Tunas Stock Assessments in the Southeast Asian Waters” was also held with a physical-video hybrid conference as a series of the SEAFDEC-Sweden projects (2016-2018), which was for the purpose of sharing the resultant analysis of Sheefish stock assessment and biological information of neritic tunas. In both scientific meetings, the status of the stocks level of targeted species and the future work plan of each meeting were confirmed with AMS representatives.

MFRDMD proceeded the DNA analysis for “Clarification of the stock Structure for one Neritic Tuna species (*E. affinis*)” in the Southeast Asian region. A total of 710 *E. affinis* samples were collected in 15 different locations in Southeast Asia since the past project term. As the output of this activity, a total of 430 DNA samples were successfully sequenced, which were analyzed using mitochondrial DNA *d-loop* region. Besides, the number of 100 of all samples stored in RIMF Indonesia were analyzed in its laboratory. As the outcome of this project, MFRDMD presented the resultant study at the poster session of “the 46<sup>th</sup> Annual Conference of the Malaysian Society for Biochemistry and Molecular Biology 2022” held on 24 - 25 August 2022, in which the study suggested that *E. affinis* is a single population stock in the Southeast Asian region

MFRDMD collected otoliths of neritic tuna: Kawakawa (*E. affinis*) for “Life history study for major neritic tuna species in Southeast Asian region” since January 2020, and a total of 360 samples were evaluated to determine the age composition. The analysis identified that the age of the samples collected in the east coast of Peninsular Malaysia were distributed between 3 and 6 years old, while the age of the samples between 4 and 5 years old had an average length of 423 millimeters. This sampling and analysis continue until December 2022.

## 2. Activities and Budget in the Present Year

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1:</b>								
<b>Activity 1.1</b> Stock Assessments and Risk Assessments for small pelagic fishes	R				2			5,550
<b>Activity 1.3</b> Meetings for small pelagic fishes	T	13	4	5	9	3	5	25,000
<b>Output 2:</b>								
<b>Activity 2.1</b> Stock Assessments and Risk Assessments for neritic tunas	R				2			3,450
<b>Activity 2.2</b> Clarification of the stock structure for one neritic tuna species	R		2	3	1			13,000
<b>Activity 2.3</b> Life-history study for major neritic tuna species	R			3	1			4,500

## 3. Expected Outcome/Outputs and Achievements in the Present Year

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Outcome</b>		
<b>Output 1:</b> Stock Assessment and Risk Assessment for small pelagic fish in the Southeast Asian region		
<b>Activity 1.1:</b> Stock Assessments and Risks Assessments for small pelagic fishes in the Southeast Asian region	- Stock Assessments of selected small pelagic species in the SEA region using Surplus Production Model, Harvested Feedback Control Analysis and CMSY.	Stock status of three small pelagic species ( <i>R.kanagurta</i> , <i>R.brachysoma</i> and <i>Decapterus</i> spp.) in the South China Sea and the Andaman Sea was estimated using three different analyses. In those analyses, MFRDMD utilized the catch data extracted from FAO Fish Stat-J and the presented data from AMSs during the 2 <sup>nd</sup> CEM.

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Activity 1.3</b> Meetings for small pelagic fishes in the Southeast Asian region	<ul style="list-style-type: none"> <li>- 2<sup>nd</sup> Core Expert Meeting on Fisheries Management Strategies for Pelagic Fish Resources in the Southeast Asian Region is organized.</li> <li>- 7<sup>th</sup> Scientific Working Group on Neritic Tuna Neritic Tunas Stock Assessments in the Southeast Asian Waters is organized.</li> </ul>	<ul style="list-style-type: none"> <li>- The 2<sup>nd</sup> CEM was held successfully <i>via</i> video conference on 28<sup>th</sup> and 29<sup>th</sup> September 2022. AMS' participants determined the method of stock analysis, shared their country's status of selected small pelagic species, and discussed the way forward for the remaining years' activities of this project.</li> <li>- The 7<sup>th</sup> meeting of SWG Neritic Tuna was organized on 23<sup>rd</sup> and 24<sup>th</sup> August 2022 <i>via</i> teleconference. MFRDMD presented the resultant analysis of the Sheefish stock status using ASPIC in collaboration with DOF Malaysia, and the progress of DNA analysis and study of life history of neritic tunas was provided in this meeting. AMS' representatives introduced the information of the Seerfish stock status, and discussed the future work plans of activities.</li> </ul>
<b>Output 2:</b>		
<b>Activity 2.1:</b> Stock Assessments and Risk Assessments for major neritic tuna species in the Southeast Asian region	Preliminary study on Stock Assessments of neritic tuna and tuna-like species in the Western Pacific Ocean and Eastern Indian Ocean of SEA region using ASPIC.	MFRDMD carried out a training on the stock and risk assessments of two Seerfish ( <i>S.commerson</i> and <i>S.guttatus</i> ) using ASPIC in collaboration with DOF Malaysia. This assessment utilized the catch data from IOTC and Fish Stat-J, and the catch effort data provided by DOF Malaysia. The report was published on the SEAFDEC/MFRDMD website in 2022 July.
<b>Activity 2.2:</b> Clarification of the stock structure for one neritic tuna species in the Southeast Asian region	<ul style="list-style-type: none"> <li>- Equipment, chemicals, disposable laboratory consumables, kit and samples purchased for genetic structure study of one neritic tuna in the SEA region</li> <li>- Findings from PCR and fragment analysis</li> </ul>	In a series of SEAFEC-Sweden projects, a total of 710 Kawakawa samples were stored in the proper facility of MFRDMD and RIFM Indonesia to use for DNA analysis. The 430 DNA samples of all stocks successfully sequenced using mitochondrial DNA <i>d-loop</i> region by MFRDMD, and 100 DNA samples stored in RIFM Indonesia are analyzed in its facility until the middle of 2023. The result signified negligible and low levels of the genetic variation throughout its ranges and suggested that the species might be as a single stock. This aspect was presented at the poster session in "the 46 <sup>th</sup> Annual Conference of the Malaysian Society for Biochemistry and Molecular Biology 2022" held on 24 - 25 August 2022.
<b>Activity 2.3:</b> Life-history study for major neritic tuna species in the Southeast Asian region	<ul style="list-style-type: none"> <li>- At least 360 samples of <i>E. affinis</i> are collected from the east coast of Peninsular Malaysia this year.</li> <li>- Samples extracted, embedded, sectioned, mounted &amp; read to determine their age structure.</li> <li>- As an additional pilot study, at least 180 samples of <i>E. affinis</i> are collected for six months from the west coast of Peninsular Malaysia.</li> </ul>	<ul style="list-style-type: none"> <li>- From January- August 2022, a total of 283 samples of <i>E. affinis</i> were successfully collected at the landing places on the east coast of Peninsular Malaysia.</li> <li>- A total of 180 (48.7%) of 370 samples of <i>E. affinis</i> collected in 2020 were successfully processed and read, of which the majority of the samples were 3-5 years old. A total of 649 samples of <i>E. affinis</i> were collected from January- December in 2021, and the 180 samples (27.7%) were processed and read, with most of the samples being 3-6 years old. The rest of the samples were in processing and reading.</li> <li>- From May- August 2022, around 140 samples of <i>E. affinis</i> were successfully collected from</li> </ul>

Activities	Expected Outcome/Outputs	Results/Achievements
		the west coast of Peninsular Malaysia as a pilot study, and the sampling continues until the end of 2022.

#### 4. List of Publications in 2022

Publications	Type of Media	Attached e-file
1. Training Result: Stock and Risk Assessment of Narrow-barred Spanish mackerel and Indo-Pacific king mackerel Resources in the Eastern Indian Ocean (1950-2020) and Western Pacific Ocean (1970-2019) based on ASPIC (A Stock-Production Model Incorporating Covariates)	Softcopy and hardcopy	<a href="https://repository.seafdec.org.my/handle/20.500.12561/1720">https://repository.seafdec.org.my/handle/20.500.12561/1720</a>
2. Wahidah Mohd Arshaad, Noorhani Syahida Kasim, Adam-Luke Pugas, and Nik-Zuraini Nawawi. 2022. Kawakawa, <i>Euthynnus affinis</i> : A Single Population Stock Revealed in Southeast Asia Region. Poster presented at the 46 <sup>th</sup> Annual Conference of the Malaysian Society for Biochemistry and Molecular Biology 2022, on 24 - 25 August 2022.	Poster	
3. Estimating the Age of <i>Euthynnus affinis</i> Through Hard Part Analysis	Technical article	
4. Mohammad Faisal M. S., Wahidah M. A., Annie Nunis B., Mazalina A., & Mohamad Syahidan A. 2022. Part II: Issues and Challenges in Sustainable Development of Fisheries of Southeast Asian, Subtopic 1: Marine Fishery Resources, 1.1.1: Tunas. 45-50 pp. The Southeast Asian State of Fisheries and Aquaculture (SEASOFIA) 2022. Southeast Asian Fisheries Development Center, Bangkok, Thailand.	Technical article	<a href="https://repository.seafdec.org/handle/20.500.12066/6752">https://repository.seafdec.org/handle/20.500.12066/6752</a>

## 5. Evaluation on Workshops/Training Courses by Participants of AMSs

Activities	Evaluation
<b>Output 1:</b>	
Activity 1.1	N/A
Activity 1.3	<p>This result has not been evaluated by AMSs participants yet, but we have evaluated that the two (2) meetings have been held successfully with a physical-video hybrid conference attended from AMSs countries at MFRDMD, even under the post COVID-19 pandemic. MFRDMD contributed next issues to AMSs countries in the two (2) meetings,</p> <ul style="list-style-type: none"> <li>- Information of the stock status of Seerfish in the Southeast Asian Region.</li> <li>- Progress of DNA analysis of major neritic tuna species.</li> <li>- Information of the life history study for major neritic tunas.</li> <li>- Information of the stock status of selected small pelagic species in the Southeast Asian Region.</li> </ul> <p>MFRDMD has evaluated the workshop as “good”.</p>
<b>Output 2:</b>	
Activity 2.1	N/A
Activity 2.2	N/A
Activity 2.3	N/A

## 6. Major Impacts and Issues

Under the Covid-19 pandemic in Malaysia, there remained some uncertainty. However, MFRDMD managed to organize two (2) scientific meetings on the 2<sup>nd</sup> CEM (Core Expert Meeting) and the 7<sup>th</sup> SWG (Scientific Working Group) attended by AMS’ representatives with physical-video hybrid conferences. The 7<sup>th</sup> SWG took place using the physical-video hybrid form in a flexible use of the limited budget allocation, which didn’t planned in the standard protocol of the project. And as a pilot activity, MFRDMD planned a training course of “R” statistical analysis for internal staff to improve their ability and skill of stock and risk assessment, which was also not planned in the standard protocol and an effective use of the project flame even though in the wake of the Covid-19 pandemic.

Although the new primary set of mitochondrial DNA Cytochrome b and *D-loop* region was equipped, DNA sequence analysis might fail because of low quality of DNA genome due to its long term storage, which is caused by shortage of manpower or lack of expertise. Meanwhile, the out-sourcing of DNA analysis and sample stock with RIFM Indonesia might alleviate these risks under the work sharing.

This project enhanced and involved interactive cooperation between women and men. They played a crucial role as main technical officers for their part and were assisted by both women and men with equal opportunity to participate during the project implementation. Overall, a total of four (4) staff members of MFRDMD was involved in the Life -history Study for Major Neritic Tunas species in the SEA region. One (1) male and three (3) females were involved in collecting and processing samples in the laboratory. The main Technical Officer (female) was assisted by 1 (one) female staff in extracting, embedding, sectioning, mounting, and reading otolith. The Main Technical Officer also took turns with staff to operate *Isomet*® 1000 Precision Saw.

Due to lack of manpower, the entire process of age determination for 60 individuals, collecting samples, extraction (1week), embedding (1week), sectioning (3days), mounting (1week), and reading (1week) was not only time-consuming but also labor intensive. Hence, the main Technical Officer was assisted by 1 Assistant.

## PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

### 1. Project Summary in 2023

MFRDMD continues in collaboration with AMSs and relevant organizations to conduct regional studies titled "Fisheries Management Strategies for Pelagic Fish Resources in the Southeast Asian Region" under the JTF 6-II. A goal of the project is to establish a sustainable management system for the pelagic fisheries in the Southeast Asian region. In the context, MFRDMD arranges a workshop of Stock and Risk Assessments of two (2) neritic tuna species for understanding and sharing information of its stock status to be an opportunity of considering the fisheries management rules. And the opinions and recommendations from AMSs are highly appreciated and are reflected in the future projects. Along with suggestions by the resource person, besides updating stock and risk

assessment methods, MFRDMD should develop an ability of data collection, comparison, selection, and quality control for the next stage. In 2023, the project also continues collecting and compiling the regional information for stock and risk assessment study for three (3) selected pelagic species/group and two (2) neritic tuna species.

This project also continues the study on the clarification of genetic structure of Kawakawa and proceeds a work sharing of the analysis with the Research Institute of Marine Fisheries (RIMF), Indonesia.

The data collection of *E. affinis* for the east coast of Peninsular Malaysia completes by the end of 2022. As the next action, the activity begins data collection of *E. affinis* in the west coast of Peninsular Malaysia. In 2023, MFRDMD will focus on the hard part (otolith) analyses to determine the age of *E. affinis* population in the east coast of Peninsular Malaysia. Once this process is completed, data validation and statistical analysis commence.

## 2. Outcome, Outputs and Activities and Proposed Budget

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Outcome</b>	Efficient Management Strategies for Small Pelagic Fish and Neritic Tunas in the Southeast Asia region are adopted by governments and fishers	
<b>Output 1:</b>	Stock Assessment and Risk Assessment for small pelagic fish in the Southeast Asian region	
<b>Activity 1.1</b> Assessment and Risk Assessment for small pelagic fishes in the Southeast Asian region	MFRDMD collects and compiles regional information of targeted small pelagic species from AMSs for stock assessment and risk assessment study.  <Estimate> Research Expense: Hire of supporting staff: USD 4,050 Internet and Communication: USD 2,850 Deputy Chief expenses: USD2,000	<b>8,900</b>
<b>Output 2:</b>	Stock and Risk Assessment for major neritic tuna species in the Southeast Asian region	
<b>Activity 2.1</b> Stock Assessment and Risk Assessment for neritic tunas in the Southeast Asian region	MFRDMD collects and compiles regional information of targeted species from AMSs for stock assessment and risk assessment study.  <Estimates> Research Expenses: Hire of supporting staff: USD 4,050 Library: USD 2,000 Stationary: USD 850	<b>6,900</b>
<b>Activity 2.2</b> Clarification of stock structure for one neritic tuna species in the Southeast Asian region	MFRDMD continues the study on the clarification of the genetic structure of Kawakawa.  <Estimates> Research Expenses: Sample analysis by MFRDMD Consumable equipment supplies: USD 1,000 Extraction and PCR kit: USD 500 Hire of supporting staff: USD 2,700 DNA Sequencing: USD 500 Workshop data analysis USD 5,300  <i>Sub-total: USD 10,000</i>	<b>10,000</b>



(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Activity 2.3</b> Life-history study for major neritic tuna species in the Southeast Asian region	MFRDMD continues the age determination of Kawakawa in the east coast of Malaysia.  <Estimates> Research Expenses: Hire of supporting staff: USD 5,400 Consumable supplies: USD 800  <i>Sub-total: USD 6,200</i>	<b>6,200</b>
<b>Activity 2.4:</b> Workshops for major neritic tuna species in the Southeast Asian region	SEAFDEC/MFRDMD organizes a regional workshop to discuss and update on the current status of two neritic tuna species in the South China Sea and Andaman Sea as well as sharing information and knowledge of genetic study of the targeted neritic tuna species. Representatives from each participating member country are invited to attend the workshop.  <Estimates> Meeting Expenses Travel Costs: Member Countries Air fare = USD4,200 (1 prs from participating 7 AMSSs,) Land transport = USD 250 (2 prs from Malaysia) Daily Subsistence Allowances = USD 1,680 Accommodation = USD 2,520 SEC/TD (1 prs.) Air fare = USD600 DSA = USD210 Accommodation = USD 280  MFRDMD Air fare = USD1,350 DSA = USD 1,950 Accommodation (officer) = USD 3,570 Local transportation = USD 300 Resource Person: Air fare = USD 800 DSA = USD 450 Accommodation = USD 280 Terminal Allowance = USD 720 Meeting Costs: Stationery: USD 140 Contingency: USD 300 Publication: Publication of Meeting Report: USD 400	<b>20,000</b>

### 3. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>	Stock Assessments and Risk Assessments for small pelagic fishes in the Southeast Asian region											
Activity 1.1												
<b>Output 2:</b>	Stock Assessments and Risk Assessments for major neritic tuna species in the Southeast Asian region											
Activity 2.1												
Activity 2.2												
Activity 2.3												
Activity 2.4												

## 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Activity 1</b>	
<b>Activity 1.1:</b> Stock Assessments and Risk Assessments for small pelagic fishes in the Southeast Asian region	Catch and effort data of three targeted small pelagic species from AMSs compiled for stock and risk assessment
<b>Activity 2</b>	
<b>Activity 2.1:</b> Stock Assessments and Risk Assessments for major neritic tuna species in the Southeast Asian region	Catch and effort data of Kawakawa and longtail tuna from AMSs compiled for stock and risk assessment
<b>Activity 2.2:</b> Clarification of the stock structure for one neritic tuna species in the Southeast Asian region	Findings from PCR and DNA sequence analysis
<b>Activity 2.3:</b> Life-history study for major neritic tuna species in the Southeast Asian region	Age determination and validation for at least 360 samples of <i>E. affinis</i> collected in 2022-2023.
<b>Activity 2.4.</b> Workshops for major neritic tuna species in the Southeast Asian region	<ul style="list-style-type: none"> <li>- Update current stock status of two major neritic tuna species in South China Sea and Andaman Sea.</li> <li>- Regional practical workshop on stock and risk assessments of two neritic tuna species using ASPIC.</li> </ul>

**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 202005004
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Management Scheme of Inland Fisheries in the Southeast Asian Region		
<b>Program Strategy No:</b>	I	<b>Total Period</b>	2020–2024
<b>Lead Department:</b>	Inland Fishery Resources Development and Management Department (IFRDMD)	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	Japanese Trust Fund (JTF)	<b>Total Project Budget:</b>	USD 230,000
<b>Project Partner(s):</b>	None	<b>Budget for 2023:</b>	USD 45,000
<b>Lead Technical Officer:</b>	Zulkarnaen Fahmi (Chief/IFRDMD)	<b>Project Participating Country:</b>	All Members Countries

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

This project is a sustainable management and utilization of fisheries resources in the Southeast Asian region. There are two main activities on the project. The first program is aimed at improving the fishers' livelihood program. The second one is fish catch data and information is assembled. The activities for the first aim consist of development of guidelines for international fisheries management and dissemination to government and other relevant agencies in Southeast Asia. While for the second aim, the activities consist of establishment of catch database and profiles of freshwater fish biodiversity, and also publication of manual book for fish biological characteristics collecting/sampling.

### 2. Background and Justification

Inland fisheries are economically important at the national and local level because of their social and economic contribution to income for rural communities. The dynamics of the inland fishery are strongly related to seasonal rainfall patterns in which the rainy season is followed by the dry season. It should be noted however that the data on production from inland fisheries is very limited considering that inland fisheries operations are small-scale, very seasonal, and mostly carried out by part-time fisheries, and where production is meant for domestic consumption and thus, is usually not recorded at landing sites (SEAFDEC, 2017). Nevertheless, the countries have been trying to exert efforts in improving their systems of compiling the data and information on inland fisheries as the sub-sector that has the potential to enhance the food sufficiency of the region in the future.

In the five-year program in 2015–2019, SEAFDEC/IFRDMD established and strengthened the regional networking for improving the fisheries management and the conservation of fisheries resources/environment in inland waters of the region. Gathering the data and information on present status of inland fisheries in ASEAN Member States (AMSs) were carried out by referring to literature, websites, interviews, and field surveys. Enhancing the capacity building in AMSs for the improvement of management of inland fisheries was also the focus of IFRDMD's work.

Considering the continuous activity, IFRDMD will be responsible for maintaining the sustainable management and utilization of inland fisheries resources in the Southeast Asian region. Millions of people work full or part time in fisheries activities. They are dependent on increasingly depleted and degraded resources, due to overcapacity, resource access conflicts, and inadequate resource management. Improving the fishers' livelihood is the strategic program to secure their lives and ensure the diversity is maintained. The activity will be conducted by gathering the historical bycatch data on freshwater fish provided by enumerators and collecting data on socio-economic status of fishers in the freshwater fish production in Southeast Asia. Moreover, in order to evaluate and monitor the status of fish stocks for exploitation, management activities, and environmental impact, it is therefore

necessary for countries in the Southeast Asian region to update the fish resources status. The Catch database could be a tool for monitoring the present status of fisheries itself and also the fish resources.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

Women have also assumed a leading role in inland fisheries, with their participation along the value chain (production and marketing) much more than in capture fisheries. The national policy has opened up space on gender equality. Yet, in implementing the policy, women have been limited from taking part in decision making. Therefore, some projects in the 2020–2024 are committed to promote gender equality in the Southeast Asian’s fisheries sector.

### 5. Project Overall Objectives/Targets, Outcomes, Outputs, Indicators and Activities

#### 5.1 Logical Framework

GOAL	Indicators	Means of Verification
Sustainable management and utilization of inland fisheries resources in the Southeast Asian region	The livelihood of fishers is secured and stable, and the inland fishery diversity is maintained	- Historical bycatch data on freshwater fish provided by enumerators - Data on socio-economic status of fishers in the freshwater fish production in Southeast Asia
OUTCOME	Indicators	Means of Verification
Strategic program for improving fishers’ livelihood	AMSs implement the strategic program for improving fishers’ livelihood	Government adopts the document and makes a policy or regulation
OUTPUT 1	Indicators	Means of Verification
Policy and recommendations of the inland fisheries management in Southeast Asia	Guideline on inland fisheries management in Southeast Asia is developed and disseminated to governments and other relevant agencies	Government reports and publishes or issues policy and regulations based on the guidelines
ACTIVITY 1	Indicators: key Inputs	Means of Verification
<b>Activity 1.1:</b> Organizing stakeholders’ meetings between representatives of relevant Government agencies, fishers, local communities, etc. in AMSs	Meetings are conducted in 6 countries ( <i>i.e.</i> , Cambodia, Indonesia, Lao PDR, Myanmar, Thailand and Viet Nam), and obtaining the present status of data and information on inland fisheries management	Database from 6 countries
<b>Activity 1.2:</b> Conducting trainings on data and information in AMSs	Trainings are conducted in 6 countries ( <i>i.e.</i> , Cambodia, Indonesia, Lao PDR, Myanmar, Thailand and Viet Nam), and sharing, exchanging and improving the data and information collections	Training in 6 countries
<b>Activity 1.3:</b> Organizing a regional workshop	Regional workshop is organized by IFRDMD to promote the importance of inland fisheries for the livelihood	Workshops

<b>Activity 1.4:</b> Organizing Forum Group Discussion in AMSs	Forum Group Discussions are organized in 6 countries ( <i>i.e.</i> , Cambodia, Indonesia, Lao PDR, Myanmar, Thailand and Viet Nam) to promote the importance of inland fisheries for the livelihood	Forum Group Discussion
<b>Activity 1.5:</b> Conducting a writeshop for drafting publications	A writeshop is organized in 6 countries to draft publications of each AMS	Articles
<b>Activity 1.6</b> Building demonstration plot as a model for floodplain fishery management and conservations	Monitoring Program SPEECTRA and SPEECTRA model application in several provinces in Indonesia	Demonstration plot SPEECTRA system
<b>OUTPUT 2</b>	<b>Indicators</b>	<b>Means of Verification</b>
Fish catch data and information assembled	Catch database and profiles of freshwater fish biodiversity are established, and fish biological characteristics collecting / sampling manual book is published	Catch database and freshwater fish biodiversity profiles, and collecting / sampling manual
<b>ACTIVITY 2</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 2.1:</b> Conducting a survey to assess the status of inland fisheries	Surveys are conducted in 6 countries ( <i>i.e.</i> , Cambodia, Indonesia, Lao PDR, Myanmar, Thailand, and Viet Nam) for updating status of inland fisheries	Survey reports
<b>Activity 2.2:</b> Conducting data monitoring in target countries	Data monitoring is conducted in 4 countries ( <i>i.e.</i> , Indonesia, Cambodia, Thailand, and Myanmar)	Database from 4 countries
<b>Activity 2.3:</b> Drafting the profiles of freshwater fish biodiversity in AMSs	The profiles are drafted and published	Booklet and poster on the profiles of freshwater fish biodiversity
<b>OUTPUT 3</b>	<b>Indicators</b>	<b>Means of Verification</b>
The project management to lead to success	Project achievement	Report of result and evaluation
<b>ACTIVITY 3</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 3.1</b> Coordination by the project leader	Progress meetings are held twice a year to confirm the improvement of each activity. The evaluation at the end of year by experts. Hiring one assistant to carry out the project effectively.	Semi-annual and annual progress report, and their evaluation results.

## 5.2 Project Implementation Plan for 2020–2024

Activities	2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Output 1:</b>																				
Activity 1.1																				
Activity 1.2																				
Activity 1.3																				
Activity 1.4																				
Activity 1.5																				
Activity 1.6																				
<b>Output 2:</b>																				
Activity 2.1																				
Activity 2.2																				
Activity 2.3																				
<b>Output 3:</b>																				
Activity 3.1																				

## 5.3 Proposed Budget for 2020–2024

(Unit: USD)

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2024)
Output 1	Activity 1.1	16,680	8,107	7,387		
	Activity 1.2		3,600	3,600		
	Activity 1.3					13,875
	Activity 1.4				14,100	6,375
	Activity 1.5	3,570			6,600	
	Activity 1.6		5,635	11,888		
Output 2	Activity 2.1	13,025	19,663	9,125	3,600	
	Activity 2.2	7,225	7,393	8,500	5,100	6,375
	Activity 2.3				11,100	13,875
Output 3	Activity 3.1	4,500	5,602	4,500	4,500	4,500
<b>Sub-Total</b>		45,000	50,000	45,000	45,000	45,000

## PART II: PROJECT ACHIEVEMENTS IN 2022

## 1. Project Achievements in the Present Year

IFRDMD has conducted 3 sub-activities under two main activities (Activities 1 and 2) in 2022. Under these sub-activities, IFRDMD conducted field surveys and collected data. The study site for 2022 has been focused and implemented in Indonesia *i.e.*, Riau, and South Sumatra Province, as well as in Cambodia *i.e.*, Kampong Cham. IFRDMD collected data of fish biology, fishery activity, socio-economic, and organized the workshop for women participation improvement in those sites. Through the surveys, interviews, literature search, information gathering, online discussion, and workshop, the present situation and issues updates were assessed and shared for taking further measures on inland capture fisheries in AMSs.

## 2. Activities and Budget in the Present Year

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1:</b>								
<b>Activity 1.1:</b> Organizing stakeholders' meetings between representatives of relevant Government agencies, fishers, local communities, etc. in Cambodia and Indonesia	Research	3	3	2	2	1	2	7,375
<b>Activity 1.2:</b> Conducting trainings on data and information in AMSs	Training	50	10	5	5	5	1	3,600
<b>Activity 1.6:</b> Monitoring and evaluation program for SPECTRA system, demonstration plot as a model for floodplain fishery management and conservation	Research	14	2	5	6	1	1	11,900
<b>Output 2:</b>								
<b>Activity 2.1:</b> Conducting a survey to assess the status of inland fisheries in Cambodia and Indonesia	Research	12	2	5	6	1	1	16,625
<b>Activity 2.2:</b> Conducting data monitoring in target countries (in Cambodia and Indonesia)	Research	14	1	4	1	1	1	8,100
<b>Output 3:</b>								
<b>Activity 3.1:</b> Coordination by the project leader	Coordination	5	2	5	6	1	1	8,062

### 3. Expected Outcome/Outputs and Achievements in the Present Year

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Outcome</b>		
<b>Output 1:</b>		
<b>Activity 1.1</b> Organizing stakeholders' meetings between representatives of relevant Government agencies, fishers, local communities, etc. in Cambodia and Indonesia	Database from Cambodia and Indonesia	Successfully organized the stakeholders' meeting and collected data from Indonesia (Riau and Patra Tani) and Cambodia (Kampong Cham).
<b>Activity 1.2</b> Conducting trainings on data and information in Cambodia and Indonesia	Training	The training was implemented only in Indonesia for improving women's roles due to the Covid-19 pandemic.
<b>Activity 1.6</b> Monitoring and evaluation program for SPECTRA system, demonstration plot as a model for floodplain fishery management and conservation	Publication and demonstration plot SPECTRA system	Published the SPECTRA system guidebook
<b>Output 2:</b>		
<b>Activity 2.1</b> Conducting a survey to assess the biodiversity of inland fisheries in Cambodia and Indonesia	Database from Cambodia and Indonesia	IFRDMD collected fish diversity data from Indonesia (Riau and Patra Tani), and Cambodia (Kampong Cham).
<b>Activity 2.2</b> Conducting data monitoring in Cambodia and Indonesia. It is conducted together with activity 2.1	Surveying for fisheries data collection	Successful survey to monitor the fisheries data of Indonesia (Riau and Patra Tani) and Cambodia (Kampong Cham).
<b>Output 3:</b>		
<b>Activity 3.1</b> Coordination by the project leader	Project report	Semi-annual meeting and report

### 4. List of Publications in 2022

Publications	Type of Media	Attached e-file
Ditya, YC., D Muthmainnah, NN. Wiadnyana, S Makmur, S Kaban, AH Rais, T Hidayah, DP Anggraeni, R Antoni, M Dwirastina, S Koeshendrajana. 2022. Assessing the Ecosystem Approach to Fisheries Management in Indonesian Inland Fisheries. Pol. J. Environ. Stud. Vol. 31, No. 3 (2022), 1-10. DOI: 10.15244/pjoes/144922.	Journal	
Hidayah, T., D Muthmainnah, Marson, NK Suryati. 2022. Fishery of Urisa River in West Papua. IOP Conference Series: Earth and Environmental Science 995 (1), 012031.	IOP Conference	
Fahmi, Z., D Muthmainnah, EJ Utama, S Sawestri, SR Indahsari. 2022. Reviving the Giant Featherback ( <i>Chitala lopis</i> ) in Indonesia. Fish for the People. Volume 20 Number 1. SEAFDEC. Bangkok.	Magazine	

## 5. Evaluation on Workshops/Training Courses by Participants of AMSs

Activities	Evaluation
<b>Output 1:</b>	
<b>Activity 1.1</b> Organizing stakeholders' meetings between representatives of relevant Government agencies, fishers, local communities, etc. in Cambodia and Indonesia.	Activity goes according to plan.
<b>Activity 1.2</b> Conducting trainings on data and information in Cambodia and Indonesia	Activity goes according to plan.
<b>Activity 1.6</b> Monitoring and evaluation program for SPECTRA system, demonstration plot as a model for floodplain fishery management and conservation	Activity goes according to plan.
<b>Output 2:</b>	
<b>Activity 2.1</b> Conducting a survey to assess the biodiversity of inland fisheries in Cambodia and Indonesia	Activity goes according to plan.
<b>Activity 2.2</b> Conducting data monitoring in Cambodia and Indonesia. It will be conducted together with activity 2.1	Activity goes according to plan.
<b>Output 3:</b>	
<b>Activity 3.1</b> Coordination by the project leader.	Activity goes according to plan.

## 6. Major Impacts/Issues

1. The implementation of the planned activities has been delayed due to the Covid-19 pandemic.
2. The field surveys including gender issues were conducted in Indonesia during the Covid-19 pandemic.
3. The data collections must be further improved among all SEAFDEC member countries.
4. The roles of gender in the inland fishery in maintaining the sustainability of biodiversity and family welfare measures must be further improved among all SEAFDEC member countries.

## PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

### 1. Project Summary in 2023

This project is about sustainable management and utilization of fisheries resources in the Southeast Asian region. There are two main activities and five sub-activities under the project. The first program aims to improve the fishers' livelihood while the second is to assemble fish catch data and information. Lao PDR, Viet Nam, and Indonesia will be the site locations in 2023. Output 1 consists of seeking and identifying the major component of conservation management and some training, while the activities for Output 2 consist of collecting catch data and profiles of freshwater fish biodiversity.



## 2. Outcome, Outputs and Activities and Proposed Budget

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Outcome</b>	Strategic program for improving fishers' livelihood.	
<b>Output 1:</b>	Policy and recommendations of the inland fisheries management in Southeast Asia.	
Activity 1.1	Organizing stakeholders' meetings between representatives of relevant Government agencies, fishers, local communities, etc. in Cambodia	14,100
Activity 1.2	Conducting trainings on data and information in Cambodia	
Activity 1.4	Organizing Forum Group Discussion in AMSs (Cambodia, Lao PDR and Viet Nam)  <b>Estimated expenditures:</b> -Transportation to AMSs: USD 6,600 -Accommodation fees: USD 1,000 -Local transport: USD 1,000 -DSA: USD 4,000 -Meeting package: USD 1,000 -Office expenditures and contingency: USD 500 <b>Sub-total: USD 14,100</b>	
Activity 1.5	Conducting a writeshop for drafting publications (Lao PDR and Viet Nam)  <b>Estimated expenditures:</b> -Transportation to AMSs: USD 3,000 -Accommodation fees: USD 600 -Local transport: USD 500 -DSA: USD 1,500 -Meeting package: USD 500 -Office expenditures and contingency: USD 500 <b>Sub-total: USD 6,600</b>	6,600
<b>Output 2:</b>	Fish catch data and information assembled.	
Activity 2.1	Conducting a survey to assess the status of inland fisheries (in Lao PDR and Viet Nam).  <b>Estimated expenditures:</b> -Transportation to AMSs: USD 1,800 -Accommodation fees: USD 300 -Local transport: USD 250 -DSA: USD 750 -Meeting package: USD 250 -Office expenditures and contingency: USD 250 <b>Sub-total: USD 3,600</b>	3,600
Activity 2.2	Conducting data monitoring in target countries (conducted together with Activity 2.1; location in Lao PDR, Viet Nam, Cambodia, and Indonesia).  <b>Estimated expenditures:</b> -Enumerators: USD 4,400 -Meeting package: USD 500 -Office expenditures and contingency: USD 200 <b>Sub-total: USD 5,100</b>	5,100

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
Activity 2.3	Drafting the profiles of freshwater fish biodiversity in Lao PDR and Viet Nam.  <b>Estimated expenditures:</b> -Transportation to AMSs: USD 5,000 -Accommodation fees: USD 800 -Local transport: USD 800 -DSA: USD 3,100 -Meeting package: USD 1,000 -Office expenditures and contingency: USD 400 <b>Sub-total: USD 11,100</b>	11,100
<b>Output 3:</b>	The project management leads to success.	
Activity 3.1	Progress meetings are held twice a year to confirm the improvement of each activity. The evaluation at the end of year by experts. Hiring one assistant to carry out the project effectively.  <b>Estimated expenditures:</b> -Travel cost of 2 evaluators (share): USD 2,200 -Meeting costs (share): USD 300 -Salary of Assistant (share): USD 2,000 <b>Sub-total: USD 4,500</b>	4,500

### 3. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>												
Activity 1.1												
Activity 1.2												
Activity 1.4												
Activity 1.5												
<b>Output 2:</b>												
Activity 2.1												
Activity 2.2												
Activity 2.3												
<b>Output 3:</b>												
Activity 3.1												

### 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Activity 1</b>	
<b>Activity 1.4</b> Organizing Forum Group Discussion in AMSs	Workshop
<b>Activity 1.5</b> Conducting a writeshop for drafting publications	Publications
<b>Activity 2</b>	
<b>Activity 2.1</b> Conducting a survey to assess the status of inland fisheries (in Lao PDR and Viet Nam).	- Database from Lao PDR and Viet Nam - Survey report
<b>Activity 2.2</b> Conducting data monitoring in target countries (conducted together with Activity 2.1; location in Lao PDR, Viet Nam, Cambodia, and Indonesia).	Database from Lao PDR, Viet Nam, Cambodia, and Indonesia
<b>Activity 2.3</b> Drafting the profiles of freshwater fish biodiversity in Lao PDR and Viet Nam.	Profile book of freshwater fish biodiversity in Lao PDR and Viet Nam.



Planned activity	Expected Activity Results
<b>Activity 3</b>	
<b>Activity 3.1</b> The project leader will coordinate and assist all research and dissemination	<ul style="list-style-type: none"><li>- Progress meetings conducted twice a year to confirm the improving of each activity</li><li>- The evaluation at the end of year by experts</li><li>- One Assistant hired to carry out the project operations and administration effectively</li></ul>

**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 202001015
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Small-scale Fisheries Management for Better Livelihood and Fisheries Resources		
<b>Program Strategy No:</b>	I	<b>Total Period:</b>	2020–2024
<b>Lead Department:</b>	Training Department (TD)	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	Japanese Trust Fund (JTF)	<b>Total Project Budget:</b>	USD 305,000
<b>Project Partner(s):</b>	Nil	<b>Budget for 2023:</b>	USD 60,000
<b>Lead Technical Officer:</b>	Panitnard Weerawat (TD)	<b>Project Participating Country:</b>	All Member Countries

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

In the Southeast Asia region, the problems faced by small-scale fisherfolks are complex and diverse. The main issues are lack of appropriate fisheries management framework, awareness and knowledge of how to apply a fisheries management tool, dependence on middlemen, lack of stakeholders (including women)' acknowledgement, and catch decrease due to the competitions with commercial or illegal fishing and degradation of the environment and fishing grounds. Given the already low income of small-scale fishers and the high number of household members, this social group has serious difficulties to keep its traditional occupation. Appropriate local and comprehensive management plan for small-scale fisheries (SSF) must provide adequate solutions to the main problems. One of the main objectives in such a management plan is to support small-scale fishers for improving their income generation while sustaining the nearshore fisheries resources.

This project aims in the sustainable management of SSF for improving the livelihood and well-being of fishers in Southeast Asia. There will be continuing efforts in strengthening the human resource development and further promoting the Ecosystem Approach to Fisheries Management (EAFM) under the project. The lessons learnt based on the application of the EAFM will be shared and used for developing regional recommendations on the effective implementation of the EAFM in the region. The capability development in support of the implementation of the FAO's Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines) for improving the livelihood and well-being of small-scale fishers will be carried out.

A study on the status of fisheries socio-economic assistance and on gender assessment will be conducted in the region. The regional cooperation in fisheries socio-economic development and approach/process should be further strengthened in conjunction with the action plans for supporting the livelihood and well-being of small-scale fishers in Southeast Asia. Furthermore, the gender integration and empowerment in sustainable fisheries management in the member countries in Southeast Asia which include fisheries management processing and value chain will be promoted through the regional and national training courses and human resource development programs in the five-year project period.

### 2. Background and Justification

In reference to the United Nations' Sustainable Development Goals (SDG) 14 "Life below Water", it has been stated clearly that SSF is a vital source of livelihoods for millions, particularly in developing countries, and provides food and nutrition for billions. Large industrial fleets dominate fisheries management efforts and political interests. Policies need to refocus on addressing the needs and challenges of SSF. The SSF Guidelines, adopted by the FAO member countries in 2014, provide the global consensus on the principles, good practices, and guidance to ensure that small-scale fisheries are sustainable for small-scale fishers, fish workers, and their community and society at large. The SSF Guidelines advocate the need for good collaboration among government

agencies, small-scale fishery organizations, fishing communities and other stakeholders. SEAFDEC has been taking on the challenge in the region in support of the implementation of the SSF Guidelines, and actions on the SDGs.

In the “ASEAN-SEAFDEC Resolution on Sustainable Fisheries for Food Security for the ASEAN Region towards 2030” as well as the “Strategic Plan of Action on ASEAN Cooperation on Fisheries 2016–2020”, it is stated that the supply of fish and fishery products in the region needs to be sustained to improve food security, facilitate poverty alleviation, and improve the livelihoods of people depending on the harvesting, farming, and marketing of fish and fishery products. National fisheries policy, legal and institutional frameworks need to be improved to further support small-scale fishers/farmers with providing alternative livelihood opportunities and implementing the effective management of fisheries through the EAFM which aims at increasing the social and economic benefits to all stakeholders. For better livelihood and resources management in SSF, the project will be implemented for the next five years.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

The project supports gender integration through the activities. Throughout the project, women and men will participate in regional/national training courses on fisheries management and value chain to enhance their capacities. At the national level, gender concept and analysis will be further promoted as important tool.

### 5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification

#### 5.1 Logical Framework

GOAL (Overall Objectives, Impact)	Indicators	Means of Verification
Sustainable management of small-scale fisheries (SSF) for improving the livelihood and well-being of fishers in Southeast Asia	<ul style="list-style-type: none"> <li>- Livelihood and well-being of small-scale fishers are improved and secured</li> <li>- Healthy fisheries resources in Southeast Asia</li> </ul>	<ul style="list-style-type: none"> <li>- Data on socio-economic status of fishers in Southeast Asia</li> <li>- Data on fisheries resources in SSF</li> </ul>
<b>OUTCOME</b>	<b>Indicators</b>	<b>Means of Verification</b>
Strategic programme for sustainable fisheries management in SSF	ASEAN Member States (AMSs) implement the strategic programme for sustainable fisheries management	Government adopts strategic programme and made a policy or regulations
<b>OUTPUT 1</b>	<b>Indicators</b>	<b>Means of Verification</b>
Ecosystem Approach to Fisheries Management (EAFM) is in place in selected pilot sites in the member countries	Fisheries management which includes human wellbeing become more strengthened in selected pilot sites through the implementation on EAFM	<ul style="list-style-type: none"> <li>- Pilot learning site of Tonle Sap</li> <li>- Pilot learning sites of SSF Thailand and Myanmar</li> </ul>
<b>ACTIVITY 1</b>	<b>Indicators: key Inputs</b>	<b>Means of Verification</b>
<b>Activity 1.1:</b> Regional training or workshop to strengthen national capacities (participants) in Small-scale Fisheries Management for Better Livelihood and Fisheries Resources	<ul style="list-style-type: none"> <li>- Number of regional training/workshops conducted</li> <li>- Number of participants attend in the workshop</li> </ul>	Workshop report

<b>Activity 1.2:</b> Effective implementation of EAFM as key tool in the pilot sites	EAFM introduced and effectively implemented in the pilot sites Learning site 1: Ranong (Thailand) and Koh Song (Myanmar) Learning site 2: Tonle Sap (Cambodia)	- EAFM plan for Ranong-Thailand, Koh Song-Myanmar and Tonle Sap, Cambodia - e-EAFM materials updated
<b>Activity 1.3:</b> Review of the EAFM implementation results in the pilot sites and the development of Regional Plan of Actions (RPOA) on EAFM	- EAFM implementation results reviewed in the pilot sites - Write-shop for drafting Regional Recommendation on EAFM implementation and application	- Review report on EAFM implementation results - EAFM promotion materials - Regional Recommendation on EAFM implementation and application
<b>OUTPUT 2</b>	<b>Indicators</b>	<b>Means of Verification</b>
Capability development in the implementation of the SSF guidelines for improving the livelihood and well-being of small-scale fishers	- Survey and capacity development activities conducted - Effective implementation of the SSF guidelines for improving the livelihood and well-being of small-scale fishers - Livelihood and well-being of small-scale fishers secured and stable	- Survey report - Improved technical capacities and knowledge of SEAFDEC staff and government officials as well as fishers in SSF
<b>ACTIVITY 2</b>	<b>Indicators: key</b>	<b>Means of Verification</b>
<b>Activity 2.1:</b> Study on the status of fisheries socio-economic assistance, and gender assessment particularly in line with the implementation of the SSF guidelines in Southeast Asia	- Study on the status of fisheries socio-economic assistance and gender assessment conducted in the member countries in 2021 - Survey questionnaires developed, and interviews conducted	- Study report on the status of fisheries socio-economic assistance - Survey questionnaires
<b>Activity 2.2:</b> Strengthening a regional cooperation in fisheries socio-economic development and developing appropriate approach/process in support of the implementation of the SSF guidelines in Southeast Asia	- Regional cooperation in fisheries socioeconomic development - Participation in international/regional meetings	- Regional cooperation network - Improved regional cooperation - Meeting reports
<b>Activity 2.3:</b> Enhancing the livelihood and well-being of small-scale fishers in Southeast Asia	- Two regional workshops organized in Thailand in 2021 and 2023 - 2 participants from each member country - About 25 participants participated in each workshop	- Workshop reports - About 25 participants participate in each workshop (total of 50 participants for 2 workshops) - Action plans for supporting livelihood and well-being of small-scale fishers - Appropriate budget allocated for workshop participations
<b>OUTPUT 3</b>	<b>Indicators</b>	<b>Means of Verification</b>
Further promotion of the gender integration and empowerment in sustainable fisheries management in the member countries in Southeast Asia	- Gender integration and empowerment promoted through trainings and intervention (e.g. fish processing and value-adding) - Training program developed	- Number of trainings and its program - Number of new projects on gender integration and empowerment - Number of new activities in fish processing and value adding

Activity 3	Indicators: key	Means of Verification
<b>Activity 3.1:</b> Capacity development on gender integration in SSF which include fisheries management processing and value chain through regional/national training courses	<ul style="list-style-type: none"> <li>- Two regional and three national training courses on gender integration in SSF in Southeast Asia</li> <li>- Regional training/workshop conducted in Thailand in 2020 and 2014, 2 participants from each member country are expected to participate. Expected number of participants is 25 persons/each course and bring to 50 participants in total of two regional courses.</li> <li>- Two national training courses in inland and coastal fisheries will be conducted in 2021, 2022 and 2023 expected number of participants is 25 persons per each course, bringing to 75 persons in total of national training participants.</li> <li>- Technical advice to and follow-ups of the on-going co-management activities in Lao PDR</li> </ul>	<ul style="list-style-type: none"> <li>- Training course reports</li> <li>- Regional training/workshop report</li> <li>- About 25 Number of regional and national training courses, bring to 50 training participants for two regional courses and 50 participants for 2 national training courses</li> <li>- Appropriate budget allocated for training participations</li> <li>- Report on the success of women and other disadvantaged stakeholders in the fisheries management process and value chain</li> <li>- New national or local programs/activities to ensure the opportunity for women and disadvantaged groups</li> <li>- Technical report on co-management activities in Lao PDR</li> </ul>
<b>Activity 3.2:</b> Participation in the relevant international/regional forum and national activities/trainings	<ul style="list-style-type: none"> <li>- Participation of SEAFDEC EAFM core team members and other staff in international/regional forum and national activities/trainings</li> <li>- International/regional cooperation strengthened</li> </ul>	<ul style="list-style-type: none"> <li>- Meeting reports</li> <li>- Back-to-Office reports</li> <li>- Newsletter articles</li> </ul>

## 5.2 Project Implementation Plan for 2020–2024

Activities	2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Output 1:</b>																				
Activity 1.1																				
Activity 1.2																				
Activity 1.3																				
<b>Output 2:</b>																				
Activity 2.1																				
Activity 2.2																				
Activity 2.3																				
<b>Output 3:</b>																				
Activity 3.1																				
Activity 3.2																				

## 5.3 Proposed Budget for 2020–2024

(Unit: USD)

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2024)
Output 1	Activity 1.1	15,000	4,950	18,500	20,000	28,000
	Activity 1.2	15,000	11,000	20,000	13,500	0
	Activity 1.3	8,500	300	3,000	0	500
Output 2	Activity 2.1	4,000	4,000	4,000	4,000	4,000
	Activity 2.2	1,000	12,400	1,000	1,000	1,000

(Unit: USD)

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year5 (2024)
	Activity 2.3	0	15,950	2,000	10,000	0
Output 3	Activity 3.1	15,000	16,400	10,000	10,000	15,000
	Activity 3.2	1,500	0	1,500	1,500	1,500
<b>Sub-total</b>		60,000	65,000	60,000	60,000	60,000

## PART II: PROJECT ACHIEVEMENTS IN 2022

### 1. Project Achievements in the Present Year

In 2022, the project implemented activities in according to the year plan. For Output 1, the project conducted training courses on Management Tools for Ecosystem Approach to Fisheries Management at national and regional level a workshop to revisit the EAFM plan for Boeng Tonle Chhmar, Cambodia, and an EAFM training in Kawthaung for Myanmar. For Output 2, a study on the status of fisheries socio-economic assistance particularly in microfinance, microcredit, and insurance in the member countries in line with the implementation of the SSF guidelines in Southeast Asia was planned in Kawthaung of Myanmar, and a study on the development plan for supporting fishing communities to enhance their product development and marketing for promoting income generations of SSF fishers was carried out in Krabi province, Thailand. For Output 3, the capacity development on gender integration in SSF in fisheries management process and value chains was conducted in Indonesia and Malaysia in close cooperation with IFRDMD-Indonesia and MFRDMD-Malaysia.

### 2. Activities and Budget in the Present Year

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1: Implementation of the EAFM in the pilot learning sites</b>								
Activity 1.1	Training or workshop to strengthen national capacities (participants) in SSF Management for Better Livelihood and Fisheries Resources							
	A. Regional Training on Management Tools for EAFM	3	5	3	1	-	1	12,000
	B. National Training on Management Tools for EAFM in Thailand	8	10	3	-	-	1	6,500
Activity 1.2	Effective implementation of the EAFM at the pilot sites							
Act. 1.2.1	A. Fisheries management trainings in Ranong province	26	22	2	1	-	-	7,000
	B. Online meeting with DOF/Myanmar on the implementation of EAFM at learning site in Kawthaung, Myanmar	2	4	5	1			500
	C. EAFM Training in Kawthaung, Myanmar	5	10	4	1			8,000
Act. 1.2.2	A. Online meeting with FiA/Cambodia in implementation of the inland EAFM for Boeng Tonle Chhmar, Northern part of Tonle Sap Lake, Cambodia	-	5	4	1	1	2	500
	B. National workshop to revisit/discuss a draft EAFM plan for Boeng Tonle Chhmar, Cambodia	2	12	1	1	1	1	4,000



Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
	C. Meeting with FiA to finalize a draft EAFM plan for Boeng Tonle Chhmar, Cambodia and submit the EAFM plan (final version) to FiA, Cambodia		4	2	1	-	-	3,300
Activity 1.3	Strengthening knowledge of the SSF team on the existing fisheries management tools							
	A. Write-shop for understanding the existing fisheries management tools and verifying training course materials on fisheries management tools	1	-	4	1		1	3,000
<b>Output 2:</b> Capability development in the implementation of SSF guidelines for improving the livelihood and well-being of small-scale fishers								
Activity 2.1	Study on the status of fisheries socio-economic assistance, particularly in microfinance, microcredit and insurance in the member countries in line with the implementation of the SSF guidelines in Southeast Asia							
	A. The baseline socioeconomic survey in Kawthaung, Myanmar (cancelled)							-
Activity 2.2	Strengthening a regional cooperation in fisheries socio-economic development and developing appropriate approach/process of fisheries microfinance, microcredit and insurance for small-scale fishers							
	A. SEAFDEC staff participate in the relevant meetings/workshops to gain knowledge and information on fisheries microfinance, microcredit, and insurance for small-scale fishers			6	1			1,000
	B. Participation in the International Year of Artisanal Fisheries and Aquaculture 2022 (IYAFA 2022) Webinars (organized by FAO RAP and INFOFISH), and presentation on “SEAFDEC’s Regional Activities on Small-scale Fisheries”			3	1			-
	C. Article contribution to the publication on Small-scale Fisheries of Southeast Asia “A Regional Digest”			4	-			-

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
Activity 2.3	Enhancing the livelihood and well-being of small-scale fishers in Southeast Asia A. Study on a development plan for supporting fishing communities to enhance their product development and marketing (quality control, distribution, market access, etc.) B. Meeting on the initial implementation of SSF traceability (part of catch declaration)	5	-	4	3	2	14	6,000
<b>Output 3:</b> Further promotion of the gender integration and empowerment in sustainable fisheries management in SEA and gender empowerment to promote alternative livelihood								
Activity 3.1	Capacity development on gender integration in SSF which includes fisheries management process and value chain through a regional training course							
	A. National training on gender (equality and equity in integration in SSF in SEA) in IFRDMD, Indonesia	13	4	4	1	-	-	5,000
	B. National training on gender (equality and equity in integration in SSF in SEA) in MFRDMD, Malaysia	9	10	2	-	-	-	5,000
Activity 3.2	Participation in the relevant international/regional forum and national activities/trainings							
	A. Participation in the Global Conference on Gender in Aquaculture & Fisheries in India			1				1,500

### 3. Expected Outcome/Outputs and Achievements in the Present Year

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Outcome</b>	Sustainable fisheries management through the application of EAFM and promotion of gender equity in small scale and artisanal fisheries in MCs	
<b>Output 1:</b>	<b>Implementation of the EAFM in the pilot learning sites</b>	
Activity 1.1	Training or workshop to strengthen national capacities (participants) in SSF Management for Better Livelihood and Fisheries Resources	
	A. Regional Training on Management Tools for EAFM	Activity was conducted on 12–17 September 2022
	B. National Training on Management Tools for EAFM in Thailand	Activity was conducted on 22–26 August 2022
Activity 1.2	Effective implementation of the EAFM at the pilot sites	
Activity 1.2.1	A. Fisheries management trainings in Ranong province	Activity was conducted on 20–25 June 2022

Activities	Expected Outcome/Outputs	Results/Achievements
	B. Online meeting with DOF/Myanmar in the implementation of EAFM at learning site in Kawthaung, Myanmar	Activity was conducted on 15 June 2022
	C. EAFM Training in Kawthaung, Myanmar	Activity was conducted on 29 August–2 September 2022
Activity 1.2.2	A. Online meeting with FiA/Cambodia in the implementation of the inland EAFM for Boeng Tonle Chhmar, Northern part of Tonle Sap Lake, Cambodia	Activity was conducted on 20 May 2022
	B. National workshop to revisit/discuss a draft EAFM plan for Boeng Tonle Chhmar, Cambodia	Activity was conducted on 19–20 July 2022
	C. Meeting with FiA to finalize a draft EAFM plan for Boeng Tonle Chhmar, Cambodia and submit the EAFM plan (final version) to FiA, Cambodia	Activity was conducted on 14–15 November 2022
Activity 1.3	Strengthening knowledge of the SSF team on the existing fisheries management tools	
	A. Write-shop for understanding the existing fisheries management tools and verifying training course materials on fisheries management tools	Activity was conducted on 14–18 March 2022
<b>Output 2:</b>	<b>Capability development in the implementation of SSF guidelines for improving the livelihood and well-being of small-scale fishers</b>	
Activity 2.1	Study on the status of fisheries socio-economic assistance, particularly in microfinance, microcredit and insurance in the member countries in line with the implementation of the SSF guidelines in Southeast Asia	Activity is conducted in December 2022
	A. The baseline socioeconomic survey in Kawthaung, Myanmar	Activity was cancelled
Activity 2.2	Strengthening a regional cooperation in fisheries socio-economic development and developing appropriate approach/process of fisheries microfinance, microcredit and insurance for small-scale fishers	
	A. SEAFDEC staff participate in the relevant meetings/workshops to gain knowledge and information on fisheries micro-finance, credit and insurance for small-scale fishers	Activity is conducted on 21–22 December 2022
	B. SSF staff participated in the International Year of Artisanal Fisheries and Aquaculture 2022 (IYAF 2022) Webinars (organized by FAO RAP and INFOFISH), and presentation “SEAFDEC’s Regional Activities on Small-scale Fisheries”	Activity was conducted on 30 March 2022
	C. Article contribution to the publication on Small-scale Fisheries of Southeast Asia “A Regional Digest”	Articles were submitted in June–July 2022
Activity 2.3	Enhancing the livelihood and well-being of small-scale fishers in Southeast Asia	
	A. Study on a development plan for supporting fishing communities to enhance their product development and marketing (quality control, distribution, market access, etc.)	Activity is conducted on 7–8 December 2022
	B. Meeting on the initial implementation of SSF traceability (part of catch declaration)	
<b>Output 3:</b>	Further promotion of the gender integration and empowerment in sustainable fisheries management in SEA and gender empowerment to promote alternative livelihood	
Activity 3.1	Capacity development on gender integration in SSF which includes fisheries management process and value chain through a regional training course	

Activities	Expected Outcome/Outputs	Results/Achievements
	A. National training on gender (equality and equity in integration in SSF in SEA) at IFRDMD, Indonesia	Activity was conducted on 6–8 September 2022
	B. National training on gender (equality and equity in integration in SSF in SEA) at MFRDMD, Malaysia	Activity was conducted on 25–27 October 2022
Activity 3.2	Participation in the relevant international/regional forum and national activities/trainings	
	A. Participation in the Global Conference on Gender in Aquaculture & Fisheries in India	SEAFDEC staff participated in the Conference held 21–23 November 2022

#### 4. List of Publications in 2022

Publications	Type of Media	Attached e-file
1. Training materials (PPT, worksheets, etc.) for regional and national training courses on management tools for EAFM	Hard copies and electronic files	TD's website
2. Handbook on management tools for EAFM (Thai version)	Hard copy and electronic file	TD's website
3. Report of the national training on management tools for EAFM	Hard copy and electronic file	
4. Report of the regional training on management tools for EAFM	Hard copy and electronic file	
5. Report of the training course on squid bank establishment at Ranong province	Hard copy and electronic file	
6. Report of the EAFM Training in Kawthaung, Myanmar	Hard copy and electronic file	
7. Report of the national training on gender (equality and equity in integration in SSF in SEA) Indonesia	Hard copy and electronic file	
8. Report of the national training on gender (equality and equity in integration in SSF in SEA) Malaysia	Hard copy and electronic file	

#### 5. Evaluation on Workshops/Training Courses by Participants of AMSs

Activities	Evaluation
<b>Output 1:</b>	<b>Implementation of the EAFM in the pilot learning sites</b>
Activity 1.1	Training or workshop to strengthen national capacities (participants) in SSF Management for Better Livelihood and Fisheries Resources
	A. National Training on Management Tools for EAFM in Thailand Evaluation result: 89 % of the participants fulfilled with their course expectations in gaining knowledge on the management tools for EAFM
	B. Regional Training on Management Tools for EAFM Evaluation result: 85 % of the participants fulfilled with their course expectations in gaining knowledge on the management tools for EAFM
Activity 1.2	Effective implementation of the EAFM in the pilot sites.
Activity 1.2.1	A. Fisheries management trainings in Ranong province Evaluation result: 80 % of the participants fulfilled with their course expectations
	B. Online meeting with DOF/Myanmar in the implementation of EAFM at learning site in Kawthaung, Myanmar Evaluation result: none
	C. EAFM Training in Kawthaung, Myanmar Evaluation result: 90 % of the participants fulfilled with their course expectations in gaining knowledge on the EAFM
Activity 1.2.2	A. Online meeting with FiA/Cambodia in the implementation of the inland EAFM for Boeng Tonle Chhmar, Northern part of Tonle Sap Lake, Cambodia Evaluation result: none
	B. National workshop to revisit/discuss a draft EAFM plan for Boeng Tonle Chhmar, Cambodia Evaluation result: The activity was part of the work in progress
	C. Meeting with FiA to finalize a draft EAFM Plan for Boeng Tonle Chhmar, Cambodia and submit the EAFM plan (final version) to FiA, Cambodia Evaluation result: The activity was part of the work in progress

Activities	Evaluation
Activity 1.3	Strengthen knowledge of the SSF team on the existing fisheries management tools
	A. Write-shop for understanding the existing fisheries management tools and verifying training course materials on fisheries management tools Evaluation result: 91 % of the participants fulfilled with their course expectations in gaining knowledge on the management tools for EAFM
<b>Output 2:</b>	Capability development in the implementation of SSF guidelines for improving the livelihood and well-being of small-scale fishers
Activity 2.1	Study on the status of fisheries socio-economic assistance, particularly in microfinance, microcredit and insurance in the member countries in line with the implementation of the SSF guidelines in Southeast Asia Evaluation result: The activity was part of the work in progress
	A. The baseline socioeconomic survey in Kawthaung, Myanmar Evaluation result: none
Activity 2.2	Strengthening a regional cooperation in fisheries socio-economic development and developing appropriate approach/process of fisheries microfinance, microcredit and insurance for small-scale fishers
	A. SEAFDEC staff participate in the relevant meetings/workshops in order to gain knowledge and information on fisheries microfinance, microcredit and insurance for small-scale fishers Evaluation result: none
	B. SSF staff participated in the International Year of Artisanal Fisheries and Aquaculture 2022 (IYAFA 2022) Webinars (organized by FAO RAP and INFOFISH), and presentation on “SEAFDEC’s Regional Activities on Small-scale Fisheries” Evaluation result: none
	C. Article contribution to the publication on Small-scale Fisheries of Southeast Asia “A Regional Digest” Evaluation result: none
Activity 2.3	Enhancing the livelihood and well-being of small-scale fishers in Southeast Asia
	A. Study on a development plan for supporting fishing communities to enhance their product development and marketing (quality control, distribution, market access, etc.)
	B. Meeting on the initial implementation of SSF traceability (part of catch declaration) Evaluation result: The activity is in progress
<b>Output 3:</b>	<b>Further promotion of the gender integration and empowerment in sustainable fisheries management in SEA and gender empowerment to promote alternative livelihood</b>
Activity 3.1	Capacity development on gender integration in SSF which includes fisheries management process and value chain through a regional training course
	A. National training on gender (equality and equity in integration in SSF in SEA) in IFRDMD, Indonesia Evaluation result: 85 % of the participants fulfilled with their course expectations in gaining knowledge on gender in integration in fisheries
	B. National training on gender (equality and equity in integration in SSF in SEA) in MFRDMD, Malaysia Evaluation result: The activity is in progress
Activity 3.2	Participation in the relevant international/regional forum and national activities/trainings
	A. Participation in the Global Conference on Gender in Aquaculture & Fisheries in India Evaluation result: none

## 6. Major Impacts and Issues

There are not any significant problems of the project implementation in 2022. The project activities were carried out as planned except in Myanmar. As suggested by Myanmar focal person, transportation and travelling in Myanmar may not be convenient and safety. Therefore, the planned project activities in Myanmar were carried out by the EAFM core team of DOF/Myanmar under the guidance and support of the SSF team/TD online. SEAFDEC continue to follow up and conduct EAFM activities in Myanmar in the following 2023.

**PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023****1. Project Summary in 2023**

In 2023, the project continues its activities to achieve the project goal that is the sustainable management of SSF for improving the livelihood and well-being of fishers in Southeast Asia. The project activities in the following three components are implemented.

1. The effective and appropriate use of fisheries management concept/approach/tools for small-scale fisheries in the SEA region,
2. Capacity development of the SSF team of SEAFDEC/TD and key officers of the member countries in the implementation of the SSF guidelines for improving the livelihood and well-being of the small-scale fishers, and
3. Further promotion of the gender integration and empowerment in sustainable fisheries management in the member countries in Southeast Asia.

**2. Outcome, Outputs and Activities and Proposed Budget**

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Outcome</b>	Sustainable fisheries management through the application of EAFM and promotion of gender equity in small scale and artisanal fisheries in MCs	
<b>Output 1:</b>	Implementation of the EAFM in the pilot learning sites	
Activity 1.1	Conducting a regional workshop on SSF Management for Better Livelihood and Fisheries Resources	20,000
	<p>A. Regional workshop on Effective and Appropriate of Fisheries Management Concepts/Approaches/Tools for SEA Region. About 18 participants expected (1-2 persons from each member countries).</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Travel costs for participants: USD 7,000</li> <li>- Daily subsistence allowances: USD 5,000</li> <li>- Accommodation: USD 4,000</li> <li>- Training and Meeting package: USD 4,000</li> <li>Sub-total: USD 20,000</li> </ul>	
Activity 1.2	Effective implementation of the EAFM in the pilot sites.	13,500
	<p>A. Follow up on the EAFM implementation in Ranong, Thailand</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Travel costs for staff and participants: USD 500</li> <li>- Daily subsistence allowances: USD 500</li> <li>- Accommodation: USD 500</li> <li>- Meeting package and others: USD 1,000</li> <li>- EAFM implementation in the learning site: USD 1,000</li> <li>Sub-total: USD 3,500</li> </ul>	
	<p>B. Follow up on the EAFM implementation in Kawthung, Myanmar</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Travel costs for staff and participants: USD 1,000</li> <li>- Daily subsistence allowances: USD 1,000</li> <li>- Accommodation: USD 1,000</li> <li>- Meeting package and others: USD 1,000</li> <li>- EAFM implementation in the learning site: USD 1,000</li> <li>Sub-total: USD 5,000</li> </ul>	
	<p>C. Follow up on the EAFM implementation in Boeng Tonle Chhmar, Cambodia</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Travel costs for staff and participants: USD 1,000</li> <li>- Daily subsistence allowances: USD 1,000</li> </ul>	

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
	- Accommodation: USD 1,000 - Meeting package and others: USD 1,000 - EAFM implementation in the learning site: USD 1,000 Sub-total: USD 5,000	
<b>Output 2:</b>	Capability development in the implementation of SSF guidelines for improving the livelihood and well-being of small-scale fishers	
Activity 2.1	Study on the status of fisheries socio-economic assistance, particularly in microfinance, microcredit and insurance in the member countries in line with the implementation of the SSF guidelines in Southeast Asia. The data collection is carried out in selected countries  <b>Estimated expenditures:</b> - Travel costs for SEAFDEC staff: USD 1,500 - Daily subsistence allowances: USD 1,200 - Accommodation for SEAFDEC staff: USD 750 - Materials and others for data collection and analysis: USD 550 Sub-total: USD 4,000	4,000
Activity 2.2	Strengthening a regional cooperation in fisheries socio-economic development and developing appropriate approach/process of fisheries microfinance, microcredit and insurance for small-scale fishers. SEAFDEC staff participate in the relevant meetings / workshops in order to gain knowledge and information on fisheries microfinance, microcredit and insurance for small-scale fishers.  <b>Estimated expenditures:</b> - Travel costs for SEAFDEC staff: USD 400 - Daily subsistence allowances: USD 300 - Accommodation: USD 300 Sub-total: USD 1,000	1,000
Activity 2.3	Enhancing the livelihood and well-being of small-scale fishers in Southeast Asia Development plan/system and/or application in supporting fishing communities to enhance their product development and marketing (quality control, distribution, market access, etc.)  <b>Estimated expenditures:</b> - Travel cost for staff: USD 1,000 - Daily subsistence allowances: USD 1,000 - Accommodation: USD 1,000 - Arrangement for community/stakeholder meetings: USD 2,000 - Application/system development expenses: USD 5,000 Sub-total: USD 10,000	10,000
<b>Output 3</b>	Further promotion of the gender integration and empowerment in sustainable fisheries management in Southeast Asia, and gender empowerment to promote alternative livelihood	
Activity 3.1	Capacity development on gender integration in SSF which includes fisheries management process and value chain through a regional training course  National trainings/workshops on gender in fisheries. SEAFDEC conducts a national training workshop in Viet Nam and Cambodia which aims to obtain and share information and knowledge on gender integration in SSF, especially to promote the SEAFDEC gender	10,000

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
	<p>analysis toolkit for participants to understand how to integrate into their fisheries projects. About 40 participants expected: 20 persons for each selected country (40 persons) and 2 persons from SEAFDEC.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Travel costs for staff: USD 3,000</li> <li>- Daily subsistence allowances: USD 4,000</li> <li>- Accommodation at SEAFDEC/TD: USD 1,000</li> <li>- Meeting package: USD 2,000</li> <li>Sub-total: USD 10,000</li> </ul>	
Activity 3.2	<p>Participation in the relevant international/regional forum and national activities/trainings to gain knowledge and information on gender integration in SSF, promoting alternative livelihood and value chain.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Travel costs for SEAFDEC staff: USD 700</li> <li>- Daily subsistence allowances: USD 400</li> <li>- Accommodation: USD 400</li> <li>Sub-total: USD 1,500</li> </ul>	1,500

### 3. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>												
Activity 1.1												
Activity 1.2												
<b>Output 2:</b>												
Activity 2.1												
Activity 2.2												
Activity 2.3												
<b>Output 3:</b>												
Activity 3.1												
Activity 3.2												

### 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Activity 1</b> Implementation of the EAFM in the pilot learning sites	
<b>Activity 1.1.</b> Conduct a regional workshop on the effective and appropriate of small-scale fisheries management concepts/approaches/tools for SEA region	<ul style="list-style-type: none"> <li>- Recommendation for the effective and appropriate of small-scale fisheries management concepts/approaches/tools for SEA region</li> <li>- The SSF team and participants further familiarized small-scale fisheries management concepts/approaches and tools</li> <li>- Workshop Report and Article</li> </ul>
<b>Activity 1.2.</b> Effective implementation of the EAFM in the pilot sites	<ul style="list-style-type: none"> <li>- EAFM plan for fisheries management in Kawthaung, Myanmar</li> </ul>
A. Continue in collaboration with DOF/Thailand to follow up the EAFM implementation in Ranong (Thailand)	<ul style="list-style-type: none"> <li>- Implementation of EAFM plan for Boeng Tonle Chhmar, Northern part of the Tonle Sap Lake, Cambodia</li> </ul>
B. Continue in collaboration with DOF/Myanmar to follow up the EAFM implementation in Kawthaung, Myanmar	<ul style="list-style-type: none"> <li>- Case study on the EAFM implementation in Thailand, Myanmar and Cambodia</li> </ul>



Planned activity	Expected Activity Results
C. Continue in collaboration with FiA/Cambodia to follow up the inland EAFm in Boeng Tonle Chhmar, Northern part of the Tonle Sap Lake	
<b>Activity 2</b> Capability development in the implementation of SSF guidelines for improving the livelihood and well-being of small-scale fishers	
<b>Activity 2.1.</b> Study on the status of fisheries socio-economic assistance, particularly in microfinance, microcredit and insurance in the member countries in line with the implementation of the SSF guidelines in Southeast Asia	<ul style="list-style-type: none"> <li>- Survey report on the status of fisheries socio-economic assistance, particularly in microfinance, microcredit and insurance in Kawthaung, Myanmar and in line with the implementation of the SSF guidelines in Southeast Asia</li> </ul>
<b>Activity 2.2.</b> Strengthening a regional cooperation in fisheries socio-economic development and developing appropriate approach/process of fisheries microfinance, microcredit, and insurance for small-scale fishers	<ul style="list-style-type: none"> <li>- Strengthened collaboration with other sectors in the fisheries socio-economic development</li> <li>- Improved knowledge/understanding of the project staff on fisheries socio-economic development</li> </ul>
<b>Activity 2.3</b> Enhancing the livelihood and well-being of small-scale fishers in Southeast Asia - Development plan/system and or application in supporting fishing communities to enhance their product development and marketing (quality control, distribution, market access, etc.)	<ul style="list-style-type: none"> <li>- Development plan/system/application for enhancing product development and marketing in fishing communities</li> </ul>
<b>Activity 3</b> Further promotion of the gender integration and empowerment in sustainable fisheries management in SEA and gender empowerment to promote alternative livelihood	
<b>Activity 3.1</b> Capacity development on gender integration in SSF which includes fisheries management and value chain through a regional training course - National trainings/workshops on gender in fisheries (1 in Viet Nam and 1 in Cambodia)	<ul style="list-style-type: none"> <li>- Training/Workshop reports</li> <li>- About 40 participants participated in the training workshops</li> </ul>
<b>Activity 3.2</b> Participation in the relevant international/regional forum and national activities/trainings	<ul style="list-style-type: none"> <li>- Meeting reports</li> <li>- Back to office reports</li> </ul>

**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 0120160109
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Establishment and Operation of a Regional System of Fisheries <i>Refugia</i> in the South China Sea and Gulf of Thailand		
<b>Program Strategy No:</b>	III	<b>Total Period:</b>	2016–2020*
<b>Lead Department:</b>	Training Department (TD)	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	Global Environment Facility	<b>Total Project Budget: (Co-finance Budget)</b>	USD 3,000,000 (USD 12,450,170)
<b>Project Partner(s):</b>	United Nations Environment	<b>Budget for 2023:</b>	-
<b>Lead Technical Officer:</b>	SEAFDEC/TD, PPMDDH, and Consultant	<b>Project Participating Country:</b>	Cambodia, Indonesia, Malaysia, Philippines, Thailand, and Viet Nam

\*2-years extension from 2021–2022

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

As of 30 September 2022, the effective management of key threats to 15 fisheries *refugia* sites of about 1.36 million hectares is expected to be adopted by the end of 2022. Among these, five fisheries *refugia* were agreed upon among stakeholders and approved by the governments, including three in Cambodia at Kep Province for blue swimming crab (11,307 ha), Preah Sihanouk for blood cockle (116 ha), and Koh Kong Province for Indo-pacific mackerel (1,283 ha), and two in Thailand at around Koh Sed, Surat Thani for blue swimming crab (900 ha), and at Trat Province for Indo-pacific mackerel (154,600 ha). In addition, eight fisheries *refugia* sites were recognized by the stakeholders and will be adopted by the responsible agencies. These include one in Cambodia at Kampot Province for the juvenile grouper (284 ha); two in Malaysia at Tanjung Leman, Johor State, for spiny lobster (140,023 ha) and at Kuala Baram, Miri, Sarawak State for black tiger prawn (55,600 ha); three in the Philippines at Bolinao for siganids (263 ha), at Masinloc for one-stripe fusilier (624 ha), and Coron for redbelly yellowtail fusilier (1,242 ha); and two in Indonesia at West Kalimantan for white prawn (414,807 ha), and at Bangka Regency for squid (468,828 ha). Moreover, due to delayed initiatives, Viet Nam could identify two *refugia* sites: one at the Eastern coastal area of Phu Quoc – Kien Giang for blue swimming crab (32,860 ha), and another at the coastal area of Lagi, Binh Thuan for the subcrenata ark clam (73,900 ha).

The project improved stakeholder engagement and acceptance of the area-based approaches to fisheries. More than 100 multi-stakeholder groups from various institutions such as not only fisheries and environment agency but also the tourism department, public organizations, navy, coastguards, NGOs, civil society organizations (CSO), academia, research institutes, local government at provincial and state levels, fishing community, private sectors, etc. have been actively involved in the process of fisheries *refugia* establishment. The project considers gender mainstreaming in sustainable management of the fisheries *refugia* as one of the vital target outcomes which was introduced to all participating countries by focusing the gender-integrated activities, considering the needs of women and men engaging in all activities defined by the project. The results on gender analysis show an average 40 percent of women participate in *refugia* implementation and management of the project, which is aligned with the target outcome endorsed by the GEF/CEO (minimum 30% of women engage in the project activities). In terms of legal, regulation reform, and management plan to support fisheries *refugia* implementation, Cambodia, Thailand, and Malaysia, adopted the Strategic Action Plan or Fisheries Management Plan, while the other three are an ongoing process of adoption by their governments. Considering the management measures, compiled from six participating countries for safeguard both fish stock and critical habitat, are applied to not only small-scale fisheries but commercial fisheries, particularly trawlers and purse seiners, during the fishing closure period.

The cumulative expenditures as of 30 June 2022 are US\$ 2,090,592.81, the budget balance is US\$ 909,407.19. The overall co-financing from 6 country governments and Executing Agency as of 30 June 2022 is 20.92 million USD consisted of 15.11 million USD In-kind and 5.81 million USD cash co-financing.

## 2. Background and Justification

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. 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. Key anticipated results included: establishment of operational management at 14 priority fisheries *refugia*; strengthened enabling environments for the formal designation and operational management of *refugia*; enhanced national uptake of best practices in integrating fisheries management and biodiversity conservation; and strengthened cross-sectorial coordination for integrated fisheries and environmental management.

The project aligns with the inter-governmentally approved guidelines for the establishment of fisheries *refugia* that constitute part of the ASEAN SEAFDEC Regional Guidelines for Responsible Fisheries in Southeast Asia as well as recent regional policy guidance promoting the development of projects and initiatives aimed at ensuring more ecosystem-based approaches to fisheries management in the Southeast Asia region.

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 Programme for 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, policy-makers, 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.

This specific project objective is ‘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’, including:

- 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
- 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.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

The project has also been promoting gender sensitivity through the integration of women and men participation in the project activities. In addition, the Regional Action Plan for Transboundary Management of Short-mackerel and the Regional Guidelines on Indicators for Sustainable Management of Fisheries *Refugia* were developed and adopted included gender sensitivity as one of the cross-cutting issues alignment to the sustainable development concept.

### 5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification

#### 5.1 Logical Framework

Objectives / Outcomes / Activities	Indicators	Means of Verification
<p><b>Objective 1:</b> Identification and management of fisheries and critical habitat linkages at priority fisheries <i>refugia</i> in the South China Sea and Gulf of Thailand</p> <p><b>Outcomes 1:</b> Reduced stress on fish stocks and coastal habitats <i>via</i> improved national management of key anthropogenic threats to fisheries and critical habitat linkages in the South China Sea and Gulf of Thailand</p>	Status of formal designation, management plan adoption, and community engagement in implementation of agreed management measures, including enforcement, for priority sites	<p>Adopted management plans</p> <p>Regular reports of meetings of national and regional project management bodies.</p> <p>Reports of independent mid-term and terminal project evaluations</p>
Act.1.1: Developing fisheries and coastal habitat information and data collection programmes	Status of boundary delineation and agreement on proposed management interventions	14 fisheries <i>refugia</i> profile reports, including maps and site characterisations, published for 14 priority sites
Act.1.2: Facilitating agreement among stakeholders on the boundaries of fisheries <i>refugia</i>	Status of adoption and implementation of the management plans. Total area of fisheries <i>refugia</i> (ha) under management	14 published management plans and annual implementation reports
Act.1.3: Developing Community-Based Management Plans	Status and effectiveness of the management board and volunteer networks	224 quarterly reports of network meetings and activities [including list of participants and results of work]
Act.1.4: Establishing operational management	Increase in the proportion of target community members [minimum of 30 percent women] participating in <i>refugia</i> management, including enforcement, at the site level	14 operational enforcement programmes at priority sites

Objectives / Outcomes / Activities	Indicators	Means of Verification
Act.1.5: Strengthening civil society and community organization participation in the management of 14 fisheries <i>refugia</i> sites	Number of GEF Small Grants Programme projects commissioned and implemented in support of <i>refugia</i> management objectives	4 annual reports of <i>Refugia</i> -SGP partnership
<p><b>Objective 2:</b> Improving the management of critical habitats for fish stocks of transboundary significance <i>via</i> national and regional actions to strengthen the enabling environment and knowledge-base for fisheries <i>refugia</i> management in the South China Sea and Gulf of Thailand</p> <p><b>Outcomes 2:</b> Increased institutional capacity in the 6 participating countries for the designation and operational management of fisheries <i>refugia</i> <i>via</i> the transformation of enabling environments and the generation of knowledge for planning</p>	Status of enabling environment reform, including extent of behavioural change among small-scale fisherfolk at priority sites. Extent of use of available environmental state and socio-cultural information in policy and planning frameworks.	<p>Endorsed polices and plans.</p> <p>Regular reports of meetings of national and regional project management bodies.</p> <p>Reports of independent mid-term and terminal project evaluations.</p>
Act.2.1: Enhancing policy guidance for improved management of the effects of fishing on critical habitats	Status of policy revision and endorsement	6 endorsed revised policies
Act.2.2: Defining the policy and legal basis for formal designation and establishment of fisheries <i>refugia</i> in the 6 participating countries	Key threats from fishing and the environment to fish stock and critical habitat linkages at 14 priority sites in the 6 participating countries are defined.	6 published national reviews on key threats and recommendations for reforms of national, provincial and municipal regulations/ordinances for responsible fishing practices at priority <i>refugia</i>
Act.2.3: Development of national guidelines on the establishment and operation of fisheries <i>refugia</i> and reflected in an updated regional <i>refugia</i> action plan	Status of endorsement of national guidelines	6 published national guidelines on establishing and operating fisheries <i>refugia</i>
Act.2.4: Reforming national and regional policy, legal and planning frameworks for demarcating boundaries and managing <i>refugia</i>	Status of endorsement of national fisheries <i>refugia</i> policies, enactment of supporting laws, and plan implementation	<p>6 national reports on policy, legal and institutional aspects of <i>refugia</i> establishment and management published</p> <p>Endorsed policy and executive orders, provincial/local ordinances and by-laws</p> <p>6 endorsed National Action Plans for the management of priority fisheries <i>refugia</i> and associated biodiversity</p> <p>1 endorsed Regional Action Plan for fisheries <i>refugia</i></p>

Objectives / Outcomes / Activities	Indicators	Means of Verification
Act.2.5: Enhancing access to information relating to status and trends in fish stocks and their habitats in waters of the SCS marine basin	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	96 quarterly and 6 annual reports on fish stocks and habitats published online
Act.2.6: Improved national and regional-level management and sharing of information and data on fish early life history	Status of national and regional databases and the number of datasets contained therein	6 databases online and populated with datasets
Act.2.7: Enhancing access to information relating to the locations and status of coastal habitats and management areas	Status of the national and regional GIS and the number of sites presented and characterised	6 national and 1 regional Geographical Information System online and populated with site-based information
Act.2.8: Strengthening the information base for the planning, monitoring and evaluation of management at priority fisheries <i>refugia</i> sites	Completeness of site characterisations for 14 priority <i>refugia</i>	Characterisations for 14 <i>refugia</i> sites accessible online
Act.2.9: Improving basin-wide understanding of linkages between ocean circulation patterns, nutrient/chlorophyll concentrations, and sources and sinks of fish larvae	Status of modelling system and extent of its use in decision-making and planning	1 regional modelling system online
Act.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	Status of demonstration activities  Number of best practice fishing methods and practices demonstrated	4 published reports of the results of demonstrations
<p><b>Objective 3:</b> Information Management and Dissemination in support of national and regional-level implementation of the fisheries <i>refugia</i> concept in the South China Sea and Gulf of Thailand</p> <p><b>Outcomes 3:</b> <b>Strengthened knowledge management and information sharing and access</b> 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</p>	Extent of demonstrable use of examples of good practice in guiding the replication, scaling-up and mainstreaming of good practices	<p>Routine communications on progress and lessons learned prepared and shared</p> <p>Annual results reports published and disseminated</p> <p>National and regional web portals for knowledge management and information exchange accessible online</p>
Act.3.1: Enhancing uptake of best practices in integrating fisheries management and biodiversity conservation	<p>Number of best practice approaches and measures tested and codified</p> <p>Number, scope and reach of communications to share best practices</p> <p>Demonstrable use of best practices in policy and planning</p>	<p>6 online national and 1 regional catalogue of best practice approaches and measures</p> <p>24 communications on best practices published and syndicated</p>

Objectives / Outcomes / Activities	Indicators	Means of Verification
Act.3.2: Improving community acceptance of area-based approaches to marine management	Extent of community acceptance of the use of fisheries <i>refugia</i> in coastal fisheries management	24 awareness materials published online  56 annual reports of outreach programmes at 14 priority locations, including tracking of extent of community acceptance
Act.3.3: Knowledge generated and experiences from establishing and operating fisheries <i>refugia</i> captured and shared nationally, regionally, and globally	Status of national web portals  Status of publication of GEF IW experience notes	6 online national web portals on fisheries <i>refugia</i>  7 published GEF IW experience notes (one per country and one regional) on application of fisheries <i>refugia</i> in the South China Sea and Gulf of Thailand
Act.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	Status of the Regional Education and Awareness Centre at SEAFDEC  Volume of information and education material compiled, produced and made accessible	Information and education materials accessible at SEAFDEC and online
Act.3.5: Standardised methods for collection and analysis of information and data for use in assessing impacts of <i>refugia</i> and design appropriate indicators for the longer-term operation of the regional system of fisheries <i>refugia</i>	Status of regional agreements  Extent of demonstrated use of the agreed procedures in operation of site-level information and data collection programmes	1 regionally endorsed report published online
<p><b>Objective 4:</b> National and regional cooperation and coordination for integrated fish stock and critical habitat management in the South China Sea and Gulf of Thailand</p> <p><b>Outcomes 4</b> Cost-effective and efficient coordination of national and regional level cooperation for integrated fisheries and environmental management</p>	Extent and continuity of stakeholder participation in meetings of project management bodies, including the scope and uptake of joint management and planning decisions	Regular reports of meetings of national and regional project management bodies  Reports of independent mid-term and terminal project evaluations
Act.4.1: Strengthened cross-sectoral coordination in the establishment and operation of fisheries <i>refugia</i> in the participating countries	Extent and continuity of national government agency participation in National Fisheries <i>Refugia</i> Committee meetings	6 NFRC Terms of Reference and 48 biannual meeting reports (joint management decisions and participant lists)
Act.4.2: Harnessing national scientific and technical expertise and knowledge to inform policy, legal and institutional reforms for fisheries <i>refugia</i>	Status of the NTSC's and the uptake of the scientific and technical advice they provide	6 NTSC Terms of Reference and 96 quarterly meeting reports (scientific and technical advice and participants lists)
Act.4.3: Catalyzing local community action <i>via</i> establishment and operation of site-based management boards at priority <i>refugia</i> sites	Continuity of participation of community stakeholders in the planning, monitoring and evaluation of fisheries <i>refugia</i> management	14 Management Board Terms of Reference and 224 quarterly meeting reports (joint management decisions and participant lists)

Objectives / Outcomes / Activities	Indicators	Means of Verification
Act.4.4: Regional cooperation in the integration of scientific knowledge and research outputs with management and policy making	Status of the RSTC and the uptake of the scientific and technical advice it provides  Continuity of participation of members in annual meetings	1 RSTC Terms of Reference and 4 annual meeting reports (documenting scientific and technical advice and participant lists)
Act.4.5: Regional cooperation in the establishment and operation of a regional system of fisheries <i>refugia</i>	Status of the PSC  Continuity of participation of members in annual meetings	1 PSC Terms of Reference and 8 annual meeting reports (documenting joint decisions and participant lists)
Act.4.6: Effective coordination of regional and national-level activities and reporting requirements of UNEP and GEF satisfied	Program coordination unit recruited, and staff retained	Terms of Reference and contracts for project coordination unit staff

## 5.2 Project Implementation Plan for 2016–2023

Activities	2016		2017		2018		2019		2020		2021		2022		2023	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Act.1.1:																
Act.1.2:																
Act.1.3:																
Act.1.4:																
Act.1.5:																
Act.2.1:																
Act.2.2:																
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Act.4.1:																
Act.4.2:																
Act.4.3:																
Act.4.4:																
Act.4.5:																
Act.4.6:												*			**	

Noted: \* and \*\* represented Mid-term Evaluation by SEAFDEC and Terminal Evaluation by UNEP, respectively.

## 5.3 Proposed Budget for 2016–2022

Remarks:

- Expenditures from 2016 to 2021: are actual costs based on the annual Audit reports
- Expenditures for 2022 are estimated, including all administrative cost and project management cost occurred before 30 June 2023.



## PART II: PROJECT ACHIEVEMENTS IN 2022

### 1. Project Achievements in the Present Year

In 2022, as of 31 August, SEAFDEC/PCU conducted three Regional Meetings: two Regional Scientific and Technical Committee Meetings (RSTC5 and RSTC6), and one Project Steering Committee Meeting (PSC7) with several target objectives such as updating the project achievements at six participating countries and regional programs, revisions of the budget as of 30 March 2022, and expenditures and co-financing reports. The Regional Guidelines on indicators for sustainable management of fisheries *refugia* were endorsed by six countries. The mid-term Evaluation report was finalized and submitted to be endorsed by the Project Steering Committee in May 2022.

#### Achievements at national levels,

- Cambodia conducted the field visits to follow up, monitoring the fisheries *refugia* management at Kep, Koh Kong, and Sihanoukville provinces. In addition, the Marine Fisheries Management Area, including Grouper *refugia* in Kampot Province was finally supported by the CFI and CSOs in the area. The national guidelines for establishing fisheries *refugia* were drafted through stakeholder consultation. It is expected to complete and published online by Q3/2022.
- Indonesia updated the fisheries *refugia* web portal and conducted the national fisheries *refugia* committee meeting and the technical consultation on drafting the management plans for Penaeid shrimp in West Kalimantan. Indonesia also published five scientific/technical papers as follows:
  - Genetic Analysis of *Uroteuthis chinensis* from Bangka Belitung Waters by RAPD Markers
  - Socio-economic Aspects and Local Fishers Institutional from Two Coastal Villages of West Kalimantan
  - Socio-economic Aspect, Local Fishers' Institution, and Stakeholders Mapping for Squid Fisheries *Refugia* in Tuing Waters, Bangka Regency
  - Fisheries *Refugia* Profile of West Kalimantan Province, Indonesia
  - Coastal Habitats Condition of Bangka Waters as a Critical Habitat for Squids.
- Malaysia drafted two inception reports: 1) Development of a Refugium Management Plan for the Mud Spiny Lobster (*Panulirus polyphagus*), and 2) Management Plan for Tiger Prawn *Refugia* at Kuala Baram, Miri, Sarawak. In addition, Malaysia is drafting the national guidelines, the *refugia* management plans and establishing the site-based management boards. It is expected that two prioritized *refugia* endorsed by the government by the end of 2022.
- The Philippines completed the National Guidelines for establishing fisheries *refugia*, while three *refugia* agreed upon by stakeholders are an ongoing process to get approval by the local governments. Two technical papers are drafted to be published in Q3/2022, as follows:
  - Fish eggs and larvae composition, abundance, and distribution in the three fisheries *refugia* sites in the Philippines
  - Landing and distribution of captured fishes in relation to the establishment of Fisheries *Refugia* in the Philippines
- Thailand conducted one National Fisheries *Refugia* Committee meeting, one Training workshop on diving for coastal resources survey, and a workshop on fisheries *refugia* operational management and *refugia* boundary marking at Surat Thani Site for blue swimming crab. The National Guidelines for establishing fisheries *refugia* are drafted to be completed by 2022. In addition, Thailand plans to conduct the Site-based Management Board in the third and fourth quarters.

Due to delayed project implementation, Viet Nam is underway to compile information/data on catch data and fish early life history science and review the best practices. Hiring consultants to identify the threats and links science and local knowledge in boundary delineation and formulate recommendations on policy and legal reforms. It is expected that by the end of Q3 and Q4, the key outputs will support the establishments of two fisheries *refugia*.

## 2. Activities and Budget in the Present Year (as of 30 June)

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Outcome 1:</b>								
Activity 1.1	R and I							1,350
Activity 1.2	R and I							1,000
Activity 1.3	-none-							
Activity 1.4	R and T	1	18					10,734
Activity 1.5	T	18	35					6,529
<b>Outcome 2:</b>								
Activity 2.1	R and I							6,000
Activity 2.2	-none-							
Activity 2.3	R and P							35,435
Activity 2.4	R and I							3,848
Activity 2.5	R and I							13,900
Activity 2.6	R and I							4,886
Activity 2.7	-none-							
Activity 2.8	T	5	14					3,524
Activity 2.9	I							584
Activity 2.10	-none-							
<b>Outcome 3:</b>								
Activity 3.1	R and I							5,787
Activity 3.2	R and I							5,481
Activity 3.3	I							900
Activity 3.4	-none-							
Activity 3.5	-none-							
<b>Outcome 4:</b>								
Activity 4.1	P and I	9	26					672
Activity 4.2	P and I							500
Activity 4.3	P and I	55	123					9,050
Activity 4.4	P and I	20	24	4	14	2	4	5,992
Activity 4.5	P and I	9	11	2	4	1	2	14,545
Activity 4.6	P and I			4	3	1	2	31,737
<b>Total Expenditures as of 30 June 2022</b>								162,454
<b>Balance as at 30 June 2022 until 31 December 2022</b>								802,453

### 3. Expected Outcome/Outputs and Achievements in the Present Year

Activities	Expected Outcome/Outputs	Implementation status in percent (%) as of end of September 2022	Results/Achievements
<b>Act.1.1:</b>	14 fisheries <i>refugia</i> profile reports, including maps and site characterisations, published for 14 priority sites	92%	- 9 fisheries profiles are completed including map and sites characterizations: 3 from Cambodia, 1 from Indonesia, 3 from Philippines, two from Thailand.
<b>Act.1.2:</b>	14 published management plans and annual implementation reports	81%	- 15 priority <i>refugia</i> boundaries are agreed upon among stakeholders. - Five management plans were endorsed and published by Cambodia (3) and Thailand (2). - Other 10 management plans are in finalized process.
<b>Act.1.3:</b>	224 quarterly reports of network meetings and activities [including list of participants and results of work]	74%	- 277 network meetings and activities (including list of participants are published online.
<b>Act.1.4:</b>	14 operational enforcement programmes at priority sites	78%	- 5 <i>Refugia</i> are in progress on operational and enforcement programs (Cambodia and Thailand) - In Malaysia, tested the management measures of two fisheries <i>refugia</i> in 2021. The plan formation process is expected to complete in Q3/2022.
<b>Act.1.5:</b>	4 annual reports of <i>Refugia</i> -SGP partnership	68%	- 2 technical partnership reports on socioeconomic studies in Thailand were published. - The PCU will further update with countries to improve the percentage of completion at the RSTC7 scheduled in November 2022. - no country applies for GEF/SGP - However, all countries engaged the CSOs, and community organization in the project implementation and policy management decision.
<b>Act.2.1:</b>	6 endorsed revised policies	65%	- 4 endorsed revised policies from Cambodia, Malaysia, Thailand, and Viet Nam
<b>Act.2.2:</b>	6 Key Threats to fisheries <i>refugia</i> are defined and management policy are recommended	76%	- 5 key threats and recommended policy management are published in 5 countries
<b>Act.2.3:</b>	6 published national guidelines on establishing and operating fisheries <i>refugia</i>	74%	- Philippines completed the National Guidelines, while other 5 countries drafted the Guidelines and in finalizing process. - The PCU will further update with countries to improve the percentage of completion at the RSTC7 scheduled in November 2022.

Activities	Expected Outcome/Outputs	Implementation status in percent (%) as of end of September 2022	Results/Achievements
<b>Act.2.4:</b>	<p>6 national reports on policy, legal and institutional aspects of <i>refugia</i> establishment and management published</p> <p>Endorsed policy and executive orders, provincial/local ordinances, and by-laws</p> <p>6 endorsed National Action Plans for the management of priority fisheries <i>refugia</i> and associated biodiversity</p> <p>1 endorsed Regional Action Plan for fisheries <i>refugia</i></p>	68%	<ul style="list-style-type: none"> <li>- 3 of the six countries, namely Cambodia, Thailand, and Malaysia, adopted the Strategic Action Plan or Fisheries Management Plan, while the other three are an ongoing process of adoption by Government.</li> <li>- 5 Endorsed executive orders/ proclamation on establishing Fisheries <i>Refugia</i> completed</li> <li>- 2 National Actions were drafted and applied in Cambodia and Thailand</li> <li>- 1 endorsed Regional Action Plan for Management of Short-mackerel fisheries <i>refugia</i> published online</li> </ul>
<b>Act.2.5:</b>	96 quarterly and 6 annual reports on fish stocks and habitats published online	78%	<ul style="list-style-type: none"> <li>- 80 quarterly reports from five countries (Cambodia, Indonesia, Malaysia, Philippines and Thailand)</li> <li>- Fish stocks status for priority target species are annually updated</li> </ul>
<b>Act.2.6:</b>	6 databases online and populated with datasets	68%	<ul style="list-style-type: none"> <li>- 5 datasets from 5 countries are updated</li> </ul>
<b>Act.2.7:</b>	6 national and 1 regional Geographical Information System online and populated with site-based information	64%	<ul style="list-style-type: none"> <li>- The Regional GIS data and information of 6 countries are created online <i>via</i> the Regional Websites since 2020, it will be updated by Q4/2022.</li> </ul>
<b>Act.2.8:</b>	Characterisations for 14 <i>refugia</i> sites accessible online	58%	<ul style="list-style-type: none"> <li>- 9 of 15 fisheries <i>refugia</i> profiles are published, and the remaining profiles are underway by countries.</li> </ul>
<b>Act.2.9:</b>	1 regional modelling system online	100%	<ul style="list-style-type: none"> <li>- Cancelled, approved by the PSC2.</li> </ul>
<b>Act.2.10:</b>	4 published reports of the results of demonstrations	80%	<ul style="list-style-type: none"> <li>- 2 published reports completed at RSTC meetings</li> <li>- The regional paper is in progress.</li> </ul>
<b>Act.3.1:</b>	6 online national and 1 regional catalogue of best practice approaches and measures	68%	<ul style="list-style-type: none"> <li>- 5 of 6 online national best practice approaches and measures are published.</li> <li>- 1 regional catalogue is ongoing, to be completed by Q3/2022</li> </ul>

Activities	Expected Outcome/Outputs	Implementation status in percent (%) as of end of September 2022	Results/Achievements
<b>Act.3.2:</b>	24 awareness materials published online  56 annual reports of outreach programmes at 14 priority locations, including tracking of extent of community acceptance	79%	<ul style="list-style-type: none"> <li>- 18 awareness materials and several outreach programs have been published and conducted by countries.</li> <li>- 52 annual reports of outreach programmes at 13 fisheries <i>refugia</i> in 5 countries are recorded.</li> </ul>
<b>Act.3.3:</b>	6 online national web portals on fisheries <i>refugia</i>  7 published GEF IW experience notes (one per country and one regional) on application of fisheries <i>refugia</i> in the South China Sea and Gulf of Thailand	64%	<ul style="list-style-type: none"> <li>- 5 countries created online national web portal <i>via</i> the lead agency platform.</li> <li>- 7 published GEF IW experience notes are finalized at the next RSTC7 in November 2022.</li> </ul>
<b>Act.3.4:</b>	Information and education materials accessible at SEAFDEC and online	90%	<ul style="list-style-type: none"> <li>- 3 <i>Refugia</i> Information Centres (RIC) were established in Malaysia,</li> <li>- Philippines and Thailand in collaboration with the Local Government Unit planned to setup the RIC at <i>refugia</i> sites.</li> <li>- SEAFDEC/Training Department as a Project Coordination Unit and Knowledge center on fisheries provided the information and education materials <i>via</i> SEAFDEC websites and fisheries <i>refugia</i> website.</li> </ul>
<b>Act.3.5:</b>	1 regionally endorsed report published online	100%	<ul style="list-style-type: none"> <li>- The Regional Guidelines on Indicators for Sustainable Management of Fisheries <i>Refugia</i> is adopted by the PSC7 Ad-hoc Meeting and published online in July 2022.</li> </ul>
<b>Act.4.1:</b>	6 NFRC Terms of Reference and 48 biannual meeting reports (joint management decisions and participant lists)	73%	<ul style="list-style-type: none"> <li>- 5 countries set up National Fisheries <i>Refugia</i> Committee (NFRC)</li> <li>- TORs from five countries are published except for Viet Nam</li> </ul>
<b>Act.4.2:</b>	6 NTSC Terms of Reference and 96 quarterly meeting reports (scientific and technical advice and participants lists)	69%	<ul style="list-style-type: none"> <li>- 5 countries set up National Scientific and Technical Committee (NSTC)</li> <li>- TORs from five countries are published except for Viet Nam</li> </ul>
<b>Act.4.3:</b>	14 Management Board Terms of Reference and 224 quarterly meeting reports (joint management decisions and participant lists)	64%	<ul style="list-style-type: none"> <li>- 3 countries set up site-based management boards (Cambodia, Philippines, and Thailand). Other 3 countries plan to setup after fisheries <i>refugia</i> established</li> <li>- TORs from three countries are published except for Indonesia, Malaysia, and Viet Nam</li> <li>- 20 reports are published online.</li> </ul>

Activities	Expected Outcome/Outputs	Implementation status in percent (%) as of end of September 2022	Results/Achievements
<b>Act.4.4:</b>	1 RSTC Terms of Reference and 4 annual meeting reports (documenting scientific and technical advice and participant lists)	95%	- RSTC TORs adopted and published online - 6 RSTC reports completed
<b>Act.4.5:</b>	1 PSC Terms of Reference and 8 annual meeting reports (documenting joint decisions and participant lists)	95%	- PSC TORs adopted and published online - 7 PSC reports published online
<b>Act.4.6:</b>	Terms of Reference and contracts for project coordination unit staff	100%	- Project Coordination Unit established, TORs adopted and published online

#### 4. List of Publications in 2022

	List of completed publications	Type of media	Attached e-file
1	FIA/Cambodia, 2022. Field Trip Report to Follow up the Implementation of Collaboration and Enforcement Program for Mackerel <i>Refugia</i> at Peam Krasob, Koh Kong Province. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/CAM95, 6 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1774">http://hdl.handle.net/20.500.12067/1774</a>
2	FIA/Cambodia, 2022. Field Trip Report of High Rank Officer from MAFF to Monitor Activities of Mackerel <i>Refugia</i> Management in Koh Kong Province. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/CAM96, 8 p	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1775">http://hdl.handle.net/20.500.12067/1775</a>
3	FIA/Cambodia, 2022. Internal Meeting with Relevant Partner to Finalize Marine Fisheries Management Area including Grouper <i>Refugia</i> in Kampot Province. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/CAM97, 5 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1776">http://hdl.handle.net/20.500.12067/1776</a>
4	FIA/Cambodia, 2022. Field Trip to Blood Cockle <i>Refugia</i> at Prey Nob, Preah Sihanouk Province and Proposed Marine Fisheries Management Area including Grouper <i>Refugia</i> in Kampot Province. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/CAM98, 6 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1811">http://hdl.handle.net/20.500.12067/1811</a>

	List of completed publications	Type of media	Attached e-file
5	FIA/Cambodia, 2022. Meeting with Kep Person to Propose Site Board Revision (TWG and PMC) and to Arrange the Schedule for a New Board Meeting for Marine Fisheries Management Area and BSC <i>Refugia</i> at Koh Po and Koh Tonsay Archipelago, Kep Province. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/CAM99, 6 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1812">http://hdl.handle.net/20.500.12067/1812</a>
6	FIA/Cambodia, 2022. Site Base Management Board Meeting in Kep Province. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/CAM100, 9 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1813">http://hdl.handle.net/20.500.12067/1813</a>
7	FIA/Cambodia, 2022. National Consultative Meeting on National Guideline for Fisheries <i>Refugia</i> Management. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/CAM101, 7 p	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1814">http://hdl.handle.net/20.500.12067/1814</a>
8	Indriatmoko, 2022. Report of Genetic Analysis of <i>Uroteuthis Chinensis</i> from Bangka Belitung Waters by RAPD Markers. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/ID34, 10 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1779">http://hdl.handle.net/20.500.12067/1779</a>
9	AMFRHR/Indonesia, 2022. Report of the Third Meeting of Fisheries <i>Refugia</i> Management Plan Drafting for Penaeid Shrimp in West Kalimantan. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/ID35, 4 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1780">http://hdl.handle.net/20.500.12067/1780</a>
10	Hendra Saepulloh, and Masayu Rahmia Anwar Putri, 2022. Report on Social-Economic Aspects and Local Fishers Institutional from Two Coastal Villages of West Kalimantan. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/ID36, 18 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1781">http://hdl.handle.net/20.500.12067/1781</a>
11	Nastiti <i>et al.</i> , 2022. Fisheries <i>Refugia</i> Profile of West Kalimantan Province, Indonesia. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/ID37, 48 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1815">http://hdl.handle.net/20.500.12067/1815</a>
12	AMFRHR/Indonesia, 2022. Report of National Fisheries <i>Refugia</i> Committee Meeting. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/ID38, 6 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1816">http://hdl.handle.net/20.500.12067/1816</a>

	List of completed publications	Type of media	Attached e-file
13	Riswanto <i>et al.</i> , 2022. Coastal Habitats Condition of Bangka Waters as a Critical Habitat for Squids. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/ID39, 7 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1817">http://hdl.handle.net/20.500.12067/1817</a>
14	Nurfiarini <i>et al.</i> , 2022. Socioeconomic Status, Local Fishers' Institution, and Stakeholders Mapping for Squid Fisheries <i>Refugia</i> in Tuing Waters, Bangka Regency. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/ID40, 12 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1818">http://hdl.handle.net/20.500.12067/1818</a>
15	AMFRHR/Indonesia, 2022. Report of Information Activities in 2022 of Indonesia Fisheries <i>Refugia</i> Website. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/ID41, 6 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1819">http://hdl.handle.net/20.500.12067/1819</a>
16	Siang <i>et al.</i> , 2022. Inception Report on Development of A Refugium Management Plan for the Mud Spiny Lobster ( <i>Panulirus polyphagus</i> ). Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/MY32, 46 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1820">http://hdl.handle.net/20.500.12067/1820</a>
17	Abdullah <i>et al.</i> , 2022. Inception Report on Management Plan for Tiger Prawn <i>Refugia</i> at Kuala Baram, Miri, Sarawak. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/MY33, 46 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1821">http://hdl.handle.net/20.500.12067/1821</a>
18	NFRDI/Philippines, 2022. Report of the Draft Fisheries <i>Refugia</i> Mapping (for Approval by the <i>Refugia</i> Site Management Committee). Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/PH56, 11 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1782">http://hdl.handle.net/20.500.12067/1782</a>
19	NFRDI/Philippines, 2022. National Guidelines in the Establishment and Operations of Fisheries <i>Refugia</i> for Capture Fisheries Management. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/PH57, 18 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1783">http://hdl.handle.net/20.500.12067/1783</a>
20	DOF/Thailand, 2022. Report of the Ninth Meeting of Thailand's National Fisheries <i>Refugia</i> Committee. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/TH42, 20 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1784">http://hdl.handle.net/20.500.12067/1784</a>



	List of completed publications	Type of media	Attached e-file
21	DOF/Thailand, 2022. Report of Training-Workshop on Diving for Coastal Resources Survey. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/TH43, 26 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1809">http://hdl.handle.net/20.500.12067/1809</a>
22	DOF/Thailand, 2022. Report of Workshop on Fisheries <i>Refugia</i> Operational Management at Surat Thani Site. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/TH44, 38 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1822">http://hdl.handle.net/20.500.12067/1822</a>
23	DOF/Thailand, 2022. Report of Workshop on Fisheries <i>Refugia</i> Boundary Marking at Surat Thani Site. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/TH45, 15 p.	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1823">http://hdl.handle.net/20.500.12067/1823</a>
24	Report of the 5 <sup>th</sup> Meeting of the Regional Scientific and Technical Committee	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1773">http://hdl.handle.net/20.500.12067/1773</a>
25	Regional Guidelines on Indicators for Sustainable Management of Fisheries <i>Refugia</i> in the South China Sea and Gulf of Thailand	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1798">http://hdl.handle.net/20.500.12067/1798</a>
26	Report of the 7 <sup>th</sup> Ad-hoc Meeting of the Project Steering Committee	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1797">http://hdl.handle.net/20.500.12067/1797</a>
27	Report of the 6 <sup>th</sup> Meeting of the Regional Scientific and Technical Committee	E-doc.	<a href="http://hdl.handle.net/20.500.12067/1810">http://hdl.handle.net/20.500.12067/1810</a>
28	Integrating Habitat Conservation and Fishery Management in the South China Sea and Gulf of Thailand through Fisheries <i>Refugia</i>	Article	Fish for the People Vol.20 No.1, Page 1-6
29	Establishing Indicators for Sustainable Management of Fisheries <i>Refugia</i>	Article	Fish for the People Vol.20 No.1, Page 7-12

## 5. Major Impacts/Issues

- COVID-19 impacts
- Delayed implementation by some countries

## PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

No activity is proposed for 2023, per the agreement between SEAFDEC and UNEP, that all technical activities shall be ended by 31 December 2022. However, the project closing activities, including administrative and financial matters, shall be continued until the end of the 2<sup>nd</sup> quarter on 30 June 2023. All expenditures incurred during the first six months shall be recorded in the 2022 calendar, such as six countries' Audit fees and consolidated financial statements, project management fees, and other activities approved by SEAFDEC/SG in 2022.

Accordingly, the proposed project closing activities for six months, starting from 1 January to 30 June 2023, are summarized as follows:

1. Submission of the 2022 Financial Audit Report by countries, no later than 31 March 2023;
2. Closing the MOU/LOA/LOI between SEAFDEC and Country after receiving the country's financial audit report and clearance of financial matters.
3. Submission of the 2022 Consolidated Financial Statements from SEAFDEC to UNEP by 30 June 2023;

4. Closing the Project Coordination Agreement between SEAFDEC and UNEP by 30 June 2023 or depending upon the submission of the 2022 Consolidated Financial Statement Report and clearance of financial matters to UNEP.
5. UNEP will conduct the Terminal Evaluation in coordination with the Project Coordination Unit during the first half of 2023.

**PROJECT DOCUMENT  
ACHIEVEMENTS FOR YEAR 2022  
AND  
PROPOSED ACTIVITY FOR YEAR 2023**

			Project id: 201801011
<b>Program Categories:</b>	Project under the ASEAN-SEAFDEC FCG/ASSP Mechanism		
<b>Project Title:</b>	Strengthening the Effective Management Scheme with GIS (Geographic Information System) & RS (Remote Sensing) Technology for Inland Fisheries and Aquaculture at AMS		
<b>Program Thrust No:</b>	I	<b>Total Duration:</b>	2019–2022
<b>Lead Department:</b>	Secretariat (SEC)	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	Japan ASEAN Integration Fund (JAIF)	<b>Total Donor Budget:</b>	USD 279,960
<b>Project Partner:</b>	None	<b>Budget for 2023:</b>	None
<b>Lead Technical Officer:</b>	Takatsugu Kudoh, (Assistant Project Manager for the JTF)	<b>Project Participating Countries</b>	All Member Countries

**PART I: OVERALL PROJECT DESCRIPTION**

**1. Executive Summary**

Inland fisheries and freshwater aquacultures in the Southeast Asia region as major fish producers have provided various kinds of fish products to the world-wide markets. In Southeast Asia, the inland fishery and aquaculture are important fields, which have much production volume compared to other areas.

On the other hand, inland fishery resources are particularly susceptible to the influence of environmental factors such as rainfall and water temperature and catch pressure by fishery compared to the marine fisheries.

As a result, this has often impeded the appropriate fisheries and aquaculture management measures and guidance for the fishers and farmers by the governments, which often causes seasonal overfishing, excess production, price fluctuation and low-valued fish production. In order to manage and use inland fishery resources, information on the environmental change of habitats affecting resources is necessary.

However, such information is currently not sufficiently obtained. Using the Geographic Information System (GIS) and Remote Sensing (RS) technology, it became possible to grasp the environmental changes of environmental factors in the habitats of aquatic organisms affecting inland fishery resources.

Considering those issues on inland fisheries and aquacultures, this project aims to map inland fishery and aquaculture sites in AMSs using GIS & RS technology, and proposes monitoring methodologies using GIS Mapping in order to enable government of AMSs to contribute in the effective management of inland fisheries and aquaculture with GIS & RS technology in AMSs.

The project is going to be implemented by GIS (Geographic information system) & RS (Remote sensing) by Southeast Asian Fisheries Development Center (SEAFDEC) and plan to be completed on schedule.

**2. Background and Justification**

**2.1 Current Problem**

Inland fishery resources are greatly affected by changes in the environment. For example, the catch of the inland fluctuates greatly depending on the extent of expansion and contraction of river and lake areas due to precipitation in the rainy season and dry season.

Also, inland fisheries resources are susceptible to environmental fluctuations and catch pressure because the area of the fishing ground is limited. It is necessary to manage the inland fisheries resources and to use them sustainably while taking environmental factors into consideration. However, management methods considering environmental factors have not been established. If the environmental factor mechanism that affects the inland

fisheries resources is grasped by GIS/RS, the method of inland fisheries resource management will be newly presented. GIS Mapping, R / S technology is a method that can be used anywhere in AMSs.

## 2.2 Rationality

In Southeast Asia, the inland fishery and aquaculture are important fields, which have much production volume compared to other areas. On the other hand, inland fishery resources are affected by environmental factors.

Several countries that are particularly active in the field of inland fishery among AMSs are selected as pilot site target countries and establish monitoring methods RS using GIS Mapping technology. The method will be disseminated to each AMS.

## 2.3 Project History

No project on management schemes with GIS & RS technology of inland fishery and aquaculture has been implemented.

## 2.4 Beneficiaries

The relationship between catch and environmental data such as rainfall, area of inland fishing ground, temperature, etc. will become clear by using the GIS Mapping/RS technology. By doing so, we will be able to predict the catch amount to some extent. As a result, after the project is over, the fishers/farmers can obtain the environmental information affecting the catch by GIS Mapping/RS technology, and it becomes possible to obtain benefits indirectly that can continue to use fisheries resources effectively. In addition, government officials can learn techniques related to fishery resources management by acquiring GIS Mapping/RS technology during project implementation.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



## 4. Gender Sensitivity of the Project

The project is open and equalized for gender sensitivity. There is no limitation for men and/or women to participate in all activities.

## 5. Project Overall Objectives/Targets, Outcomes, Outputs, Indicators and Activities

### 5.1 Logical Framework

GOAL (Overall Objectives, Impact)	Indicators	Means of Verification
This project aims to contribute in the effective management of inland fisheries and aquaculture in AMSs countries through the promotion of GIS Mapping/RS technology. Using the GIS Mapping technique, the causal relation between the catch amount and the environmental data by the satellite on the R/S is clarified		
Output 1	Indicators	Means of Verification
The geographical and environmental data on satellites and the catch data from the fishing ground in inland water of target sites in AMS are analyzed by GIS Mapping technology, and a guideline of analytical method is created	<p>1.1 : To clarify the relationship between graphical/environmental data by remote sensing and catch data on the fishing ground by GIS Mapping and multivariate analysis.</p> <p>1.2 : The monitoring method for inland fisheries resources management by GIS Mapping /RS technology is proposed and a guideline of analytical method is created.</p>	<p>1.1 The manuals for catch data collection, satellite data downloading and analyzing are created.</p> <p>1.2 An index value indicating the relationship between the environmental data and catch data by GIS Mapping and multivariate analysis is indicated.</p>

<b>ACTIVITY 1</b>		
1.1 : Data of catch amount by fishing ground necessary for GIS Mapping analysis at project sites (The planned countries as project sites: Cambodia, Indonesia, Lao PDR, Myanmar, Thailand) are collected and compiled.		
1.2 : Environmental data on the geographical and inland water aquatic organism habitats based on satellite images for each target site of AMS are collected and compiled.		
1.3 : The relation among geographical/environmental data (Inland water area, precipitation amount, temperature etc.) based on satellites and the catch data from the fishing ground of target sites of AMS are analyzed and clarified with multivariate analysis by GIS Mapping technology.		
<b>OUTPUT 2</b>	<b>Indicators</b>	<b>Means of Verification</b>
Dissemination of the monitoring and analyzing GIS Mapping /RS technical methods on geographical / environmental data and catch amount data in AMS.	2.1 : A technical manual on analysis methods using GIS Mapping technology is produced.  2.2 : The number of staff who can analyze using GIS Mapping / RS technology increases in AMSs countries.	- Technical manual on analysis methods using GIS Mapping technology - The number of staff who can analyze using GIS Mapping / RS technology in target AMS.
<b>ACTIVITY 2</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
Technical analysis method of GIS Mapping / RS to clarify the relationship between geographical/environmental data and catch data is disseminated to AMSs.		
2.1 : To summarize the result of the catch monitoring method using GIS Mapping/RS technology obtained through activity 1.		
2.2 : To develop a technical manual on analysis methods using GIS Mapping technology.		
2.3 : To hold the workshop on catch analysis using GIS Mapping /RS technology for disseminating technology to AMSs		

## 5.2 Project Implementation Plan for 2019–2022

Activities	2019				2020				2021				2022			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Activity 1.1																
Activity 1.2																
Activity 1.3																
Activity 2.1																
Activity 2.2																
Activity 2.3																

## 5.3 Proposed Budget for 2016–2022

(Unit: USD)

Output	Activities	Year 1 (2019)	Year 2 (2020)	Year 3 (2021)	Year 4 (2022)
Output 1	Activity 1.1	49,336	27,026		
	Activity 1.2	9,095	5,800		
	Activity 1.3	5,800	8,000	28,740	
Output 2	Activity 2.1		2,000	20,000	46,858
	Activity 2.2			4,000	6,063
	Activity 2.3			10,000	17,873
Project budget Sub-Total		64,231	42,826	62,740	70,794
Other Budget (Management Cost)		2,800	2,800	3,000	5,269
Contingency fee		500	10,000	5,000	10,000
<b>Sub-total</b>		<b>67,531</b>	<b>55,626</b>	<b>70,740</b>	<b>86,063</b>

**PART II: PROJECT ACHIEVEMENT IN 2022****1. Project Achievements in the Present Year**

In 2022, the project implemented activities according to the year plan. For Output 1, the project decided which satellite and sensor is appropriate for this project from the view of cost, easy access and period. We have downloaded LST (Land surface temperature) and CHL (Concentration of Chlorophyll A) of Sentinel-3 from 2019-2020 and the relation among geographical/environmental data based on satellites and the catch data from the fishing ground of target sites of AMS are analyzed.

For Output2, We have held the “Workshop on Analyzing Catch Data and GIS Data on Strengthening the Effective Management of Inland Fisheries and Aquaculture in ASEAN Member States with GIS and RS Technology” 21-23 September 2022 in Bangkok, Thailand.

**2. Activities and Budget in the Present Year**

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1:</b>								
Activity 1.1	Collection of catch data	This activity was not implemented in 2021						
Activity 2.1	Downloading satellite data				1			0
Activity 3.1	Analysis				0		1	0
<b>Output 2:</b>								
Activity 2.1	Summarize			2	2		1	0
Activity 2.2	Manual			2	2		1	0
Activity 2.3	Workshop	7	20	6	8	1	2	37,595.71

**3. Expected Outcome/Outputs and Achievements in the Present Year**

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Output 1:</b>		
Activity 1.1	This activity was not implemented in 2021	
Activity 1.2	Downloading satellite data on 5 sites from 2019-2020	Activity is conducted in January to June 2022
Activity 1.3	Analysis catch data and satellite data	Activity is conducted in January to June 2022
<b>Output 2:</b>		
Activity 2.1	Summarize	Activity is conducted in June to December 2022
Activity 2.2	Creating manual	Activity is conducted in June to December 2022
Activity 2.3	Work shop	Activity is conducted in September 2022

**4. List of Completed Publications and Others**

Publications	Type of Media	Attached e-file
Completion report of the project and relevant manual (Ongoing)	Hard copies and electronic files	-

**5. Evaluation from Participants of Member Countries for WS and Training Course (if available)**

Activities	Evaluation
Activity 2.3	90% of the participants fulfilled with their course expectations in gaining knowledge on the RS and GIS technology

## **6. Major Impacts/Issues**

There is no major problem of the project implementation in 2022.

**PROJECT DOCUMENT  
ACHIEVEMENT FOR YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

	Project ID: 202005003		
<b>Program Category</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title</b>	Sustainable Utilization of Anguillid Eels in the Southeast Asia Region		
<b>Program Strategy No.</b>	I	<b>Total Period</b>	2020–2024
<b>Lead Department</b>	Inland Fishery Resources Development and Management Department (IFRDMD)	<b>Lead Country</b>	None
<b>Donor/Sponsor</b>	Japanese Trust Fund (JTF)	<b>Total Donor Budget</b>	USD 225,000
<b>Project Partner</b>	None	<b>Budget for 2023</b>	USD 59,000
<b>Lead Technical Officer</b>	Shimizu Tomohito (Deputy Chief/IFRDMD)	<b>Project Participating Country</b>	All Members Countries

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

This project is a five-year activity involving all member countries. The project aims at keeping the sustainable management and utilization of anguillid eel fisheries resources in the Southeast Asian region through the strategic program of sustainable eel resources management. There are two main activities under the project. The first one is for sustainable eel fisheries resources and to standardize the data collection system in Southeast Asia. The second is to map the genetic population structure of tropical eels in Southeast Asia based on mtDNA approach.

### 2. Background and Justification

With the rapid decline of temperate eels, the market value of tropical eels rises in recent years. Glass eel (juvenile of eel) capture fisheries in the tropical zone increase dramatically. In order to avoid the over exploitation of glass eel, the Indonesian government issued the regulation to prohibit export of eel seeds less than 150g from Indonesia's territory. Similar policies to prohibit the export of eel seeds are enforced in some other countries. Conservation and management policy issues on tropical eel resources for their sustainability become more important not only in Indonesia but also in the Southeast Asian region. Therefore, the region needs a policy to balance between the utilization and the sustainability of tropical eel resources. At the same time, it is necessary to consider that there is limited knowledge on tropical eel species in this region.

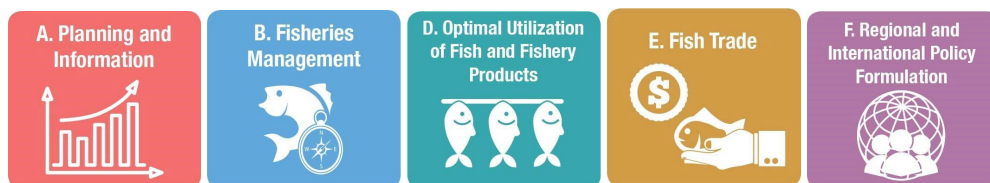
In the JTF6 Phase 1 (2015–2019), IFRDMD conducted its activities to establish and strengthen a regional network for improving the management and conservation of anguillid eel fisheries resources and environment in the region. IFRDMD also focused on the capacity development in the member countries for improving the management of anguillid eel fisheries.

In fisheries management, the information on genetic population structure or stocks is very important because it can identify the source and sink populations and the potential for the replenishment of depleted stocks. Furthermore, molecular genetic techniques have become more widespread in oceanic systems and in fisheries management due to the ability to identify distinct stocks, genetic health, and connectivity between stocks. Genetic study with an objective to identify genetic population structure of the tropical eels (*Anguilla* spp. except *Anguilla bicolor*) in Southeast Asia will be conducted under the project for five years (2020–2024). The marker (mtDNA) will be used in this study.

IFRDMD will be further engaged in promoting the sustainable management and utilization of anguillid eel resources in the Southeast Asian region. The activities will be conducted for improving the sustainable eel fisheries and standardizing the data collection system and clarifying the eel genetic population structure in Southeast Asia.



### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

This project is sensitive with the gender issue. The market chain on anguillid eel resources is closely related to the women's activities for supporting their livelihood. Mostly, the consolidators and collectors of anguillid eel in certain countries are female. They also support the data collection as enumerators. Therefore, in the 2020-2024 study, it needs to strengthen their empowerment through this project.

### 5. Project Goal, Outputs, Activities, Indicators and Verification

#### 5.1 Logical Framework

GOAL (Overall Objectives, Impact)	Indicators	Means of Verification
Sustainable fisheries resources to support the food security and livelihood	The livelihood of fishers is secured and stable, fishery diversity is maintained	Historical catch data on anguillid eel provided by enumerators
OUTCOME	Indicators	Means of Verification
Strategic program of sustainable Eel resources management in Southeast Asia	AMSs implement the strategic program of sustainable Eel resources management in Southeast Asia	Government adopts the document and makes a policy/regulations
OUTPUT 1	Indicators	Means of Verification
Sustainable eel fisheries and standardized data collection system in Southeast Asia	Developing sustainable and standardized data collection system	Government adopts the system
ACTIVITY 1	Indicators; key Inputs	Means of Verification
<b>Activity 1.1:</b> Conducting a survey to collect the data of catch and CPUE of Anguillid eel fisheries	A survey is conducted	Survey report
<b>Activity 1.2</b> Conducting a survey to collect the biological data of Anguillid eel fisheries	A survey is conducted	Survey report
<b>Activity 1.3:</b> Conducting a regional workshop organized at IFRDMD for making the field guidebook to identify the Anguillid eel	Regional workshop is organized at IFRDMD for making the field guidebook to identify the Anguillid eel	Field guidebook to identify the Anguillid eel
OUTPUT 2	Indicators	Means of Verification
Genetic population structure of tropical eels in Southeast Asia	Genetic data of tropical eels in Southeast Asia	Genetic study report
ACTIVITY 2	Indicators: key inputs	Means of Verification
<b>Activity 2.1:</b> Conducting a survey to collect tissue sample of tropical eels in Southeast Asia	A survey is conducted	Survey report
<b>Activity 2.2:</b> Conducting genetic analyses in laboratory	A laboratory analysis is conducted	Report on laboratory analysis
OUTPUT 3	Indicators	Means of Verification
Successful project management through regular monitoring and evaluation	Project achievement.	Report of results and evaluation

ACTIVITY 3	Indicators: key inputs	Means of Verification
Activity 3.1: Project monitoring and evaluation led by Project Leader undertaken	<ul style="list-style-type: none"> <li>- Progress meetings twice a year to confirm the improving of each activity.</li> <li>- The evaluation at the end of year by experts.</li> <li>- Hiring one assistant to carry out the project effectively.</li> </ul>	Semi-annual and annual progress reports, and their evaluation results

## 5.2 Project Implementation Plan for 2020–2024

Activities	2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Output 1:</b>																				
Activity 1.1																				
Activity 1.2																				
Activity 1.3																				
<b>Output 2:</b>																				
Activity 2.1																				
Activity 2.2																				
<b>Output 3:</b>																				
Activity 3.1																				

## 5.3 Proposed Budget for 2020–2024

(Unit: USD)

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2024)
Output 1	Activity 1.1	16,000	16,000	16,000	16,000	8,000
	Activity 1.2	10,000	10,000	10,000	10,000	4,000
	Activity 1.3	-	-	-	14,000	-
Output 2	Activity 2.1	11,000	9,000	9,000	9,000	9,000
	Activity 2.2	3,500	5,500	5,500	5,500	5,500
Output 3	Activity 3.1	4,500	4,500	4,500	4,500	4,500
<b>Sub-Total</b>		<b>45,000</b>	<b>45,000</b>	<b>45,000</b>	<b>59,000</b>	<b>31,000</b>

## PART II: PROJECT ACHIEVEMENTS IN 2022

### 1. Project Achievements in the Present Year

Covid-19 Pandemic affected the anguillid eel fishery in the Southeast Asia region. However, the collection of catch data and CPUE of Anguillid eel fisheries in Indonesia (Cilacap, Palabuhan Ratu) and Philippines (Cagayan, General Santos) were continued in 2022.

In the Philippines, it affected the eel farm close so that there was no demand for collecting the eel seed. *Anguilla marmorata* is the dominant species in the country. However, *A. bicolor pacifica* was selected for exploitation due to its high price in the Southern area only. In 2022, the fishers started to collect the glass eel data and additional data for adult eel. The main data source in the Philippines was from the Northern area of Luzon (Cagayan city) and the Southern area of Mindanao Island (General Santos and Cotabato city). Until June 2022, the total catch of glass eel in the Philippines was 413.55 kg in which 65% was contributed from the Northern area. The catch data of glass eel in the Philippines marked fluctuation over the period of 2016-2022. From 2016 through 2022, the number of fishers showed a decreasing trend, after a drop in 2021, it continued significant increases in 2022. The seasonal catch also showed the fluctuation trend. The CPUE marked fluctuation over the period of 2016-2022.

Palabuhan ratu, Indonesia, is the main fishing ground for *Anguilla bicolor bicolor*. In Palabuhan Ratu, the fishers started to collect the glass eel due to the market demand late 2021 and continued to 2022. The catch tended to decrease until July 2022. The series of glass eel's catch data were collected from the Palabuhan Ratu, Indonesia, since 2013. The catch data marked fluctuation and tended to decrease over the period of 2013-2022. The lowest period of the catch was during the Covid-19 pandemic. The CPUE marked fluctuation over the period of 2016-2022. The highest CPUE data was experienced late 2021 which was the starting point after the pandemic.

Cilacap, Indonesia, is the only area of anguillid eel fishing ground which was not affected by the Covid-19 pandemic. The Cilacap District is the location for collecting the elver and yellow eel stage data. The dominant species is *A. bicolor bicolor*. The anguillid catch was continued along the demand throughout the years in this area. The catch tended to increase until July 2022. In general, seasonal catch is stable for the whole year, except in July 2016. The CPUE graph showed its insignificant fluctuation in the period of 2016-2022.

In 2022, IFRDMD successfully collected the biological data of Anguillid eel in Mindanao Island, the Philippines. Moreover, IFRDMD identified the density of anguillid eel through the acoustic survey in Cikaso river, West java; Rano lake, Central Sulawesi and Poso River, Central Sulawesi.

In 2022, 106 samples were sequenced by using the Zymo kit. The results showed that the samples from Viet Nam consisted of *Anguilla marmorata* (6%), *Anguilla bicolor pacifica* (87%) and 7 % of the samples is bad sequencing. While samples from the Philippines is 100% of *A. bicolor pacifica*, samples from Bali Indonesia consisted of 3 species, namely *A. bicolor bicolor* (41%), *A. marmorata* (57%) and 2 % is *A. interioris*.

## 2. Activities and Budget in the Present Year

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1:</b>								
Activity 1.1	Conducting a survey to collect the data of catch and CPUE of Anguillid eel fisheries	4	20	5	4	0	0	16,000
Activity 1.2	Conducting a survey to collect the biological data of Anguillid eel fisheries	3	7	5	4	0	0	10,000
<b>Output 2:</b>								
Activity 2.1	Conducting a survey to collect tissue sample of tropical eels in Southeast Asia	3	4	1	3	0		11,000
Activity 2.2	Conducting genetic analyses in laboratory	0	0	3	1	0	0	3,500
<b>Output 3:</b>								
Activity 3.1	Project monitoring and evaluation lead by Project Leader	0	0	10	10	0	0	4,500

## 3. Expected Outcome/Outputs and Achievements

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Outcome</b>		
<b>Output 1:</b>		
Activity 1.1	Database of catch and CPUE of Anguillid eel fisheries; Survey report	<p>Covid-19 pandemic affected the anguillid eel fishery in the Southeast Asia region. However, the collections of catch data and CPUE of Anguillid eel fisheries in Indonesia (Cilacap, Palabuhan Ratu) and Philippines (Cagayan, General Santos) were continued in 2022.</p> <p>In the Philippines, it affected the eel farms close so that there was no demand for collecting eel seed. <i>Anguilla marmorata</i> is the dominant species in the country. However, <i>A. bicolor pacifica</i> is selected for exploitation due to its high price in the Southern area only. In 2022, the fishers started to collect the glass eel data and additional data for adult eels. The primary source data in the Philippines were from Northern</p>

Activities	Expected Outcome/Outputs	Results/Achievements
		<p>Luzon (Cagayan city) and the Southern area of Mindanao Island (General Santos and Cotabato city). Until June 2022, the total catch of glass eel in the Philippines was 413.55 kg in which 65% was contributed from the Northern area. The catch was quite meager for the last few months. Fishers caught only individuals on the sampling dates.</p> <p>The catch data of glass eels in the Philippines marked fluctuation from 2016 to 2022. From 2016 through 2022, the number of fishers decreased; after a drop in 2021, it continued to a significant increase in 2022. The seasonal catch also showed a fluctuating trend. The CPUE marked fluctuation throughout 2016-2022. The highest CPUE data was experienced in 2020, beyond the previous records, even though it slowly decreased till 2021.</p> <p>Palabuhan Ratu, Indonesia, is the main fishing ground for <i>Anguilla bicolor bicolor</i>. In Palabuhan Ratu, the fishers started to collect the glass eel due to demand from the market late 2021 and continued until 2022. The catch tended to decrease until July 2022. The series of glass eel catch data was collected from Palabuhan Ratu, Indonesia, in 2013. The catch data marked fluctuation and tended to decrease over the period 2013-2022. The lowest period was during the Covid-19 pandemic. This pandemic affected the decreasing demand for the eel farms. The CPUE marked fluctuation throughout 2016-2022. The highest CPUE data were experienced late 2021, the starting point after the pandemic.</p> <p>Cilacap, Indonesia, is the only area of anguillid eel fishing ground that was not affected by the covid-19 pandemic. Cilacap District is the location for collecting the elver and yellow eel stage data. The dominant species is <i>A. bicolor bicolor</i>. The anguillid catch was continued along the demand throughout the years in this area. The catch tended to increase until July 2022. In general, the seasonal catch was stable throughout the year, except in July 2016. The CPUE graph showed insignificant fluctuation from 2016 to 2022.</p>
Activity 1.2	Survey report	<p>Successful survey was carried out to collect the biological data of Anguillid eel in Mindanao Island, the Philippines.</p> <p>The density of anguillid eel was successfully identified through the acoustic survey in Cikaso river, West java; Rano lake, Central Sulawesi and Poso River, Central Sulawesi.</p>

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Output 2:</b>		
Activity 2.1	Report of collection eel tissue sample from the field	IFRDMD successfully collected samples in Viet Nam and Philippines in 2022.
Activity 2.2	Report of laboratory work Submit an article to the Journal	In 2022, 106 samples were sequenced by using the Zymo kit. The results showed the sample from Viet Nam consisted of <i>Anguilla marmorata</i> (6%), <i>Anguilla bicolor pacifica</i> (87 %), and 7 % which was terrible sequencing. At the same time, the sample from the Philippines was 100% <i>A. bicolor pacifica</i> . The sample from Bali, Indonesia, consisted of 3 species, namely <i>A. bicolor bicolor</i> (41%), <i>A. marmorata</i> (57%), and 2 % which was <i>A. interioris</i> .
<b>Output 3:</b>		
Activity 3.1	Project monitoring and evaluation	Semi-annual and annual meetings and reports

#### 4. List of Publications in 2022

Publications	Type of Media	Attached e-file
Gender involvement in the Anguillid eel fisheries: A case study in Anguillid Eels Fisheries in Indonesia. 2022. <i>Dina Muthmainnah, Ni Komang Suryati, Nurwanti Nurwanti, and Zulkarnaen Fahmi</i> . Fish for the People Magazine (will be published)	Magazines	

#### 5. Evaluation on Workshops/Training Courses by Participants of AMSs

Activities	Evaluation
<b>Output 1:</b>	
Activity 1.1	The implementation of the planned activities has been delayed due to the Covid-19 pandemic.
Activity 1.2	The implementation of the planned activities has been delayed due to the Covid-19 pandemic.
<b>Output 2:</b>	
Activity 2.1	The implementation of the planned activities has been delayed due to the Covid-19 pandemic.
Activity 2.2	The implementation of the planned activities has been delayed due to the Covid-19 pandemic.
<b>Output 3:</b>	
Activity 3.1	Activity goes according to plan

#### 6. Major Impacts and Issues

In the COVID-19 pandemic, the implementation of the planned activities was adjusted and rescheduled.

- The field surveys including gender issues were conducted during the COVID-19 pandemic.
- Some areas restarted collecting catch and CPUE data after the COVID-19 pandemic.
- The sample transfer process to IFRDMD depended on the COVID-19 situation.

**PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023****1. Project Summary in 2023**

The Covid-19 pandemic affected the anguillid eel fishery in the Southeast Asia region. However, the collections of catch data and CPUE of Anguillid eel fisheries in Indonesia (Cilacap, Palabuhan Ratu) and the Philippines (Cagayan, General Santos) should be continued in 2023. The project activities recommence with surveying and collecting the catch and biological data (Activity 1.1 and Activity 1.2) in 2023. The survey contributes to sustainable eel fisheries and standardizes the data collection system in the member countries.

Under Activities 2.1 and 2.2, a genetic survey is continued to identify the genetic population structure of tropical anguillid eels in Southeast Asia using a D-LOOP region marker. The samples and tissues of *Anguilla marmorata* will be collected and analyzed in the selected member countries (*i.e.* Indonesia, Philippines, Viet Nam, and Myanmar).

Under Activity 3, a meeting is conducted twice a year to confirm the progress and improvement of each activity. Experts evaluate the achievement of the study at the end of 2023.

**2. Outputs and Activities and Proposed Budget**

(Unit: USD)

<b>Proposed Activities</b>	<b>Descriptions</b>	<b>Proposed Budget</b>
<b>Outcome</b>	Strategic program of Sustainable Eel resources management in Southeast Asia	
<b>Output 1:</b>	Sustainable eel fisheries and standardized data collection system in Southeast Asia	40,000
Activity 1.1	<p>Conducting a survey to collect the catch data and CPUE of Anguillid eel fisheries.</p> <p>The surveys are conducted in Indonesia and the Philippines to update the status and collect data on the catch and effort of Anguillid eel fisheries.</p> <p><b>Estimated expenditures:</b>            - Enumerator fee (2 countries): USD 16,000  <b>Sub-total: USD 16,000</b></p>	16,000
Activity 1.2	<p>Conducting a survey to collect the biological data of Anguillid eel fisheries.</p> <p>The survey is conducted in the Philippines to collect the biological data (<i>i.e.</i> length-weight, reproduction biology, otolith) of Anguillid eel.</p> <p><b>Estimated expenditures:</b>            - Transportation to AMS: USD 4,000            - Accommodation fees: USD 3,000            - Local transport: USD 400            - DSA: USD 2,300            - Office expenditures and contingency: USD 300  <b>Sub-total: USD 10,000</b></p>	10,000
Activity 1.3	<p>Conducting a regional workshop at IFRDMD for disseminating the field guidebook to identify the Anguillid eel.</p> <p>A regional workshop is organized at IFRDMD to disseminate the field guidebook to identify the Anguillid eel.</p> <p><b>Estimated expenditures:</b>            Field guidebook to identify the Anguillid eel: USD 14,000  <b>Sub-total: USD 14,000</b></p>	14,000

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Output 2:</b>	Genetic population structure of tropical eel in Southeast Asia	14,500
Activity 2.1	<p>Conducting a survey to collect tissue samples of tropical eel.</p> <p>This budget is used for collecting eel tissue samples in Indonesia (Maluku) and purchasing samples from Viet Nam. The samples from regional countries (Philippines and Myanmar) are collected simultaneously with the survey activity of biological data of Anguillid eel fisheries.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Purchase samples from Viet Nam: USD 3,000</li> </ul> <p>Maluku, Indonesia:</p> <ul style="list-style-type: none"> <li>- Transportation to Maluku, local transport and rent car: USD 6,000</li> <li>- Accommodation fees: USD 1000</li> <li>- Eel samples: USD 500</li> <li>- DSA: USD 800</li> <li>- Office expenditures and contingency: USD 700</li> </ul> <p><b>Sub-total: USD 9,000</b></p>	9,000
Activity 2.2	<p>Conducting laboratory work to analyze genetic population structure of tropical eel.</p> <p>The first activity is laboratory work for the extraction, PCR, electrophoresis, and sequencing. The second activity is to analyze the data.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Sequence analysis: USD 5,500</li> </ul> <p><b>Sub-total: USD 5,500</b></p>	5,500
<b>Output 3</b>	Successful project management through regular monitoring and evaluation	4,500
Activity 3.1	<p>Project monitoring and evaluation led by Project Leader</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Travel cost of 2 evaluators (share): USD 2,200</li> <li>- Meeting costs (share): USD 300</li> <li>- Salary of Assistant (share): USD 2,000</li> </ul> <p><b>Sub-total: USD 4,500</b></p>	4,500

### 3. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>												
Activity 1.1												
Activity 1.2												
Activity 1.3												
<b>Output 2:</b>												
Activity 2.1												
Activity 2.2												
<b>Output 3:</b>												
Activity 3.1												

### 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Activity 1:</b> Sustainable eel fisheries and standardized data collection system in Southeast Asia	
<b>Activity 1.1:</b> Conducting a survey to collect the data of catch and CPUE of Anguillid eel fisheries	<ul style="list-style-type: none"> <li>- Database of catch and CPUE of Anguillid eel fisheries</li> <li>- Survey report</li> </ul>

Planned activity	Expected Activity Results
<b>Activity 1.2:</b> Conducting a survey to collect the biological data of Anguillid eel fisheries	Survey report
<b>Activity 1.3:</b> Conducting a regional workshop organized at IFRDMD for making the Field guidebook to identify the Anguillid eel  Regional workshop is organized at IFRDMD for making the Field guidebook to identify the Anguillid eel	Field guidebook to identify the Anguillid eel
<b>Activity 2: Genetic population structure of tropical eels in Southeast Asia</b>	
<b>Activity 2.1:</b> Conducting a survey to collect tissue samples of tropical eels in Southeast Asia	Report on eel tissue sample collected from the field
<b>Activity 2.2:</b> Conducting genetic analyses in the laboratory	Report of laboratory work
<b>Activity 3: Successful project management through regular monitoring and evaluation</b>	
<b>Activity 3.1:</b> Project monitoring and evaluation led by Project Leader	<ul style="list-style-type: none"> <li>- Progress meetings twice a year to confirm the improving of each activity</li> <li>- Meeting reports</li> <li>- Evaluation at the end of year by experts</li> <li>- One assistant hired to carry out the project operations and administration effectively</li> </ul>



**PROJECT DOCUMENT  
ACHIEVEMENT FOR YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 20200669
<b>Program Category</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title</b>	Development of Stock Assessment Methods and Strengthening of Resources Management Measures for Tropical Anguillid Eel in Southeast Asia		
<b>Program Strategy No.</b>	I	<b>Total Period</b>	2020 – 2022
<b>Lead Department</b>	Secretariat (SEC)	<b>Lead Country</b>	None
<b>Donor/Sponsor</b>	Japanese ASEAN Integration Fund (JAIF)	<b>Total Donor Budget</b>	USD 790,123
<b>Project Partner(s)</b>	None	<b>Budget for 2022</b>	USD 338,731.20
<b>Lead Technical Officer</b>	Takatsugu Kudoh, Assistant Project Manager for the JTF	<b>Project Participating Country</b>	All Members Countries

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

Tropical anguillid eel resources are utilized as direct human consumption worldwide. The demand and use of the tropical anguillid eel resources in Southeast Asia are increasing. For the sustainable resource use of the eel resources, effective resource management measures are urgently required in Southeast Asia. However, appropriate resource management measures have not been developed yet because of limited information and data relevant to the eel biology, catch history and statistics and aquaculture which result with a difficulty to conduct a comprehensive stock assessment of the eel resources stock in Southeast Asia.

The two-year first phase project entitled 'Enhancing sustainable utilization and management scheme of tropical anguillid eel resources in Southeast Asia (August 2017 – July 2019)' has been conducted since July 2017 by the Southeast Asian Fisheries Development Center (SEAFDEC) in close cooperation with ASEAN Member States (AMS) to develop eel fishery statistics and data collection system, examine the status of tropical anguillid eel species in AMS, and improve eel aquaculture activities. Under the project, surveys were conducted to collect basic eel fishery statistics and data in selected AMS (*i.e.* Cambodia, Indonesia, Myanmar, Philippines, Thailand and Viet Nam); policy recommendations and guidelines were developed to assist AMS in initiating and improving eel resource management practices in the respective countries; and researches were conducted to improve the survival rate of juvenile eels in aquaculture practices.

At the initial stage, eel fishery statistics and data collection systems were not fully operated to obtain all of the required data and information. In order to take effective resources management measures for the sustainable use of tropical anguillid eel species, it is necessary to assess the abundance of eel resources stocks and grasp the appropriate total allowable catch level.

This project is proposed to collect the catch data and biological/ecological information for the estimation of the abundance of eel resources stocks, and to develop mathematical/statistical methods for estimating tropical anguillid eel resources stocks, in order to formulate effective management measures on tropical anguillid eel resources in Southeast Asia.

### 2. Background and Justification

#### 2.1 Current Problem

Through the progress and results of the current (first phase) project implemented by SEAFDEC in close cooperation with AMS, it has become evident that the implemented activities in regard to the management of tropical anguillid eel resources in AMS are still at the initial stage. The trends of stock abundance, areas of distribution, and stock structure of the tropical anguillid eel species are unknown, and consequently a lack of the relevant information prevents AMS from determining the allowable catch limit of tropical anguillid eels. In order

to control and manage the eel resources for the sustainable use and long-term persistence, it is necessary for AMS to develop and improve tools/methods for the sound management of the anguillid eel resources.

Globally, the conservation and management of the eel species are currently main issues to be addressed adequately. For example, a lack of proper legal framework results in the failure in eel fisheries management. Legally-binding fisheries management measures specific to the tropical anguillid eels have been so far limited and implemented only in two AMS (*i.e.* Indonesia and Philippines) that restrict exporting the tropical eels at a certain size. It is urgently needed to formulate effective management measures based on eel stock and precious distribution, and diversity in Southeast Asia in continued cooperation and coordination within AMS.

## 2.2 Regionality

Southeast Asia is home to several tropical anguillid eel species (*e.g.*, Arai *et al.*, 1999). Eight species/sub-species of the tropical anguillid eels distribute in the Indo-Pacific region. Similar to European eels, American eels, and Japanese eels in their native ranges, the tropical anguillid eels are utilized in Southeast Asia for the direct human consumption locally as well as for the trade globally. The recent listing of European eels in the CITES Appendix II in 2007 as well as the recent export ban of those from the EU member states in 2010 may result in increased exploitation of the tropical anguillid eels. Therefore, it is important for AMS to develop effective management policies and actions for the sustainable use of the tropical anguillid eels in Southeast Asia.

## 2.3 Project History

The two-year first phase project entitled 'Enhancing Sustainable Utilization and Management Scheme of Tropical Anguillid Eel Resources in Southeast Asia (August 2017 – July 2019)' has been implemented since July 2017 by SEAFDEC in close cooperation with AMS to develop eel fishery statistics & data collection system, examine the status of tropical Anguillid eel species in AMS, and improve eel aquaculture activities. Under the project, surveys were conducted to collect basic eel fishery statistics and data in selected AMS, policy recommendations and guidelines were developed to assist AMS in initiating and improving eel resource management practices in respective countries, and researches were conducted to improve the survival rate of juvenile eels in aquaculture practices. For developing effective resource management measures for tropical anguillid eels, it is essential to develop appropriate methods for assessing a stock of tropical Anguillid eel resources and for estimating the total allowable catch for the sustainable use of the eel resources. This project will therefore allow AMS to obtain all of the required data and information, such as long-term catch data, precise distributions and diversity, and reliable trade data of each of the tropical anguillid eel species. With these data and information, AMS will be able to estimate, for instance, the allowable catch limit to secure the sustainable use of tropical anguillid eel resources.

## 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



## 4. Gender Sensitivity of the Project

The project is open and equalized for gender sensitivity. There is no limitation for men and/or women to participate in all activities.

## 5. Project Goal, Outputs, Activities, Indicators and Verification

### 5.1 Logical Framework

<b>GOAL</b>	<b>Indicators</b>	<b>Means of Verification</b>
<p>The objectives of this project are to collect the catch data and biological/ecological information for the estimation of eel resources stocks, and to develop mathematical/statistical methods for estimating tropical anguillid eel resources stocks in order to formulate effective management measures for the sustainable use of tropical anguillid eels in Southeast Asia.</p>		
<b>OUTPUT 1</b>	<b>Indicators</b>	<b>Means of Verification</b>
<p>In order to estimate resources stock status of the tropical anguillid eel species,</p> <p>1-1 Catch and fishing effort data for anguillid eel species in AMS are collected.</p> <p>1-2 Biological and ecological data/information of the tropical anguillid eels that contribute to the estimation of eel stock abundance in AMS are collected.</p> <p>1-3 Current distributions of the tropical anguillid eels and their diversities in AMS are identified.</p>	<p>1-1 Catch and fishing effort data by eel species and region are properly collected.</p> <p>1-2 Biological and ecological data and information are properly collected.</p> <p>1-3 Genetic data and information are properly collected.</p>	<p>1-1 Confirm that contents of the data include the data suitable for the purpose, such as catch amount by species/by growth stage/by region.</p> <p>1-2 Confirm that the contents of collecting data include characteristics of key habitats and length composition of all stages of eels from the selected fishing ground.</p> <p>1-3 Confirm that the contents of collecting data include several genetic indices for analysis at population level from the eels collected from several locations.</p>
<b>ACTIVITY 1</b>		
<p>1-1 To collect data on catches and catch efforts by species and by life history stage (glass eel, and elver/yellow eel) in AMS where eel fisheries occur in order to properly assess stock status. For this purpose, field surveys visiting several places in AMS are also conducted.</p> <p>1-2 To collect field data to better understand biology and ecology, including habitat and its surrounding environment, of the tropical anguillid eel species. Field surveys at several rivers in AMS are also conducted.</p> <p>1-3 To collect genetic data to understand distribution, the level of diversity, and stock structure of the tropical anguillid eel species.</p>		
<b>OUTPUT 2</b>	<b>Indicators</b>	<b>Means of Verification</b>
<p>2-1 Annual catch and CPUE are estimated.</p> <p>2-2 Methods for the comprehensive stock assessment of tropical anguillid eels are developed.</p> <p>2-3 Methods for calculation of allowable catch of tropical anguillid eels are developed.</p>	<p>2-1 Accurate annual catch and historical CPUE are estimated.</p> <p>2-2 Methods for estimating stock biomass are developed and stock biomass (and trend) is estimated using a developed method.</p> <p>2-3 Methods for estimating allowable catch limit and allowable catch are estimated using developed methods.</p>	<p>2-1 Review of monthly catch and calculated CPUE by month.</p> <p>2-2 Progress reports and review by experts.</p> <p>2-3 Progress reports and reviews by experts and managers.</p>

<b>ACTIVITY 2</b>		
2-1 Analyze catch per unit fishing effort (CPUE), including accurate data collection through regular surveys and selection of an appropriate catch effort.		
2-2 Develop methods for estimating abundance trends of the eel stocks. Making manual for methods of assessment stock on tropical anguillid eel.		
2-3 Develop appropriate methods for estimating allowable catch limit that will secure sustainable use of tropical anguillid eel resources		
<b>OUTPUT 3</b>	<b>Indicators</b>	<b>Means of Verification</b>
3. Effective management measures based on assessment of tropical anguillid eel stocks are proposed, formulated and centralized/harmonized to secure sustainable use and long-term persistence of tropical anguillid eel resources in AMS.	3. Metrology on effective management of the tropical anguillid eels are enhanced and management measures are proposed, formulated in AMS.	3.Review the project report and confirm that the report includes content on resource management methods, data collection system, technology of assessment resource stock.
3-1 Examine validities of developed methods of stock assessment for eel resources stocks.		
3-2 Disseminate developed methods of the stock assessment of tropical anguillid eel to AMS.		
3-3 Develop a manual for AMS to formulate the effective resources management based on the assessment of tropical anguillid eel stocks. For the above activities, “Regional Meeting “will be held three times at the inception, mid-term and final of the project period.		

## 5.2 Project Implementation Plan for 2020–2023

Activities	2020				2021				2022				2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Activity 1.1																
Activity 1.2																
Activity 1.3																
Activity 2.1																
Activity 2.2																
Activity 2.3																
Activity 3.1																
Activity 3.2																
Activity 3.3																

## 5.3 Proposed Budget for 2020–2023

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)
Output 1	Activity 1.1	30,749.00	30,000.00	57,000.00	64,497.80
	Activity 1.2	37,000.00	40,500.00	22,000.00	22,650.00
	Activity 1.3	20,000.00	16,000.00	15,000.00	15,550.00
Output 2	Activity 2.1			22,000.00	25,216.00
	Activity 2.2			5,000.00	6,118.00
	Activity 2.3			20,000.00	23,616.00
Output 3	Activity 3.1				22,200.00
	Activity 3.2				30,700.00
	Activity 3.3				59,954.00
Project budget Sub-Total		87,749.00	86,500.00	141,000.00	270,501.80
Other Budget (Management Cost)		25,000.00	25,000.00	40,000.00	42,543.20
Contingency fee		11,571.60	11,571.60	23,000.00	25,686.20
<b>Sub-total</b>		<b>124,320.60</b>	<b>123,071.60</b>	<b>204,000.00</b>	<b>338,731.20</b>

## PART II: PROJECT ACHIEVEMENTS IN 2022

### 1. Project Achievements in the Present Year

For Output 1, due to the movement restriction caused by Covid-19, part of surveys for data collection have been conducted in Philippines, Myanmar, and Indonesia.

For Output2, since the data collections are delayed due to the movement restriction caused by Covid-19, the trial analysis of eel catch data has been conducted from the data obtained by the JTF project.

### 2. Activities and Budget in the Present Year

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1:</b>								
Activity 1.1	Statistic survey	10	24	1	1	1	2	36,949.68
Activity 1.2	Sampling survey	2	33	5	5			39,641.65
Activity 1.3	DNA analysis	1		1	2			21,644.12
<b>Output 2:</b>								
Activity 2.1	CPUE analysis						1	0
Activity 2.2	Develop methods for estimating abundance trends						1	0
Activity 2.2	Analysis						1	0
<b>Output 3:</b>								
Activity 3.1	Examine validities of developed methods	These activities are not conducted in 2022						
Activity 3.2	Disseminate							
Activity 3.3	Develop a manual for AMS to formulate the effective resources management							

### 3. Expected Outcome/Outputs and Achievements

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Output 1:</b>		
Activity 1.1	Surveys for statistical data collection	Surveys for statistical data collection have been conducted in Philippine, Myanmar.
Activity 1.2	Surveys for sample data collection	Surveys for sample data collection have been conducted in Indonesia.
Activity 1.3	Surveys for DNA data collection	Surveys for DNA data collection have been conducted in Indonesia.
<b>Output 2:</b>		
Activity 2.1	CPUE analysis	CPUE trial analysis has been conducted with the data obtained by the JTF project in the past.
Activity 2.2	Develop methods for estimating abundance trends	
Activity 2.3	Analysis	
<b>Output 3:</b>		
Activity 3.1	Examine validities of developed methods	These activities were not conducted in 2022. It is planned to be carried out in 2023.
Activity 3.2	Disseminate	
Activity 3.3	Develop a manual for AMS to formulate the effective resources management	

### 4. List of Publications in 2022

None

**5. Evaluation on Workshops/Training Courses etc by Participants of AMSs**

None

**6. Major Impacts and Issues**

Due to the movement restriction caused by COVID-19, the surveys for data collection have been delayed.

**PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023****1. Project Summary in 2023**

In 2022, the following activities will be carried out in the project

**1) Collect and analyze catch data /aquaculture production**

In order to grasp the catch and aquaculture production of tropical anguillid eels, a system to collect statistical data will be constructed in countries where have eel fisheries / aquaculture. Data from the eel statistical survey will be collected and analyzed in the four target countries.

**2) Collect and analyze biological data / catch and fishing effort data**

In order to assess eel stocks, catch / fishing effort data and biological data on caught directly by fishers will be collected and analyzed at two sites in Indonesia.

**3) Collect and analyze genetic data**

Genetic data on tropical anguillid eel will be collected from eel habitats in Indonesia, Myanmar, the Philippines, and Viet Nam and analyzed to clarify the genetic structure of the populations.

**4) Develop methods for assessment eel stock**

Methods will be developed to assess eel stock by analyzing catch and fishing effort data.

**5) Regional Meeting**

The regional meeting will be held to share catch / ecological data and information on tropical anguillid eel and methods for eel stock assessment among the AMSs.

**2. Outputs and Activities and Proposed Budget**

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Output 1</b>		
Activity 1.1	To collect data on catches and catch efforts by species and by life history stage (glass eel, and elver/yellow eel) in AMS where eel fisheries occur in order to properly assess stock status. Fishery / aquaculture statistical surveys will be conducted in AMS.	64,497.80
Activity 1.2	To collect field data to better understand biology and ecology, including habitat and its surrounding environment, of the tropical anguillid eel species.	22,650.00
Activity 1.3	To collect genetic data to understand distribution, the level of diversity, and stock structure of the tropical anguillid eel species. Expenses for collecting DNA samples and analyzing population genetic structure.	15,550.00
<b>Output 2</b>		
Activity 2.1	Analyze catch per unit fishing effort (CPUE), including accurate data collection through regular surveys and selection of an appropriate catch effort.	25,216.00
Activity 2.2	Develop methods for estimating abundance trends of the eel stocks. Making manual for methods of assessment stock on tropical anguillid eel.	6,118.00
Activity 2.3	Develop appropriate methods for estimating total allowable catch limit that will secure sustainable use of tropical anguillid eel resources.	23,616.00

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Output 3</b>		
Activity 3.1	Examine validities of developed methods of stock assessment for eel resources stocks.	22,200.00
Activity 3.2	Disseminate developed methods of the stock assessment of tropical anguillid eel to AMS.	30,700.00
Activity 3.3	Develop a manual for AMS to formulate the effective resources management based on the assessment of tropical anguillid eel stocks.	59,954.00

### 3. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>												
Activity 1.1												
Activity 1.2												
Activity 1.3												
<b>Output 2:</b>												
Activity 2.1												
Activity 2.2												
Activity 2.3												
<b>Output 3:</b>												
Activity 3.1												
Activity 3.2												
Activity 3.3												

### 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Output 1</b>	
<b>Activity 1.1.</b> To collect data on catches and catch efforts by species and by life history stage (glass eel, and elver/yellow eel) in AMS where eel fisheries occur in order to properly assess stock status.	Description of major fishing grounds of tropical anguillid eels.  Catch and fishing effort data to estimate the abundance of tropical anguillid eel resources stocks through catch information by fishers from regional fishing grounds.  Catch and fishing effort data to estimate the abundance of tropical anguillid eel resources stocks by conducting quantitative surveys using specific fishing gears at selected fishing grounds.
<b>Activity 1.2</b> To collect field data to better understand biology and ecology, including habitat and its surrounding environment, of the tropical anguillid eel species	Biological/ecological data by conducting quantitative surveys using specific fishing gears at selected fishing grounds.  Length composition analysis of the eels to examine biological and life history characteristics of the tropical anguillid eels in several sites in the participating AMSs.
<b>Activity 1.3</b> To collect genetic data to understand distribution, the level of diversity, and stock structure of the tropical anguillid eel species	Genetic analysis to: <ul style="list-style-type: none"> <li>- identify local and regional biodiversity of the tropical anguillid eels; and</li> <li>- to address current spatial structure of the tropical anguillid eels for the genetic stock identification</li> </ul>

Planned activity	Expected Activity Results
<b>Output 2</b>	
<b>Activity 2.1</b> Analyze catch per unit fishing effort (CPUE), including accurate data collection through regular surveys and selection of an appropriate catch effort	The catch / CPUE data analysis for trends of eel resources, and its stock assessment.
<b>Activity 2.2</b> Develop methods for estimating abundance trends of the eel stocks. Making manual for methods of assessment stock on tropical anguillid eel.	Development of methods for assessment eel resources stock, and the creation of a technical manual will be started.
<b>Activity 2.3</b> Develop appropriate methods for estimating allowable catch limits that will secure sustainable use of tropical anguillid eel resources.	Examination of the method to estimate the allowable catch by assessment of eel resources stock will be started.
<b>Output 3</b>	
<b>Activity 3.1</b> Examine validities of developed methods of stock assessment for eel resources stocks.	Attempts will be made to validate the developed resource assessment methods technique.
<b>Activity 3.2</b> Disseminate developed methods of the stock assessment of tropical anguillid eel to AMS	Information on stock assessment techniques and catch information of tropical anguillid eel to be disseminated to AMS through regional meetings.
<b>Activity 3.3</b> Develop a manual for AMS to formulate the effective resources management based on the assessment of tropical anguillid eel stocks	



**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 202106009
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia		
<b>Program Strategy No:</b>	I	<b>Total Period</b>	2022–2023
<b>Lead Department:</b>	SEAFDEC (TD)	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	Japanese ASEAN Integration Fund (JAIF)	<b>Total Project Budget:</b>	USD 532,999.5
<b>Project Partner(s):</b>	SEAFDEC (SEC) SEAFDEC (MFRDMD) SEAFDEC (IFRDMD)	<b>Budget for 2023:</b>	USD 287,700
<b>Lead Technical Officer:</b>	Isara Chanrachkij (SEAFDEC/TD)	<b>Project Participating Country:</b>	All Members Countries

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

Marine debris is one of the important global challenges that require cooperative responses. The severity of the marine debris issue is particularly acute in the Southeast Asian region and requires a need for efforts to obtain an understanding on the impacts of marine debris and develop necessary management and preventive approaches to mitigate its impediments to sustainable economic growth in the ASEAN through innovation, research and development of technologies toward conservation and sustainable management of biodiversity and natural resources.

Marine debris is a transboundary issue that requires integrated regional cooperation, and strong collaboration among sectors is crucial particularly in the ASEAN region. Without immediate actions, marine debris pollution may negatively impact marine biodiversity, the productivity of fishery resources, health, society and economies of the region. In the fisheries sector, Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) has recently drawn attention as one of the significant sources of marine debris; and the reduction of the impacts from ALDFG is a key and distinct part of the global marine debris issue. On the other hand, the fisheries sector is also known to play an important role in addressing the issue of marine debris, *e.g.* in monitoring the situations not only of the fishery resources but also on the marine debris through fishing activities by fishers, fishery resources research activities, and fishery management activities. Therefore, the contribution from the fisheries sector by encouraging positive actions and reducing negative impacts in close cooperation among fisheries sector and other sectors, both public and private, of ASEAN Member States is envisaged as necessary in combating marine debris in Southeast Asia.

The ASEAN Member States during the 34<sup>th</sup> ASEAN Summit held in Thailand 22 June 2019 adopted the “Bangkok Declaration on Combating Marine Debris in the ASEAN Region,” and encouraged the implementation of the “ASEAN Framework of Action on Marine Debris.” In line with these two regional policy frameworks, this project is aimed at enhancing the regional collaborative research and capacity building of the fisheries sector in Southeast Asia by applying scientific knowledge in regional policies for monitoring and reducing marine debris. It also reinforces the contribution of the fisheries sector in combating marine debris in Southeast Asia by reducing its negative impacts and encouraging positive actions in cooperation with fishers, private sectors and other relevant sectors of the ASEAN Member States.

## 2. Background and Justification

### 2.1 Current Problem

The ASEAN Member States adopted the “Bangkok Declaration on Combating Marine Debris in the ASEAN Region” during the ASEAN Summit held in Thailand in June 2019, and encouraged the implementation of the “ASEAN Framework of Action on Marine Debris,” comprising 4 priority areas, namely: I) Policy Support and Planning; II) Research, Innovation and Capacity Building; III) Public Awareness, Education and Outreach; and IV) Private Sector Engagement. It is also well noted that marine debris is a transboundary issue that requires integrated regional cooperation, and strong collaboration among sectors is crucial particularly in the ASEAN region. In addition, at the 21<sup>st</sup> ASEAN Plus Three Summit Meeting on 15 November 2019, the “ASEAN Plus Three Marine Plastic Debris Cooperation Action Initiative” proposed by Japan was endorsed by the ASEAN Member States along with the Declaration and Framework of Action.

From the fisheries viewpoint, the important and urgent issues on marine debris that are a common concern at the regional level include:

- i) The extent of marine debris caused by ALDFG in Southeast Asia is unclear, and it is necessary to investigate the situation of ALDFG and develop effective countermeasures to reduce marine debris from fisheries in the region;
- ii) Some marine debris that could be collected as bycatch from fishing activities are discarded back into the sea and becoming sources of microplastic in the future;
- iii) Only a limited number of officers and researchers know effective and reliable research methods on marine debris and microplastics, and training on the subject is necessary;
- iv) The risk from contamination and characteristics of microplastics in freshwater and marine fish for securing food safety is not still clear; and
- v) Need to enhance mutually beneficial collaboration among sectors and regional organizations relevant to fisheries, natural resources, environment and marine affairs to share updated knowledge on marine debris at the regional level.

### 2.2 Regionality

The past years saw several miserable events related to marine pollution in Southeast Asia. First, in June 2018, a pilot whale died in Thailand and some 80 pieces of plastic rubbish weighing 8 kilograms were found in its stomach. Subsequently, in November, a dead sperm whale found in the waters around Wakatobi, Indonesia was reported to have ingested almost 6 kg of plastic waste. Again, in March 2019, a dead whale was found in the Philippine waters with the same condition. Those are only some of the devastating examples of the impact of marine litter on marine resources.

While four of its Member States are among the biggest polluters of the oceans: Indonesia, the Philippines, Viet Nam, and Thailand; ASEAN has been working to solve the issue. The recent 34<sup>th</sup> ASEAN Summit, held in Thailand in June 2019 issued two important documents related to the protection of the marine environment and combating marine debris. These are the “Bangkok Declaration on Combating Marine Debris in the ASEAN Region” and the “ASEAN Framework of Action on Marine Debris.” These two regional policy frameworks reaffirm ASEAN’s commitment of strategic measures to respond and deal with the risk of pollution and threats to the coastal and marine ecosystem. It is therefore an important moment for ASEAN as a whole to undertake efforts that contribute to the implementation of these regional frameworks on marine debris.

### 2.3 Project History

This is a new project conceptualized from the fisheries sector based on the “Bangkok Declaration on Combating Marine Debris in the ASEAN Region,” which includes: 1) strengthening actions at the national level as well as through collaborative actions among the ASEAN Member States and partners to prevent and significantly reduce marine debris; 2) enhancing the multi-stakeholder coordination and cooperation to combat marine debris,

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



#### 4. Gender Sensitivity of the Project

Project involves men and women with neutral and equalized opportunities.

#### 5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification

##### 5.1 Logical Framework

GOAL (Overall Objectives, Impact)	Indicators	Means of Verification
Sustainable management of biodiversity and natural resources	Regional initiatives to collaborative research and capacity building in the fisheries sector to reduce marine debris	Report about marine debris, ALDFG and microplastic study in Southeast Asia
OUTCOME	Indicators	Means of Verification
Regional collaborative research and capacity building in the fisheries sector, including application of scientific knowledge in regional policies and monitoring based on four priority areas of the “ASEAN Framework of Action on Marine Debris” for combating marine debris in Southeast Asia	<ol style="list-style-type: none"> <li>1. Policy support and planning.</li> <li>2. Research, Innovation and Capacity Building.</li> <li>3. Public Awareness, Education and Outreach.</li> <li>4. Private sector engagement.</li> </ol>	<ol style="list-style-type: none"> <li>1. Annual progress report and Project completion report</li> <li>2. Publications of the ALDFG, marine debris situations by the survey</li> <li>3. Publications on the contamination of microplastic in aquatic animals.</li> <li>4. Technical Guidelines on the measures to prevent and remove ALDFG and promotional material of fishing gear marking</li> <li>5. Project website of Marine debris in SEAFDEC home page</li> </ol>
OUTPUT 1	Indicators	Means of Verification
A technical guideline outlining the status of ALDFG in ASEAN and measures to prevent and remove ALDFG	<ol style="list-style-type: none"> <li>1. Results of data collection on the ALDFG are reported.</li> <li>2. Information for situations and countermeasures on ALDFG in AMSs is shared through the workshop.</li> <li>3. Technical Guidelines on the status of ALDFG and measures to prevent and remove ALDFG is developed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Annual progress report and Project completion report</li> <li>2. Reports of the results of surveys on the ALDFG situations</li> <li>3. Technical Guidelines on the status of ALDFG and measures to prevent and remove ALDFG</li> </ol>

<b>ACTIVITY 1</b>	<b>Indicators; key Inputs</b>	<b>Means of Verification</b>
<p>Activity 1.1 Information gathering on ALDFG Situations to support policy planning and development</p> <ol style="list-style-type: none"> <li>Information gathering to estimate the amount of ALDFG at pilot sites. (12 pilot sites along the coastal waters in the Gulf of Thailand and the Andaman Sea) (SEAFDEC/TD)</li> <li>Monitoring on the ALDFG at accumulated pilot sites and development of removal guidance of the ALDFG (18 pilot sites at coastal waters along the East Coast of Peninsular Malaysia) (SEAFDEC/MFRDMD)</li> </ol>	<ol style="list-style-type: none"> <li>Questionnaire as a tool to investigate fishing gear loss.</li> <li>Report on Information collected from the survey includes the number of loss fishing gear and income loss fishing gear in the pilot site.</li> <li>Recommendation on the solution of fishing gear loss.</li> </ol>	<ol style="list-style-type: none"> <li>Annual progress report and Project completion report</li> <li>Reports of the results of surveys on the ALDFG situations</li> </ol>
<p>Activity 1.2: Information exchange on ALDFG situation and countermeasures in AMSs</p> <ol style="list-style-type: none"> <li>Workshop for information exchange and the development of technical guidance on ALDFG countermeasures (in Kuala Lumpur, Malaysia; 2 days) (SEAFDEC/MFRDMD)</li> </ol>	<ol style="list-style-type: none"> <li>Technical guidance manual on the Marking of Fishing Gear.</li> <li>List of experts as network of fishing gear technologist in Southeast Asia</li> <li>Recommendation on the Marking of Fishing Gear suitable in Southeast Asia Countries</li> </ol>	<ol style="list-style-type: none"> <li>Workshop report which includes list of experts as network of fishing gear technologist in Southeast Asia</li> <li>Technical Guidelines on the status of ALDFG and measures to prevent and remove ALDFG</li> </ol>
<b>OUTPUT 2</b>	<b>Indicators</b>	<b>Means of Verification</b>
<p>2-1. Risk assessments outlining the status of microplastic in aquatic environments.</p> <p>2-2. Enhancement of AMS's capacity on methods to collect and analyze marine debris and microplastics</p>	<ol style="list-style-type: none"> <li>Results on data of microplastic (<i>i.e.</i> type and quantity) and resources abundant by surveys are reported.</li> <li>Results of data on marine debris (<i>i.e.</i> types and volume) collected by fishing activities are reported.</li> <li>Results of contamination of microplastic (in unit) in fish and other marine animals are reported.</li> <li>Training courses with participants from AMSs are conducted.</li> </ol>	<ol style="list-style-type: none"> <li>Publications, <i>i.e.</i> activity reports, cruise report, research papers, articles, training reports and Information Extension and Communication (IEC) material</li> <li>List of experts as network of microplastics and marine debris in Southeast Asia</li> </ol>
<b>ACTIVITY 2</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<p><b>Activity 2.1:</b> Environment research survey to evaluate microplastics and other marine environment situations related to fisheries resources at sea (SEAFDEC/TD)</p>	<ol style="list-style-type: none"> <li>Results on data of microplastic (<i>i.e.</i>, type and quantity) and resources abundant</li> <li>List of experts as network of microplastics and marine debris in Southeast Asia</li> </ol>	<ol style="list-style-type: none"> <li>Cruise report of the environment research survey</li> <li>List of experts as network of microplastics and marine debris in Southeast Asia</li> </ol>
<p><b>Activity 2.2:</b> Research and evaluation on amount of marine debris collected by fishing activities (SEAFDEC/MFRDMD)</p>	<ol style="list-style-type: none"> <li>Data of microplastic (<i>i.e.</i>, type and quantity) and resources abundant by surveys are reported.</li> <li>Research report on the amount of marine debris collected by fishing activities</li> </ol>	<ol style="list-style-type: none"> <li>Research reports/papers /articles on the amount of marine debris collected by fishing activities</li> </ol>

<p><b>Activity 2.3:</b> Research study on the impact from contaminant of microplastics in freshwater fish and marine fish. (SEAFDEC/IFRDMD and TD)</p>	<ol style="list-style-type: none"> <li>1. Data as results of contamination of microplastic (in unit) in fish and other marine animals.</li> <li>2. Data as results of contamination of microplastic (in unit) in fish and other freshwater animals.</li> </ol>	<ol style="list-style-type: none"> <li>1. Report on the contamination of microplastic (in unit) in marine fish and other marine animals.</li> <li>2. Report on the contamination of microplastic (in unit) in inland fish and other inland animals.</li> </ol>
<p><b>Activity 2.4:</b> Training on the liable research methods to collect and analyse the marine debris and microplastics. (SEAFDEC/TD)</p>	<ol style="list-style-type: none"> <li>1. Training course on the methods to collect and analyse the marine debris and microplastics.</li> <li>2. Number of participants from 10 AMSs.</li> <li>3. List of Information Extension and Communication (IEC) used as training material or reference in the training course.</li> </ol>	<ol style="list-style-type: none"> <li>1. Training reports with number and list of participants</li> <li>2. IEC material used as training material or reference in the training course.</li> </ol>
<p><b>OUTPUT 3</b></p>	<p><b>Indicators</b></p>	<p><b>Means of Verification</b></p>
<p>3-1 Marine debris management are strengthened and promoted in AMSs 3-2 Updated scientific-based knowledge and technical guidance are shared and enhanced among relevant sectors.</p>	<ol style="list-style-type: none"> <li>1. Regional Symposium on Marine Debris and Microplastics in Fisheries in Southeast Asia is organized.</li> <li>2. Project website and materials on marine debris are developed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Annual progress report and Project completion report</li> <li>2. Project website of Marine debris in SEAFDEC home page</li> </ol>
<p><b>Activity 3-1:</b> Regional Symposium on Marine Debris and Microplastics in Fisheries in Southeast Asia” (SEAFDEC/TD)</p>	<ol style="list-style-type: none"> <li>1. Regional Symposium on Marine Debris and Microplastics in Fisheries in Southeast Asia is organized.</li> <li>2. Number of Participants from 10 AMS</li> </ol>	<ol style="list-style-type: none"> <li>1. Report of the Regional Symposium on Marine Debris and Microplastics in Fisheries in Southeast Asia”</li> <li>2. IEC material used in the Regional Symposium on Marine Debris and Microplastics in Fisheries in Southeast Asia.</li> </ol>
<p><b>Activity 3-2:</b> Information distribution and development of website on Marine Debris. (SEAFDEC/TD)</p>	<ol style="list-style-type: none"> <li>1. Project website and communication materials on marine debris are developed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Project website of Marine debris in SEAFDEC home page.</li> <li>2. IEC material from project activities disseminates through the website.</li> </ol>
<p><b>OUTPUT 4</b></p>	<p><b>Indicators</b></p>	<p><b>Means of Verification</b></p>
<p>4-1 Marking of fishing gears is promoted.</p>	<p>4-1 Technical manual for marking of fishing gears is developed.</p>	<p>Annual progress report and Project completion report Technical manual for marking of fishing gears</p>
<p><b>Activity 4-1:</b> Development of methods on marking of fishing gears and promotion on marking of fishing gears 1. Pilot activities/study/research on marking of fishing gears 2. Technical meeting to develop the Technical manual for marking of fishing gears</p>	<ol style="list-style-type: none"> <li>1. Technical manual for marking of fishing gears is developed.</li> <li>2. Information of the constraints to marking of fishing gear in AMSs</li> <li>3. Technical method(s) on marking of fishing gears as result from pilot activities on marking of fishing gears</li> </ol>	<ol style="list-style-type: none"> <li>1. Technical report on the method(s) on marking of fishing gears</li> <li>2. Technical manual for marking of fishing gears</li> <li>3. Report on the technical meeting</li> </ol>

## 5.2 Project Implementation Plan for 2022–2023

Activities	2022				2023			
	1	2	3	4	1	2	3	4
<b>Output 1:</b>								
Activity 1.1								
Activity 1.2								
<b>Output 2:</b>								
Activity 2.1								
Activity 2.2								
Activity 2.3								
Activity 2.4								
<b>Output 3:</b>								
Activity 3.1								
Activity 3.2								
<b>Output 4:</b>								
Activity 4.1								

**Remark:** The project has been approved on 13 April 2022. SEAFDEC needed to adjust the implementation plan and expenditure without additional cost. The coordination with JAIF project management during April–December 2022.

## 5.3 Proposed Budget for 2022–2023

(Unit: USD)

Output	Activities	Year 1 (2022)	Year 2 (2023)
Output 1	Activity 1.1	60,000	-
	Activity 1.2		50,000
Output 2	Activity 2.1	90,000	-
	Activity 2.2	13,200	16,800
	Activity 2.3	42,000	18,000
	Activity 2.4	25,000	25,000
Output 3	Activity 3.1	-	50,000
	Activity 3.2	12,500	12,045
Output 4	Activity 4.1	20,000	20,000
<b>Sub-Total</b>		287,700	

## PART II: PROJECT ACHIEVEMENTS IN 2022

### 1. Project Achievements in the Present Year

The project was approved on 13 April 2022. SEAFDEC needed to adjust the implementation plan and expenditure without additional cost. The coordination with JAIF project management was conducted during April–December 2022. With that, none of the technical activities were implemented in 2022.

### 2. Major Impacts and Issues

Due to the COVID 19 pandemic throughout Thailand, Malaysia and Indonesia. The Government of all countries has announced the COVID19 prevention measures and restricted travel in these countries since 2019. Measures have been relieved, and travel across countries has been allowed since 2022. The ASEAN Secretariat and JAIF informed the agreement on the project commencement since 13 April 2022. Due to the original budget plan designed in 2019, the expenditures are different in particular fuel and travel cost. With that the project budget plan needs to be revised. SEAFDEC in collaboration ASEAN Secretariat and JAIF revised the budget plan during May to December 2022. With that there are not any activities implemented in 2022.

## PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

### 1. Project Summary in 2023

In 2023, the following activities will be carried out in the project

1. Information gathering to estimate the amount of ALDFG and monitoring on the ALDFG at accumulated pilot sites and development of removal guidance of the ALDFG
2. Workshop for information exchange and the development of technical guidance on ALDFG countermeasures
3. Marine environment and fishery resources survey by using a research vessel, and evaluate the impacts of microplastics on the fisheries resources (in the Gulf of Thailand)
4. Research and evaluation on amount of marine debris collected by different types of fishing gears during the fishing activities at sea
5. Marine environment and fishery resources survey by using a research vessel, and evaluate the impacts of microplastics on the fisheries resources
6. Research and evaluation on amount of marine debris collected by different types of fishing gears during the fishing activities at sea
7. Investigation and risk assessment of microplastics in freshwater fish and marine fish, and dissemination of the results on contaminant of microplastics
8. On-the-job training on reliable research methods on marine debris and microplastics to officers and researchers in AMSs
9. Development of Project website and communication materials
10. Producing the technical manual for marking of fishing gears

### 2. Outcome, Outputs and Activities and Proposed Budget

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Outcome</b>	To enhance regional collaborative research and capacity building in the fisheries sector, including application of scientific knowledge in regional policies and monitoring based on four priority areas of the “ASEAN Framework of Action on Marine Debris” ( <i>i.e.</i> I) Policy Support and Planning; II) Research, Innovation and Capacity Building; III Public Awareness, Education and Outreach; and IV) Private Sector Engagement) for combating marine debris in Southeast Asia.	
<b>Output 1:</b>	A technical guideline outlining the status and ALDFG in ASEAN and measures to prevent and remove ALDFG	140,000
Activity 1.1	<p>Information gathering on ALDFG Situations to support policy planning and development</p> <p>1. Monitoring on the ALDFG at accumulated pilot sites and development of removal guidance of the ALDFG (18 pilot sites at coastal waters along the East Coast of Peninsular Malaysia)</p> <p>Estimated expenditures:</p> <ul style="list-style-type: none"> <li>- Per Diem = USD 14,400</li> <li>- Hire/Rental = USD 5,430</li> <li>- Data collection and analysis = USD 9,170</li> <li>- Consumable/others = USD 500</li> <li>- Document/Dissemination material = USD 500</li> </ul> <p>Sub Total = USD 30,000</p> <p>2. Information gathering to estimate the amount of ALDFG at pilot sites (12 pilot sites along the coastal waters in the Gulf of Thailand and the Andaman Sea)</p> <p>Estimated expenditures:</p> <ul style="list-style-type: none"> <li>- Per Diem = USD 23,130</li> <li>- Hire/Rental = USD 3,800</li> <li>- Data collection and analysis = USD 1,940</li> <li>- Consumable/others = USD 130</li> <li>- Document/Dissemination material = USD 1,000</li> </ul> <p>Sub Total = USD 30,000</p>	

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
	3. Monitoring on the ALDFG at accumulated pilot sites and development of removal guidance of the ALDFG Estimated expenditures: - Per Diem = USD 14,970 - Hire/Rental = USD 31,730 - Data collection and analysis = USD 1,180 - Consumable/others = USD 1,120 - Document/Dissemination material = USD 1,000 Sub Total = USD 50,000 Total = USD 110,000	
Activity 1.2	Information exchange on ALDFG situation and countermeasures in AMSs 1. Workshop for information exchange and the development of technical guidance on ALDFG countermeasures (at Kuala Lumpur, Malaysia; 2 days) Estimated expenditures: - Traveling cost (Air fare) = USD 11,870 - Per Diem = USD 13,840 - Hire/Rental = USD 3,880 - Data collection and analysis = USD 1,180 - Consumable/others = USD 500 Total = USD 30,000	
<b>Output 2:</b>	2-1. Risk assessments outlining the status of microplastic in aquatic environments. 2-2. Enhancement of AMS's capacity on methods to collect and analyze marine debris and microplastics.	230,000
Activity 2.1	Environment research survey to evaluate microplastics and other marine environment situations related to fisheries resources at sea 1. Marine environment and fishery resources survey by using a research vessel, and evaluate the impacts of microplastics on the fisheries resources (in the Gulf of Thailand) Estimated expenditures: - Traveling cost (Air fare) = USD 1,300 - Daily subsistence allowance /Accommodation = USD 16,830 - Consumable/others = USD 315 - Operational cost of research /training vessel = USD 71,555 Total = USD 90,000	
Activity 2.2	Research and evaluation on amount of marine debris collected by fishing activities <sup>3</sup> 1. Research and evaluation on amount of marine debris collected by different types of fishing gears during the fishing activities at sea (Pilot sites: Terengganu waters and Kelantan waters) Estimated expenditures: - Per Diem = USD 9,280 - Hire/Rental = USD 19,820 - Consumable/others = USD 400 - Document/Dissemination material = USD 500 Total = USD 30,000	
Activity 2.3	Research study on the impact from contaminant of microplastics in freshwater fish and marine fish 1. Investigation and risk assessment of microplastics in freshwater fish and marine fish, and dissemination of the results on contaminant of microplastics (Pilot sites: Musi River, South Sumatra, Indonesia) Estimated expenditures: - Traveling cost (Aire fare) = USD 6,000 - Daily subsistence allowance /Accommodation = USD 17,514 - Hire/Rental = USD 8,010	



(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
	<ul style="list-style-type: none"> <li>- Data collection and analysis = USD 12,040</li> <li>- Consumable/others = USD 536</li> <li>- Document/Dissemination maters= USD 900</li> <li>Sub Total = USD 45,000</li> <li>2. Investigation and risk assessment of microplastics in freshwater fish and marine fish, and dissemination of the results on contaminant of microplastics (Pilot sites: Gulf of Thailand)</li> <li>Estimated expenditures:</li> <li>- Data collection and analysis = USD 14,540</li> <li>- Consumable/others = USD 460</li> <li>Sub Total = USD 15,000</li> <li>Total = USD 60,000</li> </ul>	
Activity 2.4	Training on the liable research methods to collect and analyze the marine debris and microplastic <ul style="list-style-type: none"> <li>- Traveling cost (Aire fare) = USD 18,420</li> <li>- Daily subsistence allowance /Accommodation = USD 14,754</li> <li>- Hire/Rental = USD 10,026</li> <li>- Data collection and analysis = USD 600</li> <li>- Consumable/others = USD 1,200</li> <li>- Operational cost of research/training vessels = USD 5,000</li> <li>Total = USD 50,000</li> </ul>	
<b>Output 3:</b>	The Public Awareness, Education and Outreach 3-1 Marine debris management are strengthened and promoted in AMSs 3-2 Updated scientific-based knowledge and technical guidance are shared and enhanced among relevant sectors.	74,545
Activity 3.1	Information exchange on ALDFG situation and countermeasures in AMSs <ol style="list-style-type: none"> <li>1. Regional Symposium on Marine debris and Microplastics in Fisheries in Southeast Asia</li> </ol> Estimated expenditures: <ul style="list-style-type: none"> <li>- Traveling cost (Air fare) = USD 21,150</li> <li>- Per Diem = USD 22,350</li> <li>- Hire/Rental = USD 6,000</li> <li>- Document/Dissemination maters = USD 500</li> <li>Total = USD 50,000</li> </ul>	
Activity 3.2	Information distribution and development of website on Marine Debris <ol style="list-style-type: none"> <li>1. Development of Project website and communication materials.</li> </ol> Estimated expenditures: <ul style="list-style-type: none"> <li>- Data collection and analysis = USD 2,745</li> <li>- Document/Dissemination maters = USD 5,000</li> <li>- Personnel= USD 16,800</li> <li>Total = USD 24,545</li> </ul>	
<b>Output 4:</b>	Marking of fishing gears is promoted.	40,000
Activity 4.1	Development of methods on marking of fishing gears and promotion on marking of fishing gears <ol style="list-style-type: none"> <li>1. Development of technical manual for marking of fishing gears</li> </ol> <ul style="list-style-type: none"> <li>- Information gathering of constrain to marking of fishing gear in AMSs</li> <li>- Research of technical methods on marking of fishing gears</li> <li>- Investigation of pilot activities on marking of fishing gears</li> <li>- Estimated expenditures:</li> <li>- Traveling cost (Aire fare) = USD 12,000</li> <li>- Daily subsistence allowance /Accommodation= USD 17,480</li> <li>- Hire/Rental = USD 4,650</li> <li>- Data collection and analysis = USD 4,500</li> <li>- Consumable = USD 670</li> <li>- Document/Dissemination maters= USD 700</li> <li>Total = USD 40,000</li> </ul>	

### 3. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>												
Activity 1.1												
Activity 1.2												
<b>Output 2:</b>												
Activity 2.1												
Activity 2.2												
Activity 2.3												
Activity 2.4												
<b>Output 3:</b>												
Activity 3.1												
Activity 3.2												
<b>Output 4:</b>												
Activity 4.1												

### 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Activity 1</b>	
<b>Activity 1.1.</b> 1. Information gathering to estimate the amount of ALDFG and monitoring on the ALDFG at accumulated pilot sites and development of removal guidance of the ALDFG	<ol style="list-style-type: none"> <li>Information/data will be collected to estimate the amount of ALDFG quantities at 12 Pilot sites in Gulf Bay.</li> <li>ALDFG monitoring will be conducted and quantities assessed at 18 pilot sites in coastal waters of Peninsular Malaysia</li> </ol>
<b>Activity 1.2.</b> Workshop for information exchange and the development of technical guidance on ALDFG countermeasures (at Kuala Lumpur, Malaysia; 2 days)	A two-day workshop will be held in Kuala Lumpur, Malaysia, to exchange information and provide technical guidance on ALDFG measures.
<b>Activity 2</b>	
<b>Activity 2.1.</b> Marine environment and fishery resources survey by using a research vessel, and evaluate the impacts of microplastics on the fisheries resources (in the Gulf of Thailand)	The survey will be conducted in the Gulf of Thailand to assess the impact of microplastics on fisheries resources by research vessels and data related to the impact of microplastics will be collected and analyzed.
<b>Activity 2.2.</b> Research and evaluation on amount of marine debris collected by different types of fishing gears during the fishing activities at sea	The survey will be conducted on the amount of marine debris caused by fishing activities at sea, and data on the amount of marine debris by different types of fishing gear will be collected and analyzed.
<b>Activity 2.3.</b> Investigation and risk assessment of microplastics in freshwater fish and marine fish, and dissemination of the results on contaminant of microplastics (Pilot sites: (marine fish) in Gulf of Thailand, (freshwater fish) at the Musi River, South Sumatra, Indonesia)	A survey on the effects of microplastics in freshwater and marine fish will be conducted at the targeted research site in Thailand, Indonesia to assess the hazard and collect data on contaminants.
<b>Activity 2.4.</b> On-the-job training on reliable research methods on marine debris and microplastics to officers and researchers in AMSs	On the job training on marine debris and microplastics research methods will be provided and participants will be trained in the techniques.

Planned activity	Expected Activity Results
<p><b>Activity 3</b></p>	
<p><b>Activity 3.2.</b>            Development of Project website and communication materials. TD staff develop and manage a website on Marine Debris in the SEAFDEC website, and the website on Marine Debris will be updated after the project through SEAFDEC marine debris survey activities in collaboration with AMSs.            For the above activities, “Regional Meeting” will be held three times at the inception, mid-term and final of the project period.</p>	<p>A website on marine debris will be set up on the SEAFDEC website, with communication materials and information on marine debris.            One Regional Meeting will be held</p>
<p><b>Activity 4</b></p>	
<p><b>Activity 4.1.</b>            Development of technical manual for marking of fishing gears</p> <ul style="list-style-type: none"> <li>- Information gathering of constrain to marking of fishing gear in AMSs</li> <li>- Research of available technical methods on marking of fishing gears</li> <li>- Investigation of pilot activities on marking of fishing gears</li> <li>- A technical meeting on development of technical manual for marking of fishing gears</li> </ul>	<ol style="list-style-type: none"> <li>1. Preparatory work on the development of a technical manual for marking or fishing gears will proceed</li> <li>2. Constrained information on the marking of fishing gear in AMS will be collected.</li> <li>3. A research of available technical methods for marking of fishing gear will be carried out</li> <li>4. Investigation of pilot activities on the marking of fishing gear will be carried out.</li> <li>5. A technical meeting on the development of a technical manual for marking fishing gears will be held.</li> </ol>

**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 202001016
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	ASEAN-JICA Capacity Building Project on IUU Fishing Countermeasures in Southeast Asia		
<b>Program Strategy No:</b>	IV	<b>Total Period:</b>	2023–2026
<b>Lead Department:</b>	Training Department (TD)	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	ASEAN-Japan Technical Cooperation	<b>Total Project Budget:</b>	USD 550,000
<b>Project Partner(s):</b>	Japan International Cooperation Agency (JICA)	<b>Budget for 2023:</b>	USD 208,450
<b>Lead Technical Officer:</b>	Kongpathai Saraphaivanich and Nakaret Yasook (TD)	<b>Project Participating Country:</b>	All Member Countries

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

Fisheries are an important socioeconomic activity in coastal developing countries. However, the illegal, unreported and unregulated (IUU) fishing has brought not only overexploitation of fisheries resources but also hindering the recovery of fish populations and ecosystems in addition to affecting the economic and social well-being of fishing communities, which in turn could negatively affect the countries with weak regulatory systems as specified in Sustainable Development Goal 14. Therefore, countermeasures to combat IUU fishing have been internationally drawing attention.

Taking into account the significant contribution of fish and fishery products from the Southeast Asian countries to the world market, the ASEAN Secretariat in cooperation with regional partners led by the Southeast Asian Fisheries Development Center (SEAFDEC) has strengthened regional initiatives for facilitating the sharing of experiences and information among the ASEAN Member States (AMSs) in order to enhance the respective countries' capacities and efforts to deal with eliminating IUU fishing and market driven measures. This has been demonstrated when the AMSs adopted in 2016 “The Joint ASEAN-SEAFDEC Declaration on Regional Cooperation for Combating IUU Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products” to strengthen efforts in implementing regional initiatives to combat IUU fishing, and promoted the “ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain,” endorsed by 37<sup>th</sup> AMAF in 2015.

This project aims at enhancing the capacities of AMSs to prevent and combat IUU fishing through a series of training and/or workshop activities, and target staff of the government agencies concerned responsible in the implementation of relevant activities to eliminate IUU fishing. This project will be implemented in line with the Strategic Plan of Action for ASEAN Cooperation on Fisheries (2016-2020) on fostering cooperation between international and regional organizations in combating IUU fishing and developing adequate capacities among the member countries in implementing specific measures to further promote the sustainable fisheries as well as the ASEAN Roadmap on Combating IUU Fishing (2021-2025). This project is expected to contribute to the “ASEAN Economic Community Blueprint 2025: Specifically, Increase of Fishery/Aquaculture Production (C.5.57.i), and Enable Sustainable Production (C.5.57.iii)”.

### 2. Background and Justification

Considering that the vast regional waters of ASEAN is interconnected – nearly 13 million square kilometers in total area, with around 850,000 fishing vessels operating in the region (in 2015) and regional production volume representing 22% of the world fish and fishery production. Recognizing the international attention on IUU fishing, there is an urgent concern for the ASEAN region to take a leading role in ensuring that the world's fish and fishery supply chain could be free of IUU fishing practices. Therefore, the ASEAN Member States (AMSs) need to

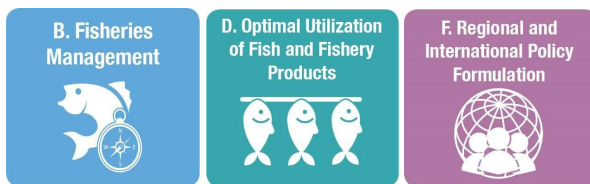
strengthen their activities to combat IUU fishing. In cooperation among AMSs, several measures could be implemented, such as 1) promoting responsible fishing practices, 2) avoiding the depletion of fish stocks and the destruction of marine ecosystem, 3) improving legal frameworks, 4) upgrading systems of monitoring, control and surveillance (MCS), and 5) adopting fair labor practices. More importantly, the capacity development of national fisheries officers in AMSs is urgently needed in the implementation of these measures.

Regarding trans-boundary fisheries resources in the region, it is essential to cooperate among AMSs and promote countermeasures at regional level to combat IUU fishing. Therefore, the challenge in IUU fishing has been continuously underscored by the ASEAN leaders and government officials, as indicated in the “ASEAN Leaders’ Vision for Resilient and Innovative ASEAN” adopted in 2018 that calls for the expansion of regional cooperation to address the issue of IUU fishing. The “Joint ASEAN-SEAFDEC Declaration on Regional Cooperation for Combating IUU Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products” adopted in 2016 also aims to strengthen efforts in implementing regional initiatives to combat IUU fishing.

Therefore, ASEAN has been actively engaged in relevant activities including developing various common policies and regional guidelines in cooperation with partners to address the issues on IUU fishing. The ASEAN Secretariat in cooperation with SEAFDEC under the regional ASEAN-SEAFDEC Fisheries Consultative Group Mechanism (FCG) framework has been addressing concerns on IUU fishing by focusing on the development of common policies, guidelines and countermeasure tools for the region. Under the agreement on technical cooperation between ASEAN and the Government of Japan (the ASEAN-JICA cooperation framework), the first regional project on capacity building to combat IUU fishing in Southeast Asia was initiated and proposed.

Under this project, direct/immediate beneficiaries are staff of government agencies concerned in AMSs who will attend the training courses. Indirect beneficiaries are the AMSs and the other countries as well as fishers, other stakeholders and the consumers in general who will be benefited from the improved management of fisheries resources.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

Under a series of the planned capacity development activities, workshops/meetings/training are open to both men and women to participate in. There is an equal opportunity for men and women.

### 5. Project Goal, Outputs, Activities, Indicators and Verification:

#### 5.1 Logical Framework

GOAL	Indicators	Means of Verification
Sound management and sustainable utilization of fisheries resources	Sustainable fisheries resources	Good management practice in place
OUTCOME	Indicators	Means of Verification
AMSs’ understanding of the practices and actions necessary to deter IUU fishing improved	Countermeasures for combating IUU fishing strengthened	Countermeasures for combating IUU fishing in place
OUTPUT 1	Indicators	Means of Verification
Responsible fishing technologies and practices to combat IUU fishing promoted	Training courses organized	Annual progress report and project completion report

<b>ACTIVITY 1</b>	<b>Indicators: key Inputs</b>	<b>Means of Verification</b>
<b>Activity 1.1:</b> Training courses on responsible fishing technologies/practices to combat IUU fishing in Southeast Asia	<ul style="list-style-type: none"> <li>- Training courses organized</li> <li>- Expected number (20) of participants attended</li> <li>- International fisheries issues (IUU fishing, fishing vessel &amp; gear, vessel inspection, MCS, by catch, Global Record of fishing vessels) updated</li> </ul>	<ul style="list-style-type: none"> <li>- Training course reports</li> <li>- Updated international fisheries issues</li> <li>- Number (20) of participants</li> </ul>
<b>OUTPUT 2</b>	<b>Indicators</b>	<b>Means of Verification</b>
Training on ASEAN Catch Documentation Scheme (ACDS) including on-site training for eliminating IUU fishing in Southeast Asia	<ul style="list-style-type: none"> <li>- Capacities of AMSs to combat IUU fishing enhanced</li> <li>- Training courses organized</li> </ul>	<ul style="list-style-type: none"> <li>- Annual progress report and project completion report</li> <li>- eACDS introduced in AMSs</li> </ul>
<b>ACTIVITY 2</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 2.1:</b> Training courses on electronic ASEAN Catch Documentation Scheme	<ul style="list-style-type: none"> <li>- Training courses organized</li> <li>- Training programs on eACDS developed</li> </ul>	<ul style="list-style-type: none"> <li>- Annual progress report and project completion report</li> <li>- Number of AMSs to introduce eACDS as pilot projects</li> <li>- Training course reports</li> <li>- Training program</li> </ul>
<b>Activity 2.2:</b> On-site training of eACDS at pilot sites in AMSs (about 5 countries)	<ul style="list-style-type: none"> <li>- On-site training courses organized</li> <li>- eACDS application for traceability developed</li> </ul>	<ul style="list-style-type: none"> <li>- Training course reports</li> <li>- On-site training program</li> <li>- Number of on-site training</li> <li>- Number of participants, at least 50 persons in total</li> <li>- eACDS application</li> </ul>
<b>OUTPUT 3</b>	<b>Indicators</b>	<b>Means of Verification</b>
Policy measures to combat IUU fishing enhanced in AMSs	<ul style="list-style-type: none"> <li>- NPOA-IUU developed or revised in AMSs</li> <li>- Training courses organized</li> </ul>	<ul style="list-style-type: none"> <li>- Development, review and revision of NPOA-IUU</li> <li>- Annual progress report and project completion report</li> </ul>
<b>ACTIVITY 3</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 3.1</b> Regional capacity building workshop on enhancing policies and countermeasures against IUU fishing in Southeast Asia	<ul style="list-style-type: none"> <li>- Regional workshop organized</li> <li>- Expected number (30) of fisheries officers attended</li> </ul>	<ul style="list-style-type: none"> <li>- Regional workshop report</li> <li>- Number (30) of participants in total</li> </ul>
<b>Activity 3.2</b> Training course for fisheries inspectors in the implementation of Port State Measures (PSM)	<ul style="list-style-type: none"> <li>- Expected number (20) of inspectors in AMSs trained</li> <li>- AMSs ratified PSMA</li> </ul>	<ul style="list-style-type: none"> <li>- Training course reports</li> <li>- Number (20) of participants in total</li> </ul>

## 5.2 Project Implementation Plan for 2023–2026

Activities	2023				2024				2025				2026	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2
Activity 1.1														
Activity 2.1														
Activity 2.2														
Activity 3.1														
Activity 3.2														

### 5.3 Proposed Budget for 2023–2026

(Unit: USD)

Output	Activities	Year 1 (2023)	Year 2 (2024)	Year 3 (2025)	Year 4 (2026)
Output 1	Activity 1.1	47,500	47,500	0	0
Output 2	Activity 2.1	40,000	40,000	40,000	0
	Activity 2.2	27,000	40,000	33,000	0
Output 3	Activity 3.1	40,000	37,500	37,500	0
	Activity 3.2	35,000	35,000	0	0
Administrative fee (10%)		18,950	20,000	11,050	0
<b>Sub-Total</b>		<b>208,450</b>	<b>220,000</b>	<b>121,550</b>	<b>0</b>

### PART II: PROJECT ACHIEVEMENTS IN 2022

Note: No activity in 2022 because of the new project commencing in 2023

### PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

#### 1. Project Summary in 2023

To enhance capacity of AMSs to combat IUU fishing activities, a regional training course on “responsible fishing technologies/practices to combat IUU fishing in Southeast Asia” and regional and on-site training courses of eACDS at pilot sites (Brunei Darussalam, Cambodia, Malaysia, Myanmar or Viet Nam) are conducted in 2023. The selected countries are considered depending on priorities and suitable situations. Regarding policy measures to enhance AMSs for combating IUU fishing, a regional capacity building workshop on enhancing policies and countermeasures against IUU fishing in Southeast Asia are conducted. Further, a training course for fisheries inspectors is conducted in the implementation of Port State Measures (PSM).

#### 2. Outcome, Outputs and Activities and Proposed Budget

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Outcome</b>	AMSs’ understanding of the practices and actions necessary to deter IUU fishing improved	
<b>Output 1:</b>		
Activity 1.1	Training course on responsible fishing technologies/practices to combat IUU fishing in Southeast Asia  <b>Expected expenditures:</b> - Travel costs: USD 13,300 - DSA: USD 7,320 - Accommodation: USD 6,858 - Transport, etc. USD 1,300 - Honorarium: USD 700 - Meeting expenses: USD 6,400 - Operations of M.V. SEAFDEC 2: USD 7,500 - Others: USD 4,122 Sub-total: USD 47,500	47,500
<b>Output 2:</b>		
Activity 2.1	Training course on electronic ASEAN Catch Documentation Scheme  <b>Expected expenditures:</b> - Travel costs: USD 20,600 - DSA: USD 3,170 - Accommodation: USD 3,076 - Transport, etc. USD 300 - Honorarium: USD 500 - Meeting expenses: USD 5,025 - Others: USD 7,329 Sub-total: USD 40,000	40,000

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
Activity 2.2	On-site training of eACDS at pilot sites in AMSs  <b>Expected expenditures:</b> For five on-site trainings - Travel costs: USD 5,000 - DSA: USD 3,000 - Accommodation: USD 4,800 - Transport, etc. USD 2,500 - Meeting expenses: USD 10,500 - Others: USD 1,200 Sub-total: USD 27,000	27,000
<b>Output 3:</b>		
Activity 3.1	Project Inception Meeting (online)  <b>Expected expenditures:</b> - Meeting expenses USD 500  Regional capacity building workshop on enhancing policies and countermeasures against IUU fishing in Southeast Asia  <b>Expected expenditures:</b> - Travel costs: USD 15,900 - DSA: USD 7,770 - Accommodation: USD 3,564 - Transport, etc. USD 2,000 - Honorarium: USD 600 - Meeting expenses: USD 6,900 - Others: USD 2,766 Sub-total: USD 39,500	40,000
Activity 3.2	Training course for fisheries inspectors in the implementation of Port State Measures (PSM)  <b>Expected expenditures:</b> - Travel costs: USD 9,300 - DSA: USD 3,100 - Accommodation: USD 3,240 - Transport, etc. USD 1,000 - Honorarium: USD 1,050 - Meeting expenses: USD 5,175 - Operations of M.V. SEAFDEC 2 & DOF Patrol Vessel USD 3,500 - Others: USD 8,635 Sub-total: USD 35,000	35,000

### 3. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>												
Activity 1.1												
<b>Output 2:</b>												
Activity 2.1												
Activity 2.2												
<b>Output 3:</b>												
Activity 3.1												
Activity 3.2												



#### 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Activity 1:</b>	
<b>Activity 1.1</b> Training course on “Responsible fishing technologies/practices to combat IUU fishing in Southeast Asia”	Enhanced knowledge and understanding on international fisheries issues (e.g. IUU fishing, vessel inspection, MCS, vessel registration, etc.)
<b>Activity 2:</b>	
<b>Activity 2.1</b> Training course on electronic ASEAN Catch Documentation Scheme (eACDS)	Enhanced knowledge and understanding on eACDS for the traceability of fishery products for combating IUU fishing
<b>Activity 2.2</b> On-site training of eACDS at pilot sites in AMSs	<ul style="list-style-type: none"> <li>- On-site training program</li> <li>- Enhanced knowledge and understanding on the use of eACDS application at pilot sites</li> </ul>
<b>Activity 3:</b>	
<b>Activity 3.1</b> Project Inception Meeting and Regional capacity building workshop on enhancing policies and countermeasures against IUU fishing in Southeast Asia	<ul style="list-style-type: none"> <li>- Project Inception Meeting</li> <li>- Enhanced knowledge and understanding on international-related issues and countermeasures of IUU fishing</li> <li>- Information shared among AMSs including a review and/or development of a National Plan of Action to combat IUU fishing</li> </ul>
<b>Activity 3.2</b> Training course for fisheries inspectors in the implementation of Port State Measures	Enhanced knowledge and understanding on fisheries inspection

**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 202003003
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Sustainable Aquaculture through Cost-Effective Culture Systems and Prompt and Effective Aquatic Animal Health Management		
<b>Program Strategy No:</b>	II	<b>Total Period:</b>	2020–2024
<b>Lead Department:</b>	Aquaculture Department (AQD)	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	Japanese Trust Fund (JTF)	<b>Total Project Budget:</b>	USD 670,000
<b>Project Partner(s):</b>	None	<b>Budget for 2023:</b>	USD 135,000
<b>Lead Technical Officer:</b>	Sayaka Ito (Deputy Chief/AQD)	<b>Project Participating Country:</b>	All Members Countries

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

With the capture fishery production at a standstill, aquaculture has been responsible for supplying fishery products in response to the large increase in demand for fishery products in recent years. In 2016, fish production by aquaculture accounted for 47 % of the world's total fish production. While fish production from aquaculture has increased, the growth of the aquaculture industry has also had negative impacts, such as degradation of the culture sites, destruction of sensitive ecosystems, decrease in biodiversity, the spread of diseases, and social conflicts. Taking these aquaculture problems into account, this project consisted of three main issues: (1) cost-effective culture system, (2) prompt and effective aquatic animal health management, and (3) capacity enhancement for sustainable aquaculture. The first challenge is to reduce aquaculture costs to develop aquaculture technologies that are environmentally friendly and sustainable for an aquaculture operation. The second one is to develop prompt and effective aquatic disease control and management technologies to prevent the spread of emerging and unknown fish and crustacean diseases in the ASEAN region. The third one is to disseminate the AQD-developed technologies and enhance the capacity of aquaculture stakeholders in sustainable aquaculture technologies. The project aims to develop aquaculture technologies that will ultimately maintain the stability and sustainability of aquatic food production and disseminate these technologies to the ASEAN region. Currently, the project is also running smoothly after the prevalence of COVID-19.

### 2. Background and Justification

Global fish production was about 171 million tons in 2016, with aquaculture representing 47 % of the total (FAO 2018). With the capture fishery production relatively static since the late 1980s, aquaculture has been responsible for the continuing impressive growth in the supply of fish for human consumption. Asia has accounted for about 89% of world aquaculture production for over two decades. In 2016, five SEAFDEC Member Countries, which are Indonesia, Viet Nam, Myanmar, Thailand, and Philippines, were included in the major aquaculture producers whose production exceeds 24,500,000 tons.

On the other hand, the growth in aquaculture has also brought negative impacts in our region, such as degradation of culture sites, destruction of sensitive ecosystems, a decrease in biodiversity, the spread of diseases, social conflicts, etc. All of them hinder the sustainability of aquatic food production. The majority of the repercussions affect not only the stability of culture production but also stock levels of wild aquatic species, precluding efforts towards food security and poverty alleviation.

The Aquaculture Department (AQD) of the SEAFDEC has acquired useful information and developed skills, especially in the fields of feed development, culture technology, community-based management for production, fish health management, development of vaccine treatment, protective measures against existing and emerging diseases, and in the conduct of the training courses for aquaculture under the JTF 6 regional program titled

“Promotion of sustainable aquaculture and resource enhancement in Southeast Asia”, 2015-2019. Those activities should be further strengthened so that the sustainable utilization and management of aquatic resources can be accomplished in a responsible manner in the Southeast Asian region. Sustainable aquaculture would be accomplished through cost-effective culture systems and prompt and effective aquatic animal health management.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



#### 4. Gender Sensitivity of the Project

The activity leaders in this project consist of five male and six female staff of the Aquaculture Department (AQD). They were selected based on their technical specialization. In the training activities, men and women will participate and enhance their technical knowledge.

#### 5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification

##### 5.1 Logical Framework

GOAL (Overall Objectives, Impact)	Indicators	Means of Verification
Attaining Sustainable Aquaculture through Cost-Effective Culture Systems and Prompt and Effective Aquatic Animal Health Management	<ul style="list-style-type: none"> <li>- Developed and updated technologies for sustainable aquaculture</li> <li>- Update developed techniques and information on a training course</li> <li>- Spread knowledge and skills with training courses and journal</li> </ul>	<ul style="list-style-type: none"> <li>- Number of developed strategies and technologies for sustainable aquaculture</li> <li>- Number of Update developed techniques and information on a training course</li> <li>- Number of Spread knowledge and skills with training courses and journal</li> </ul>
OUTCOME	Indicators	Means of Verification
Dissemination of Aquaculture Strategies and Technologies, and Improvement of Aquaculture Production in Southeast Asia	<ul style="list-style-type: none"> <li>- Technology and knowledge on sustainable aquaculture as references for policy planning and aquaculture management</li> <li>- Improved and newly developed production of aquaculture species with the developed strategies and technologies</li> </ul>	<ul style="list-style-type: none"> <li>- Number of view and downloads of technological manuals and information for sustainable aquaculture on SEAFDEC/AQD homepage</li> <li>- Efficiency of aquaculture production using the developed strategies and technologies</li> </ul>
OUTPUT 1	Indicators	Means of Verification
Development of Strategies and Technologies for Aquaculture Production in Southeast Asia	Strategies and techniques in farms to improve aquaculture production.	<ul style="list-style-type: none"> <li>- Government formulated and implemented enabling policies in support of sustainable aquaculture based on guidelines and technologies</li> <li>- Practical realization of developed methods, strategies, and guideline</li> </ul>

ACTIVITY 1	Indicators; key Inputs	Means of Verification
<b>Activity 1.1:</b> Community-Based Hatchery, Nursery, Grow-out of Giant Freshwater Prawn (GFP) in Laguna Lake and Tributaries	Successful tri-party collaboration among organized fisherfolks, local government, and research agencies in the development of sustainable aquaculture livelihood in Barangay Pipindan and 3 other areas around Laguna Lake and tributaries that address economic development, social stability, and environmental integrity.	Periodic monitoring towards the establishment of: 1) functional tri-party stakeholder collaboration for livelihood development; 2) organized and informed fisherfolks; and 3) sustained economic, social, and environmental project benefits.
<b>Activity 1.2:</b> Promoting Alternative Feeds for Sustainable Production of Freshwater Aquaculture Species	<ul style="list-style-type: none"> <li>- Production of alternative feeds using agricultural wastes and by-products identified in GOJ-TF6 and evaluation for on-farm trials</li> <li>- Continued development of alternative feeds using other local, readily available ingredients for laboratory and on-farm trials</li> <li>- Adoption of the alternative feeds by small-scale fish farmers</li> <li>- Reduced production costs of small-scale fish farmers using alternative feeds and feeding strategies developed and identified in the study</li> </ul>	<ul style="list-style-type: none"> <li>- Other alternative feed ingredients identified and processed for use in the continued development of alternative feeds</li> <li>- Production parameters (e.g. growth, survival, FCR, yield) monitored</li> <li>- Cost and benefits evaluated</li> </ul>
<b>Activity 1.3:</b> Ecosystem Approach to a Responsible/Sustainable Shrimp Farming	Aquaculture management plan for small-scale shrimp holders/farmers developed	Increased shrimp production of adaptors
<b>Activity 1.4:</b> Development of Aquaculture Techniques on New Aquatic Species for Promotion and Creation of Local Aquaculture Industry	To develop hatchery and grow-out techniques for the breeding, seed production, and nursery rearing of kawakawa ( <i>Euthynnus affinis</i> ), shortfin scad ( <i>round scad</i> , <i>Decapterus macrosoma</i> ), flathead lobster ( <i>Thenus orientalis</i> ) and seahorse ( <i>Hippocampus comes</i> )	Established seed production and grow-out techniques for the adoption of local aquaculture industry
OUTPUT 2	Indicators	Means of Verification
Development of Procedures in Disease Control and Management against Crustacean and Fish Diseases in Southeast Asia	Procedures in disease control and management against crustacean and fish diseases to improve aquaculture production	<ul style="list-style-type: none"> <li>- Government policies in support of management based on developed diagnostic procedures</li> <li>- Practical realization of developed procedures</li> </ul>
ACTIVITY 2	Indicators: key inputs	Means of Verification
<b>Activity 2.1:</b> Development of Diagnostic Procedures Against Emerging Crustacean and Fish Diseases	<ul style="list-style-type: none"> <li>- Comprehensive diagnosis of unknown mortalities of crustacean and fish</li> <li>- Development and optimization of conventional PCR protocol and real-time PCR for emerging fish and shrimp diseases</li> </ul>	<ul style="list-style-type: none"> <li>- Diagnosed unknown mortalities of crustacean and fish</li> <li>- Optimized diagnostic protocols for emerging fish and crustacean diseases.</li> <li>- Dissemination of the standardized diagnostic protocol through hands-on training; and provision of positive control(s)</li> <li>- Preparation of disease cards</li> </ul>

<b>Activity 2.2:</b> Survey of the Epidemiology, Distribution, Occurrence, and Prevalence of EHP	<ul style="list-style-type: none"> <li>- Surveillance Survival rate, the growth rate of shrimp</li> <li>- Procedures of isolation of viability of spores</li> <li>- Mode of transmission Cohabitation, horizontal and vertical transmission</li> </ul>	<ul style="list-style-type: none"> <li>- Active surveillance reports/database</li> <li>- Guidelines to protect shrimp from EHP</li> </ul>
<b>Activity 2.3:</b> In Vitro and in Hatchery Investigation of Organisms, Chemicals, and Methods to Prevent or Mitigate the Effect of Important Shrimp Diseases	Recommendations and guidelines on organisms, chemicals, and methods that can be used to protect shrimp from and/ or mitigate the effect of WSSV, EMS, and other important shrimp diseases	List of organisms, chemicals, and methods that will lead to less incidence of shrimp disease outbreaks in hatchery tank trials
<b>Activity 2.4:</b> Application of Integrated Approaches in the Management of Viral Infections and Other Emerging Diseases in Brackish Water Ponds	Two tank trials and three pond trials are conducted in SEAFDEC/AQD Tigbauan Main Station and Dumangas Brackishwater Station, January 2020 - December 2024	<ul style="list-style-type: none"> <li>- Completed preliminary tank trials</li> <li>- Completed successful ponds trials demonstrating the efficacy of the integrated approaches</li> <li>- Recommended procedures for the management of viral and emerging diseases in pond culture</li> </ul>
<b>OUTPUT 3</b>	<b>Indicators</b>	<b>Means of Verification</b>
Capacity Enhancement on Sustainable Aquaculture and Aquatic Animal Health Management in Southeast Asia	Dissemination of aquaculture strategies and technologies	Carry out training courses on aquaculture
<b>ACTIVITY 3</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 3.1:</b> Training Course on Sustainable Aquaculture	<ul style="list-style-type: none"> <li>- Promotion of marine aquaculture technologies in the region</li> <li>- Promotion of freshwater aquaculture technologies in rural communities in the region</li> </ul>	<ul style="list-style-type: none"> <li>- Conduct of training course on marine aquaculture in the region</li> <li>- Conduct of training course on community-based freshwater aquaculture in rural communities to introduce alternative livelihoods to small-holder fish farmers</li> </ul>
<b>Activity 3.2:</b> Training Course on Fish Nutrition and Feed Development	Skills enhancement and dissemination of improved feed development and management practices to the ASEAN Member States	Successfully implemented training course to develop skills, and disseminate knowledge and new information in feed formulation and feeding management to SEA participants
<b>Activity 3.3:</b> Training Course on Fish Health Management in Aquaculture	Increased capacity to manage aquatic animal diseases among stakeholders in the ASEAN Member States	Successfully implemented training courses to disseminate knowledge, skills, and new approaches in fish health management to SEA participants
<b>OUTPUT 4</b>	<b>Indicators</b>	<b>Means of Verification</b>
Progress Management of Project	Proper practice of the project	Annual progress meeting and international workshop

ACTIVITY 4	Indicators: key inputs	Means of Verification
<b>Activity 4.1:</b> Annual Progress Meeting	Annual meeting organized by SEAFDEC/AQD to review the project achievement	- Annual progress meeting - Review and evaluation of the project achievements
<b>Activity 4.2:</b> International Workshop	- Workshop organized by SEAFDEC/AQD to review the project achievement - Exchange of brand-new information on aquaculture	- International workshop - Update on the issues related to sustainable aquaculture
<b>Activity 4.3:</b> Coordination by the Project Leader	- Coordination and encouragement of the research, training and dissemination - Facilitation of information exchange on the project activities	- Contribution to the achievement of the project's objectives - Proper use of the budget - Review of the overall project achievements on the provided meetings.

## 5.2 Project Implementation Plan for 2020–2024

Activities	2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Output 1:</b> Development of Strategies and Technologies for Aquaculture Production in Southeast Asia																				
Activity 1.1																				
Activity 1.2																				
Activity 1.3																				
Activity 1.4																				
<b>Output 2:</b> Development of Procedures in Disease Control and Management against Crustacean and Fish Diseases in Southeast Asia																				
Activity 2.1																				
Activity 2.2																				
Activity 2.3																				
Activity 2.4																				
<b>Output 3:</b> Capacity Enhancement on Sustainable Aquaculture and Aquatic Animal health Management in Southeast Asia																				
Activity 3.1																				
Activity 3.2																				
Activity 3.3																				
<b>Output 4:</b> Progress Management of Project																				
Activity 4.1																				
Activity 4.2																				
Activity 4.3																				

## 5.3 Proposed Budget for 2020–2024

(Unit: USD)

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2024)
Output 1	Activity 1.1	10,000	10,000	10,000	10,000	9,000
	Activity 1.2	10,000	10,000	10,000	10,000	9,000
	Activity 1.3	10,000	10,000	10,000	10,000	9,000
	Activity 1.4	10,000	15,000	15,000	15,000	13,000
Output 2	Activity 2.1	10,000	10,000	10,000	10,000	9,000
	Activity 2.2	10,000	10,000	10,000	10,000	9,000
	Activity 2.3	10,000	10,000	10,000	10,000	9,000
	Activity 2.4	10,000	10,000	10,000	10,000	9,000
Output 3	Activity 3.1	14,000	14,000	14,000	14,000	12,000
	Activity 3.2	8,000	8,000	8,000	8,000	7,500
	Activity 3.3	8,000	8,000	8,000	8,000	7,500

(Unit: USD)

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2024)
Output 4	Activity 4.1	6,000	6,000	6,000	6,000	0
	Activity 4.2	0	0	0	0	18,000
	Activity 4.3	14,000	14,000	14,000	14,000	14,000
<b>Sub-Total</b>		130,000	135,000	135,000	135,000	135,000

## PART II: PROJECT ACHIEVEMENTS IN 2022

### 1. Project Achievements in the Present Year

**Activity 1.1)** The giant freshwater prawn (GFP) hatchery building in the fisherfolk community is completed in October 2022; fisherfolk members of the Pipindan Aquaculture Producers Association (PAPA) continue to be trained in the hatchery and nursery of GFP in a makeshift set-up and have started selling post-larvae to small-scale grow-out farmers.

**Activity 1.2)** Fermentation using fungi + yeast enhanced the nutrient composition of water cabbage leaf meal, and its potential as an alternative protein source requires further evaluation. As a source of protein and additives, insect meals provide benefits such as increased growth and feed efficiency in tilapia, which will be evaluated in diets for giant freshwater prawns as well.

**Activity 1.3)** The microcosm experiments showed that three test organisms (sandfish, green algae, and red algae) were useful in purifying rearing water, which may mitigate the risk of disease. The performance of the three organisms used was comparable; they may be able to be used in an artificial or constructed wetland in a recirculating aquaculture system.

**Activity 1.4)** The live transport protocol of the slipper lobster was developed to make brood stock of this species, allowing them to be transported from the wild to the brood stock facility with high survival (90 to 100%) for up to 10 hours of transport duration. In addition, the transport protocol for Kawakawa and shortfin scad was also developed in the same manner as mentioned above. Some of the live-transported Kawakawas grew from an estimated 100 g to approximately 1 kg in seven months, and many shortfin scads reached sexual maturity and spawned eggs while they were carried alive.

**Activity 2.1)** The prevalent bacterial isolates from the samples of shrimp culture monitoring were identified. These isolates were archived and stored at a -80 °C biofreezer for artificial infection trials to identify pathogenic isolates.

**Activity 2.2)** A list of EHP-positive shrimp farms around Iloilo was compiled to determine the overall prevalence of EHP in all sampled shrimp farms. In farms where EHP had previously appeared, there was a high recurrence rate even after increasing the level of biosecurity.

**Activity 2.3)** Concentrations as high as 200 ppm of detergent, hydrogen peroxide, and formalin were not effective against WSSV and IHHNV. On the other hand, AHPND may be removed from *P. mondon* nauplii through rinsing with running UV sterilized seawater. However, more replicates should be done to be conclusive.

**Activity 2.4)** Specific Pathogen Free (SPF) shrimp in WSSV-negative soil grew and survived better than those in WSSV-positive soil. An improved disinfection protocol using 40 ppm chlorine for 7 days and drying to 5% soil moisture was considered.

**Activity 3.1)** The Training Course on Marine Fish Hatchery is conducted face-to-face at AQD Tigbauan Main Station in October 2022 (for 37 days). There are four expected participants: 1 from Brunei; 1 from Myanmar; 1 from the Philippines; and 1 from Viet Nam. The Training Course on Community-Based Freshwater Aquaculture for Remote Rural Areas of Southeast Asia is also conducted face-to-face at AQD Binangonan Freshwater Station on November 7-21, 2022 (for 15 days). The expected participants are from: Malaysia-1; Myanmar-1; the Philippines-1; and Viet Nam-1.

**Activity 3.2)** The Training Course on Fish Nutrition and Feed Development was conducted from August 29 to September 2, 2022 (for 5 days) at AQD, Tigbauan Main Station. There were eight participants (Brunei-2; Myanmar-1; Philippines-4; and Viet Nam-1) for this course.

**Activity 3.3)** The Training Course on Fish Health Management was conducted on August 15-26, 2022 (for 12 days) at the Tigbauan Main Station. There were eight participants (Brunei-2; Myanmar-1; Philippines-4; and Viet Nam-1) for this course.

## 2. Activities and Budget in the Present Year

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1:</b> Development of Strategies and Technologies for Aquaculture Production in Southeast Asia								
Activity 1.1	R	0	3	5	2	3	45	10,000
Activity 1.2	R	0	2	3	6	0	5	10,000
Activity 1.3	R	0	0	1	1	0	0	10,000
Activity 1.4	R	0	0	3	8	0	4	15,000
<b>Output 2:</b> Development of Procedures in Disease Control and Management against Crustacean and Fish Diseases in Southeast Asia								
Activity 2.1	R	0	0	4	3	0	2	10,000
Activity 2.2	R	0	0	1	1	0	0	10,000
Activity 2.3	R	0	0	2	4	0	0	10,000
Activity 2.4	R	0	0	0	2	0	0	10,000
<b>Output 3:</b> Capacity Enhancement on Sustainable Aquaculture and Aquatic Animal Health Management in Southeast Asia								
Activity 3.1	T	4	4	3	3	0	0	14,000
Activity 3.2	T	4	4	3	3	0	0	8,000
Activity 3.3	T	3	5	3	3	0	0	8,000
<b>Output 4:</b> Progress Management of the Project								
Activity 4.1	O	0	0	7	5	0	0	6,000
Activity 4.2	O	NA	NA	NA	NA	NA	NA	0
Activity 4.3	O	0	0	7	5	0	0	14,000

## 3. Expected Outcome/Outputs and Achievements

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Outcome</b>		
<b>Output 1:</b>		
Activity 1.1	Implementation of organizational enhancement activities, and hands-on training on hatchery and nursery of GFP for fisherfolks	<ul style="list-style-type: none"> <li>- Establishment of a fisherfolk organization named Pipindan Aquaculture Producers Association (PAPA)</li> <li>- Human capacity building through hatchery and nursery operations of GFP</li> </ul>
Activity 1.2	<ul style="list-style-type: none"> <li>- Information on the potential of using fermented aquatic weeds (<i>e.g.</i> water hyacinth and water cabbage leaf meals) as alternative feed ingredients.</li> <li>- Knowledge of the potential of dietary insect meal in tilapia</li> </ul>	<ul style="list-style-type: none"> <li>- Fermentation of water cabbage leaf meal using fungi + yeast increased the crude protein (CP) and crude lipid contents, respectively.</li> <li>- Highest growth performance and feed efficiency at 6% inclusion of black soldier fly larvae (BSFL) in tilapia diets.</li> </ul>
Activity 1.3	- Feasibility assessment of a recirculating aquaculture system using purifying aquatic organisms in an artificial/constructed wetland to reduce the impact of disease	<ul style="list-style-type: none"> <li>- High potential of sandfish, <i>Caulerpa</i> (green algae), and <i>Gracilaria</i> (red algae) as purifying organisms to reduce the effects of disease</li> <li>- Design of an artificial/constructed wetland with a recirculating aquaculture system</li> </ul>
Activity 1.4	<ul style="list-style-type: none"> <li>- Establishment of a protocol for preparing the broodstock</li> <li>- Development of techniques for growing the broodstock</li> </ul>	<ul style="list-style-type: none"> <li>- High survival rate from capture to transport to the brood stock facility.</li> <li>- Significant growth of the brood stock in Kawakawa</li> <li>- Acquisition of hatched larvae in slipper lobster and shortfin scad</li> </ul>



<b>Output 2:</b>		
Activity 2.1	<ul style="list-style-type: none"> <li>- Isolation and identification of probable causative agents causing mass mortality</li> <li>- Optimization of PCR protocol for detection of new causative agents</li> </ul>	<ul style="list-style-type: none"> <li>- Identification of the bacteria as probable causative agents from the two cases where mass mortality in shrimp occurred</li> <li>- Establishment of an optimized PCR protocol for Decapod Iridescent Virus 1 (DIV1)</li> </ul>
Activity 2.2	Information on the prevalence and emergence pattern of EHP	High re-occurrence rate of EHP in farms where EHP appeared once
Activity 2.3	List of therapeutants and processes that can be used to disinfect fertilized eggs, nauplii, and post-larvae of the shrimp	<ul style="list-style-type: none"> <li>- Low disinfection effect of detergent, hydrogen peroxide, and formalin against WSSV and IHHNV</li> <li>- High disinfection effect of rinsing with running UV sterilized seawater on <i>P. monodon</i> nauplii against AHPND</li> </ul>
Activity 2.4	Knowledge of Best Management Practices, especially with respect to the use of SPF and chlorine disinfection	<ul style="list-style-type: none"> <li>- A higher survival rate of SPF shrimp in WSSV-negative soil than in WSSV-positive soil</li> <li>- Improvement of disinfection protocol for the tank soil</li> </ul>
<b>Output 3:</b>		
Activity 3.1	<ul style="list-style-type: none"> <li>- Conduct of a training course for the promotion of marine aquaculture technologies in the region</li> <li>- Conduct of a training course for the promotion of community-based freshwater aquaculture for remote rural areas of Southeast Asia</li> </ul>	<ul style="list-style-type: none"> <li>- Implementation of "The Training Course on Marine Fish Hatchery" at AQD Tigbauan Main Station in October 2022 in face-to-face setting</li> <li>- Implementation of "The Training Course on Community-Based Freshwater Aquaculture for Remote Rural Areas of Southeast Asia" at AQD Binangonan Freshwater Station on November 7-21, 2022 in face-to-face setting</li> </ul>
Activity 3.2	Conduct a training course on skills enhancement and dissemination of improved feed development and management practices to the ASEAN Member States (AMSs).	Implementation of "The Training Course on Fish Nutrition and Feed Development" at AQD Tigbauan Main Station from August 29 to September 2, 2022 in face-to-face setting
Activity 3.3	Conduct of training course to increase capacity to manage aquatic animal diseases among stakeholders in AMSs	Implementation of "The Training Course on Fish Health Management" at the Tigbauan Main Station on August 15-26, 2022 in face-to-face setting
<b>Output 4:</b>		
Activity 4.1	Annual meetings organized by SEAFDEC/AQD to review the project achievements	<ul style="list-style-type: none"> <li>- Annual Meeting</li> <li>- Review and evaluation of the project achievements</li> </ul>
Activity 4.2	Not Applicable	-
Activity 4.3	<ul style="list-style-type: none"> <li>- Coordination and encouragement of the research, training, and dissemination activities</li> <li>- Facilitation of information exchange on the project activities</li> </ul>	<ul style="list-style-type: none"> <li>- Contributions to the achievement of the project's objectives</li> <li>- Proper use of the budget</li> <li>- Review of the overall project achievements on the provided meetings</li> </ul>

#### 4. List of Publications in 2022

None

## 5. Evaluation on Workshops/Training Courses by Participants of AMSs

Activities	Evaluation
<b>Output 1:</b>	
Activity 1.1	Not Applicable
Activity 1.2	Not Applicable
Activity 1.3	Not Applicable
Activity 1.4	Not Applicable
<b>Output 2:</b>	
Activity 2.1	Not Applicable
Activity 2.2	Not Applicable
Activity 2.3	Not Applicable
Activity 2.4	Not Applicable
<b>Output 3:</b>	
Activity 3.1	Not yet
Activity 3.2	Not yet
Activity 3.3	Not yet
<b>Output 4:</b>	
Activity 4.1	Not Applicable
Activity 4.2	Not Applicable
Activity 4.3	Not Applicable

## 6. Major Impacts/Issues

**Activity 1.2)** Fermentation of water cabbage leaf meal using fungi + yeast increased the crude protein and crude lipid contents by 11% and 77%, respectively. The highest growth performance and feed efficiency were observed at 6% inclusion of black soldier fly larvae in tilapia diets.

**Activity 1.4)** Protocols for transporting kawakawa, shortfin scad, and slipper lobster from the capture site to the brood stock facility with high survival rates have been completed, which will allow brood stock to be established.

## PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

### 1. Project Summary in 2023

**Activity 1-1)** The trained PAPA members continue with the post-larvae production activities. They also receive more training on broodstock management and grow-out culture to achieve sustainable aquaculture of giant freshwater prawn (GFP) in Laguna Lake and its tributaries, as well as in ponds near the lake.

**Activity 1-2)** Feeding trials are carried out on the efficacy of insect meal and insect by-products on the productivity performance of GFP in biofloc and clear water conditions. Growth trials are also explored to examine the response of GFP to feeding strategies in both the biofloc conditions and on-farm conditions.

**Activity 1-3)** The efficiency of mitigating the disease effect is investigated at the designed artificial/constructed wetland in a recirculating aquaculture system.

**Activity 1-4)** The protocol for broodstock management is carried out and improved. After the protocol is optimized, trials for larval rearing are conducted using the fertilized eggs or hatched larvae acquired from the brood stock.

**Activity 2-1)** Monitoring and surveillance of mass mortalities in aquaculture farms are continued to isolate and identify the causative agent(s) of unknown and emerging crustacean and fish diseases, and disease diagnostic protocol(s) is also developed.

**Activity 2-2)** The surveillance is continued to determine the prevalence and emergence pattern of EHP in the Philippines. The cohabitation experiment is also conducted to clarify the transmission mechanism of EHP.

**Activity 2-3)** The chemicals and methods that can be used to prevent the horizontal and vertical transmission of pathogens, especially WSSV, are examined in the laboratory.

**Activity 2-4)** Based on the results of the previous tank experiments in the laboratory, the experiments on integrated disease management of the shrimp are designed under pond conditions and are conducted during the wet and dry seasons.

**Activity 3-1)** The two training courses, "Marine Fish Hatchery" and "Community-Based Freshwater Aquaculture for Remote Rural Areas of Southeast Asia," are held in person for the SEAFDEC member countries.

**Activity 3-2)** The Distance Learning Course on Principles of Aquaculture Nutrition is conducted as one of the training courses on Fish Nutrition and Feed Development. Since this is an online course, 10 slots may be awarded to the SEAFDEC member countries.

**Activity 3-3)** The Distance Learning Course on Principles of Health Management in Aquaculture is conducted as one of the training courses on Fish Health Management. Since this is an online course, 10 slots may also be awarded to the SEAFDEC member countries.

**Activity 4-1)** The JTF annual and semi-annual meetings are organized in SEAFDEC/AQD to review and evaluate the project achievements.

**Activity 4-3)** The research, training, and dissemination activities related to the JTF Project are coordinated and encouraged through proper use of the budget to contribute to the achievement of the project's objectives.

## 2. Outcome, Outputs and Activities and Proposed Budget

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Outcome</b>	Dissemination of Aquaculture Strategies and Technologies, and Improvement of Aquaculture Production in Southeast Asia	
<b>Output 1:</b>	Development of Strategies and Technologies for Aquaculture Production in Southeast Asia	
Activity 1.1	Community-Based Hatchery, Nursery, Grow-out of Giant Freshwater Prawn (GFP) in Laguna Lake and Tributaries  <b>Estimated expenditures:</b> - Personal services: USD 500 - Travel costs: USD 1,000 - Research expense (socioecon survey): USD 200 - Laboratory analysis (fish health test): USD 100 - Supplies/materials (salts seawater mix, etc): USD 1,300 - Hatchery equipment, repair, contingency: USD 300 - Hatchery operation costs (utilities, allowance): USD 3,800 - Communications: USD 150 - DSA: USD 600 - Training expenses/supplies (material, refreshments): USD 1,500 - Invited travel costs: USD 200 - Meeting costs: USD 200 - Office supplies: USD 50 - Accommodation: USD 100 <b>Sub-total: USD 10,000</b>	<b>10,000</b>
Activity 1.2	Promoting Alternative Feeds for Sustainable Production of Freshwater Aquaculture Species  <b>Estimated expenditures:</b> - Personal services: USD 3,000 - Travel costs: USD 300 - Research expense: USD 2,000 - Laboratory analysis: USD 2,400 - Supplies and materials: USD 200 - Laboratory/research equipment: USD 1,000 - Hatchery operation costs: USD 100 - Communications: USD 100	<b>10,000</b>

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
	- DSA: USD 100 - Training expenses and supplies: USD 100 - Invited travel costs: USD 400 - Meeting costs: USD 100 - Office supplies: USD 100 - Accommodation: USD 100 <b>Sub-total: USD 10,000</b>	
Activity 1.3	Ecosystem Approach to a Responsible/Sustainable Shrimp Farming  <b>Estimated expenditures:</b> - Personal services: USD 4,500 - Travel costs: USD 1,500 - Pond repair: USD 1,500 - Laboratory analysis: USD 1,000 - Supplies and materials: USD 250 - Communications: USD 50 - DSA: USD 750 - Office supplies: USD 150 - Accommodation: USD 300 <b>Sub-total: USD 10,000</b>	<b>10,000</b>
Activity 1.4	Development of Aquaculture Techniques on New Aquatic Species for Promotion and Creation of Local Aquaculture Industry  <b>Estimated expenditures:</b> - Personal services: USD 4,500 - Travel costs: USD 3,000 - Research expense: USD 2,000 - Laboratory analysis: USD 1,000 - Supplies and materials: USD 1,000 - Laboratory/research equipment: USD 1,000 - Hatchery operation costs: USD 2,000 - Accommodation: USD 500 <b>Sub-total: USD 15,000</b>	<b>15,000</b>
<b>Output 2:</b>	Development of Procedures in Disease Control and Management against Crustacean and Fish Diseases in Southeast Asia	
Activity 2.1	Development of Diagnostic Procedures Against Emerging Crustacean and Fish Diseases  <b>Estimated expenditures:</b> - Personnel services, technical assistant: USD 6,500 - Travel Costs: USD 200 - Communications: USD 100 - Supplies and materials: USD 1,200 - Research expenses: USD 2,000 <b>Sub-total: USD 10,000</b>	<b>10,000</b>

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
Activity 2.2	Survey of the Epidemiology, Distribution, Occurrence, and Prevalence of EHP  <b>Estimated expenditures:</b> - Personal services: USD 6,000 - Travel costs: USD 1,600 - Research expense: USD 500 - Laboratory analysis: USD 1,500 - Supplies and materials: USD 100 - Laboratory/research equipment: USD 150 - Office supplies: USD 150 <b>Sub-total: USD 10,000</b>	<b>10,000</b>
Activity 2.3	In Vitro and in Hatchery Investigation of Organisms, Chemicals, and Methods to Prevent or Mitigate the Effect of Important Shrimp Diseases  <b>Estimated expenditures:</b> - Personal services: USD 4,500 - Travel costs: USD 200 - Supplies and materials: USD 2,200 - Research expense: USD 3,000 - Communications: USD 100 <b>Sub-total: USD 10,000</b>	<b>10,000</b>
Activity 2.4	Application of Integrated Approaches in the Management of Viral Infections and Other Emerging Diseases in Brackish Water Ponds  <b>Estimated expenditures:</b> - Personal services: USD 1,800 - Travel costs: USD 800 - Research expense: USD 700 - Laboratory analysis: USD 1,300 - Supplies and materials: USD 700 - Laboratory/research equipment: USD 1,000 - Hatchery operation costs: USD 800 - Communications: USD 400 - Daily Subsistence Allowance (DSA): USD 500 - Training expenses and supplies: USD 500 - Invited travel costs: USD 500 - Meeting costs: USD 500 - Office supplies: USD 200 - Accommodation: USD 300 <b>Sub-total: USD 10,000</b>	<b>10,000</b>
<b>Output 3:</b>	Capacity Enhancement on Sustainable Aquaculture and Aquatic Animal health Management in Southeast Asia	
Activity 3.1	Training Course on Sustainable Aquaculture  - Communications: USD 1,250 - Training supplies/materials: USD 900 - Travel: USD 3,350 - Accommodation: USD 3,950 - Daily Subsistence Allowance (DSA): USD 2,850 - Research expenses: USD 100 - Daily Subsistence Allowance (DSA): USD 1,600 <b>Sub-total: USD 14,000</b>	<b>14,000</b>

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
Activity 3.2	Training Course on Fish Nutrition and Feed Development  <b>Estimated expenditures:</b> - Communications: USD 100 - Training supplies/materials: USD 2,200 - Travel: USD 3,500 - Accommodation: USD 500 - Daily Subsistence Allowance (DSA): USD 1,200 - Vehicle utilization/field trips: USD 500 <b>Sub-total: USD 8,000</b>	<b>8,000</b>
Activity 3.3	Training Course on Fish Health Management in Aquaculture  <b>Estimated expenditures:</b> - Communications: USD 100 - Vehicle utilization/trips: USD 500 - Training supplies/materials: USD 2,000 - Travel: USD 3,500 - Accommodation: USD 500 - Daily Subsistence Allowance (DSA): USD 1,400 <b>Sub-total: USD 8,000</b>	<b>8,000</b>
<b>Output 4:</b>	Progress management of project	
Activity 4.1	Holding of annual meeting at SEAFDEC/AQD  <b>Estimated expenditures:</b> - Travel, DSA, Accommodation, Training fee: USD 4,500 - Communications: USD 100 - Refreshments: USD 900 - Supplies and materials: USD 500 <b>Sub-total: USD 6,000</b>	<b>6,000</b>
Activity 4.2	Not Applicable	
Activity 4.3	Coordination and encouragement of the research, training and dissemination activities, and facilitation of information exchange on their activities.  <b>Estimated expenditures:</b> - Personnel services of financial assistant: USD 5,000 - Travel costs: USD 2,000 - Communications: USD 500 - Equipment: USD 4,000 - Refreshments: USD 1,000 - Office supplies: USD 1,500 <b>Sub-total: USD 14,000</b>	<b>14,000</b>

### 3. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>												
Activity 1.1												
Activity 1.2												
Activity 1.3												
Activity 1.4												
<b>Output 2:</b>												
Activity 2.1												
Activity 2.2												
Activity 2.3												
Activity 2.4												

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 3:</b>												
Activity 3.1												
Activity 3.2												
Activity 3.3												
<b>Output 4:</b>												
Activity 4.1												
Activity 4.2												
Activity 4.3												

#### 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Activity 1</b> Development of Strategies and Technologies for Aquaculture Production in Southeast Asia	
<b>Activity 1.1.</b> Community-Based Hatchery, Nursery, Grow-out of Giant Freshwater Prawn (GFP) in Laguna Lake and Tributaries	<ul style="list-style-type: none"> <li>- Stable supply of GFP post-larvae through sustainable GFP hatchery and nursery operations by PAPA members</li> <li>- Increase in GFP grow-out farmers in Laguna Lake and tributaries</li> </ul>
<b>Activity 1.2.</b> Promoting Alternative Feeds for Sustainable Production of Freshwater Aquaculture Species	<ul style="list-style-type: none"> <li>- Knowledge of the feeding value of insect meal and insect by-products for the growth of GFP postlarvae/juveniles</li> <li>- Information on the response of GFP to feeding management strategies</li> </ul>
<b>Activity 1.3.</b> Ecosystem Approach to a Responsible/Sustainable Shrimp Farming	<ul style="list-style-type: none"> <li>- Knowledge of the effect of a recirculating aquaculture system with purifying organisms on the diseases</li> <li>- Design of artificial/constructed wetland in a recirculating aquaculture system</li> </ul>
<b>Activity 1.4.</b> Development of Aquaculture Techniques on New Aquatic Species for Promotion and Creation of Local Aquaculture Industry	<ul style="list-style-type: none"> <li>- Establishment of technology to stably maintain broodstock</li> <li>- Stable acquisition of fertilized eggs or hatched larvae from the brood-stock</li> </ul>
<b>Activity 2</b> Development of Procedures in Disease Control and Management against Crustacean and Fish Diseases in Southeast Asia	
<b>Activity 2.1.</b> Development Diagnosing Procedures Against Emerging Crustacean and Fish Diseases	Isolation and identification of the causative agent(s) of unknown and emerging crustacean and fish diseases in the farms where mass mortalities have occurred.
<b>Activity 2.2.</b> Survey of the Epidemiology, Distribution, Occurrence and Prevalence of EHP	Understanding the prevalence, emergence pattern, and transmission routes of EHP
<b>Activity 2.3.</b> In Vitro and in Hatchery Investigation of Organisms, Chemicals and Methods to Prevent or Mitigate the Effect of Important Shrimp Diseases	List of chemicals/disinfectants/methods to prevent the horizontal and vertical transmission of pathogens
<b>Activity 2.4.</b> Application of Integrated Approaches in the Management of Viral Infections and Other Emerging Diseases in Brackish Water Ponds	Knowledge of integrated approaches to manage shrimp diseases under pond conditions during the dry and wet season
<b>Activity 3</b> Capacity Enhancement on Sustainable Aquaculture and Aquatic Animal Health Management in Southeast Asia	
<b>Activity 3.1</b> Training Course on Sustainable Aquaculture	Promotion of aquaculture technologies learned in the respective regions/areas
<b>Activity 3.2</b> Training Course on Fish Nutrition and Feed Development	Improvement of skills in feed development and management
<b>Activity 3.3</b> Training Course on Fish Health Management in Aquaculture	Increase in capacities to manage aquatic animal diseases
<b>Activity 4</b> Progress management of project	
<b>Activity 4.1</b> Annual Progress Meeting	<ul style="list-style-type: none"> <li>- Holding of the annual progress meeting</li> <li>- Review and evaluation of the project achievements</li> </ul>

<b>Planned activity</b>	<b>Expected Activity Results</b>
<b>Activity 4.2</b> International Workshop	Not Applicable
<b>Activity 4.3</b> Coordination by the Project Leader	<ul style="list-style-type: none"><li>- Contribution to the achievement of the project's objectives</li><li>- Proper use of the budget</li><li>- Review of the overall project achievements on the provided meetings</li></ul>



**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 202002003
<b>Program Category:</b>	Project Under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Enhancing Food Safety and Competitiveness of Seafood Products		
<b>Program Strategy No:</b>	III	<b>Total Period</b>	2020–2024
<b>Lead Department:</b>	Marine Fisheries Research Department (MFRD)	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	Japanese Trust Fund (JTF)	<b>Total Project Budget:</b>	USD 330,000
<b>Project Partner(s):</b>	None	<b>Budget for 2023:</b>	USD 60,000
<b>Lead Technical Officer:</b>	Ong Yihang (Chief/MFRD)	<b>Project Participating Country</b>	All Member Countries

**PART I: PROJECT DESCRIPTION**

**1. Executive Summary**

The project aims to look at the improvement of food safety and the competitiveness of seafood products in the ASEAN region through conducting training workshops and developing guidelines, with support of regional technical experts. The project will be implemented *via* two tracks - developing regional guidelines on Good Manufacturing and Handling Practices (GMP & GHP) for Ready-To-Eat Raw fish and fishery products and introducing High Pressure Processing (HPP) Processing Protocols for seafood. The proposed activities for each track will include:

- Project and Inception Meeting
- Development/Translation of Training Materials
- Training Workshop
- R&D and Pilot Trials
- Preparation of Publication
- End of Project Meeting

The objectives of the project are to strengthen regional capabilities in safe handling of high-risk seafood products and introduce advanced processing technology such as HPP to enhance the value, safety and quality of seafood products.

**2. Background and Justification**

Seafood is an important commodity in many ASEAN member countries and serves as an important source of foreign exchange and food supply for these countries. There is an increasing demand for seafood as consumers around the world recognize their nutritional value. However, seafood is very perishable, and several chemical and biological changes occur immediately after capture and/or harvest. The deterioration process of seafood quality by microbiological metabolism, oxidative reaction and enzymatic activity is irreversible and accelerated by poor temperature control along the supply chain. Thus, good handling practices and technologies are extremely critical in keeping the seafood products fresh and safe, extend shelf life, and maintain its quality and economic value from catch to consumer.

In today's fast-moving world including the ASEAN region, consumers increasingly demand for quick and easy Ready-to-Cook (RTC) foods, or even Ready-to-Eat (RTE) meals. Many consumers are drawn to consuming seafood, because of its high nutritional value, along with its versatility in preparation. Quick- and easy-to-prepare RTE seafood dishes include sushi and sashimi, shucked shellfish and RTC seafood in sauce. However, the minimally processed or raw nature of these foods put them at high microbiological risk. Therefore, it is essential that these foods are prepared under Good Manufacturing and Handling Practices (GMP & GHP) and with reputable technologies that would mitigate the high microbiological risk while retaining the high nutritional content.

Under the project, Regional Guidelines on GMP & GHP for Ready-To-Eat Raw fish and fishery products will be developed and published, and capabilities in renowned technologies, such as HPP, will be enhanced.

### 3. ASEAN-SEAFDEC Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

The project activities proposed are generally gender-neutral in nature; both male and female can participate in all the proposed activities.

### 5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification

#### 5.1 Logical Framework

GOAL (Overall Objectives, Impact)	Indicators	Means of Verification
Fresh and safe seafood are consumed by people and high quality and economic value of seafood are maintained in Southeast Asia	<ul style="list-style-type: none"> <li>- Regional Guidelines for GMP &amp; GHP endorsed</li> <li>- Handbook on HPP of Ready-To-Eat Raw fish and fishery products well-disseminated</li> </ul>	<ul style="list-style-type: none"> <li>- High quality and healthy seafood for people</li> <li>- High quality and high-valued fishery productions</li> </ul>
OUTCOME	Indicators	Means of Verification
Enhanced safety and competitiveness of seafood products in Southeast Asia	<ul style="list-style-type: none"> <li>- Food safety promoted</li> <li>- Reduction in foodborne illness from seafood consumption</li> <li>- Production of high-value products from the countries in Southeast Asia</li> </ul>	<ul style="list-style-type: none"> <li>- Food safety</li> <li>- High-valued fishery products</li> </ul>
OUTPUT 1	Indicators	Means of Verification
Regional standards serve as a guide in the development of national standards for GMP & GHP for Ready-To-Eat Raw fish and fishery products	<ul style="list-style-type: none"> <li>- Regional Guidelines on GMP &amp; GHP developed and published</li> </ul>	<ul style="list-style-type: none"> <li>- Regional Guidelines for GMP &amp; GHP</li> </ul>
ACTIVITY 1	Indicators; key Inputs	Means of Verification
<b>Activity 1.1:</b> Project Planning and Inception Meeting to be held in Singapore in 2020	<ul style="list-style-type: none"> <li>- 2-day meeting organized in Singapore for all SEAFDEC Member Countries (MCs) in the 4<sup>th</sup> quarter of 2020</li> <li>- Implementation plan of the project activities discussed</li> <li>- Two participants from each MC invited</li> <li>- National Project Focal Points identified in MCs</li> <li>- Back-to-back with Activity 2.1</li> </ul>	<ul style="list-style-type: none"> <li>- Meeting report</li> <li>- Implementation plan of the project activities</li> <li>- Two participants from each MC</li> <li>- National Project Focal Point in each MC</li> </ul>

<p><b>Activity 1.2:</b> Development of Training Material for GMP &amp; GHP for Ready-To-Eat Raw fish and fishery products</p>	<ul style="list-style-type: none"> <li>- Training materials will be developed for GMP &amp; GHP for Ready-To-Eat Raw fish and fishery products while taking into account the scope defined at the inception meeting by local Institute of Higher Learning (IHL)</li> </ul>	<p>Training Materials</p>
<p><b>Activity 1.3:</b> Regional Training Course on GMP &amp; GHP for Ready-To-Eat Raw fish and fishery products</p>	<ul style="list-style-type: none"> <li>- Regional Training Course conducted in Singapore by local IHL</li> <li>- ½ day site visit to local food processing company to observe GMP/GHP</li> <li>- Two participants from each MC invited (ideally 1 being the National Project Focal Points and 1 from the MC industry who handles Ready-To-Eat Raw fish and fishery products)</li> <li>- Resource person(s) invited from Japan</li> </ul>	<ul style="list-style-type: none"> <li>- Training Course report</li> <li>- Two participants from each MC</li> </ul>
<p><b>Activity 1.4:</b> GMP &amp; GHP handling pilot trials</p>	<ul style="list-style-type: none"> <li>- One-year trial on implementing GMP &amp; GHP conducted in MCs</li> <li>- Gaps in manufacturing industry in each country identified and reported</li> </ul>	<ul style="list-style-type: none"> <li>- Country report on the trial from each MC</li> </ul>
<p><b>Activity 1.5:</b> Mid-Term Review Meeting</p>	<ul style="list-style-type: none"> <li>- Two participants from each MC invited (ideally 1 being the National Project Focal Points and 1 from the MC industry who handles Ready-To-Eat Raw fish and fishery products)</li> <li>- Resource person(s) invited from Japan</li> </ul>	<ul style="list-style-type: none"> <li>- Meeting report</li> <li>- Two participants from each MC</li> <li>- Regional Guidelines drafted</li> </ul>
<p><b>Activity 1.6:</b> Preparation of Regional Guidelines on GMP &amp; GHP</p>	<ul style="list-style-type: none"> <li>- Feedbacks from in-country consultations collected and reviewed</li> <li>- Draft Regional Guidelines prepared</li> </ul>	<p>Draft Regional Guidelines</p>
<p><b>Activity 1.7:</b> End of Project Meeting</p>	<ul style="list-style-type: none"> <li>- 2-day meeting organized in Singapore</li> <li>- Two participants from each MC invited</li> <li>- Regional Guidelines finalized with all MCs' consensus</li> <li>- Final draft document of Regional Guidelines will be shared with all MCs for their official endorsement</li> </ul>	<ul style="list-style-type: none"> <li>- Meeting report</li> <li>- Two participants from each MC</li> <li>- Regional Guidelines on GMP &amp; GHP</li> </ul>
<p><b>OUTPUT 2</b></p>	<p><b>Indicators</b></p>	<p><b>Means of Verification</b></p>
<p>Handbook on HPP serves as methods to process fish and fishery products through HPP</p>	<p>Handbook on HPP of fish and fishery products developed and published</p>	<p>Handbook on HPP of fish and fishery products</p>

ACTIVITY 2	Indicators: key inputs	Means of Verification
<b>Activity 2.1:</b> Project Inception Meeting to be held in Singapore in 2020	<ul style="list-style-type: none"> <li>- Two-day meeting organized in Singapore for all MCs in the 4<sup>th</sup> quarter of 2020</li> <li>- Two participants from each MC invited</li> <li>- Project scope and range of seafood products for HPP discussed</li> <li>- National Project Focal Points identified in MCs</li> <li>- Back-to-back activity with 1.1</li> </ul>	<ul style="list-style-type: none"> <li>- Meeting report</li> <li>- Finalised project scope and range of seafood products for HPP</li> <li>- Two participants from each MC</li> <li>- National Project Focal Point in each MC</li> </ul>
<b>Activity 2.2:</b> R&D and product development in collaboration with local institutes and industry co-operants/partners	R&D and product development undertaken in collaboration with local institutes and industry cooperants/partners	R&D and product development in trial
<b>Activity 2.3:</b> Development of Training Material for HPP of fish and fishery products	- Training materials are developed for HPP of fish and fishery products while considering the scope defined at the inception meeting by local Institute of Higher Learning (IHL)	Training Materials
<b>Activity 2.4:</b> Preparation of Handbook on HPP of fish and fishery products	Handbook on HPP of fish and fishery products to be drafted	Draft handbook on HPP of fish and fishery products
<b>Activity 2.5:</b> Regional Training Course on HPP technology	<ul style="list-style-type: none"> <li>- Regional Training Course on HPP technology organized in Singapore</li> <li>- Two participants from each MC invited</li> <li>- Handbook on HPP of fish and fishery products to be finalised with consensus from the participants</li> </ul>	<ul style="list-style-type: none"> <li>- Training Course Report</li> <li>- Two participants from each MC</li> <li>- Finalised Handbook on HPP of fish and fishery products</li> </ul>
<b>Activity 2.6:</b> Translation of Handbook on HPP of fish and fishery products to other languages	Handbook on HPP of fish and fishery products translated to other languages and published	Handbook on HPP of fish and fishery products in different languages
<b>Activity 2.7:</b> End of Project Meeting and Visit to an overseas commercial High-Pressure Processing Plant for Seafood	<ul style="list-style-type: none"> <li>- One-day meeting</li> <li>- One-day site visit to an overseas commercial High-Pressure Processing Plant for Seafood</li> <li>- Two participants from each MC invited</li> </ul>	<ul style="list-style-type: none"> <li>- Meeting and site visit report</li> <li>- Two participants from each MC</li> </ul>

## 5.2 Project Implementation Plan for 2020–2024

Activities	2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Output 1: Regional standards serves as a guide in the development of national standards for GMP & GHP for Ready-To-Eat Raw fish and fishery products																				
Activity 1.1																				
Activity 1.2																				
Activity 1.3																				
Activity 1.4																				
Activity 1.5																				
Activity 1.6																				
Activity 1.7																				

Activities	2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Output 2: Handbook on HPP serves as methods to process fish and fishery products through HPP																				
Activity 2.1																				
Activity 2.2																				
Activity 2.3																				
Activity 2.4																				
Activity 2.5																				
Activity 2.6																				
Activity 2.7																				

### 5.3 Proposed Budget for 2020–2024

(Unit: USD)

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2024)
Output 1	Activity 1.1	35,000				
	Activity 1.2		10,000			
	Activity 1.3		30,000			
	Activity 1.4			15,000	15,000	
	Activity 1.5				35,000	
	Activity 1.6					2,500
	Activity 1.7					32,500
Output 2	Activity 2.1	35,000				
	Activity 2.2		10,000			
	Activity 2.3		10,000			
	Activity 2.4			10,000		
	Activity 2.5			35,000		
	Activity 2.6				10,000	
	Activity 2.7					45,000
<b>Sub-Total</b>		<b>70,000</b>	<b>60,000</b>	<b>60,000</b>	<b>60,000</b>	<b>80,000</b>

## PART II: PROJECT ACHIEVEMENTS IN 2022

### 1. Project Achievements in the Present Year

Due to the Covid-19 pandemic in the region, activities timeline initially planned in 2022 were adjusted accordingly.

#### *Activity 1.3: GMP/GHP for Ready-to-Eat Raw Fish and Fisheries Products*

The training and course materials were developed in accordance with the discussed scope by a local IHL consultant engaged by MFRD. The training for the Member Countries occurred in April 2022.

#### *Activity 1.4: GMP & GHP handling pilot trials*

Member Countries are conducting the pilot trials in their respective countries based on the training course conducted in April 2022. The pilot trials will last one year and will end by Q2 2023.

#### *Activity 2.2: Guidelines on HPP Processing*

MFRD engaged a consultant, and R&D on the HPP processing for seafood is currently in progress in accordance with the agreed scope.

## 2. Activities and Budget in the Present Year

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1: Regional standards serve as a guide in the development of national standards for GMP/GHP for Ready-to-Eat Raw Fish and Fisheries Products</b>								
Activity 1.4	GMP & GHP handling pilot trials	-	-	-	-	-	-	15,000
<b>Output 2: Handbook on HPP serves as methods to process fish and fishery products through HPP</b>								
Activity 2.2	R&D and product development in collaboration with local institutes and industry co-operants/partners	-	-	-	-	-	-	10,000

## 3. Expected Outcome/Outputs and Achievements

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Outcome</b>		
<b>Output 1:</b>	<b>Regional standards serve as a guide in the development of national standards for GMP/GHP for Ready-to-Eat Raw Fish and Fisheries Products</b>	
Activity 1.4	GMP & GHP handling pilot trials	Each member country is working on the pilot trial after the regional training course was held.
<b>Output 2:</b>	<b>Handbook on HPP serves as methods to process fish and fishery products through HPP</b>	
Activity 2.2	R&D and product development in collaboration with local institutes and industry co-operants/partners	Pilot trials are in progress at the HPP facility in Singapore. However, due to change in management of the HPP facility, the deal for usage of HPP had to be renegotiated. In addition, shortage of manpower added on to the delay.

## 4. Major Impacts/Issues

Due to the COVID-19 and restrictions imposed, the activities timeline had to be pushed back. The planned training course was also conducted virtually in 2022.

## PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

### 1. Project Summary in 2023

Member Countries will conduct their own GMP and GHP pilot trials till Q2 2023, after which there would be a mid-term review meeting and the preparation of Regional Guidelines on GMP and GHP. As for HPP of fish and fishery products, it is expected to have developed the training materials, Handbook of HPP on fish and fishery products and plan the regional training course on HPP technology.

### 2. Outcome, Outputs and Activities and Proposed Budget

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
Outcome	Enhanced safety and competitiveness of seafood products in Southeast Asia	
Output 1:	Regional standards serve as a guide in the development of national standards for GMP & GHP for Ready-to-Eat Raw fish and fishery products	
Activity 1.4	GMP & GHP handling pilot trials	15,000
Activity 1.5	Mid-term review meeting	35,000
Output 2:	Handbook on HPP serves as methods to process fish and fishery products through HPP	
Activity 2.2	R&D and product development in collaboration with local institutes and industry co-operants/partners	10,000
Activity 2.3	Development of Training Material for HPP of fish and fishery products	10,000

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
Activity 2.4	Preparation of Handbook on HPP of fish and fishery products	10,000
Activity 2.5	Regional Training Course on HPP technology	35,000

### 3. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>												
Activity 1.4												
Activity 1.5												
<b>Output 2:</b>												
Activity 2.2												
Activity 2.3												
Activity 2.4												
Activity 2.5												

### 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Activity 1</b> Development of regional standards and guidelines on safe handling of raw seafood products	
<b>Activity 1.4</b> GMP & GHP handling pilot trials	MCs to share results of pilot trials
<b>Activity 1.5</b> Mid-term review meeting	MCs to share results of pilot trials during meeting and discuss whether improvements can be incorporated into Regional Guidelines.
<b>Activity 2</b> Building capabilities in HPP for seafood to enhance competitiveness	
<b>Activity 2.2</b> R&D and product development in collaboration with local institutes and industry co-operants/partners	MFRD engaged a consultant to work on the R&D and product development on the agreed range of seafood.
<b>Activity 2.3</b> Development of Training Material for HPP of fish and fishery products	MFRD engaged a consultant to work on developing training material for HPP of fish and fishery products based on results gathered from R&D and product development.
<b>Activity 2.4</b> Preparation of Handbook on HPP of fish and fishery products	MFRD engaged a consultant to work on preparation and drafting of handbook that would be shared with all MCs.
<b>Activity 2.5</b> Regional Training Course on HPP technology	MFRD worked with the consultant on conducting a regional training course on HPP for all MCs to attend.

**PROJECT DOCUMENT**  
**PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 202006014
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	ASEAN-JICA Food Value Chain Development Project		
<b>Program Strategy No:</b>	III	<b>Total Period</b>	2023–2026
<b>Lead Department:</b>	Secretariat (SEC)	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	ASEAN-Japan Technical Cooperation	<b>Total Project Budget:</b>	tbc
<b>Project Partner(s):</b>	Japan International Cooperation Agency (JICA)	<b>Budget for 2023:</b>	tbc
<b>Lead Technical Officer(s):</b>	Leobert de la Pena (AQD), Yihang Ong (Chief/MFRD), Pattaratjit Kaewnuratchadosorn (SEC) and Thaweesak Thimkrap (TD)	<b>Project Participating Country</b>	All Member Countries

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

Framework of the proposed project is composed of four major thematic areas: 1) ASEAN-GAP (Good Agriculture Practice), 2) SPS (Sanitary and Phyto-sanitary) measures, 3) **fishery value chain** and 4) coordination and research and principles on inspection mechanism, harmonization of SPS measures in aquatic animal quarantine and health certification for export/import across the AMSs, and to facilitate sharing information and best practices on SPS.

Under the Output 3 (Food safety on fishery sector is improved by promotion of GAqP and development of ASEAN guidelines and relevant principles on fisheries inspection mechanism), the proposed project supports the fishery sector by strengthening the hygiene management system of fishery products, the implementation of ASEAN Good Aquaculture Practices (ASEAN-GAqP), and the inspection for fish and fisheries products in supply chain.

Currently, JICA as Project Implementation Agency is carrying out a study for developing the project activity details in cooperation with SEAFDEC as Project Implementation Partner. The proposed activity details will be further discussed and confirmed between JICA and the ASEAN Secretariat. It is expected to commence the project activities in 2023.

### 2. Background and Justification

Due to the constant growth of the ASEAN economy, the middle-class consumers who tend to be keen for food safety and also have strong demand for high value-added products are dramatically increasing in these few decades. ASEAN recognizes that the establishment of a sound food value chain can be a key solution for ensuring the food safety and sustainable development in the region as reflected in its various policy documents such as the Vision and Strategic Plan for ASEAN Cooperation in Food, Agriculture and Forestry (2016-2025), ASEAN Integrated Food Security Framework and Strategic Plan of Action on Food Security in the ASEAN Region (2015-2020), and the ASEAN Plus Three Leader's Statement on Food Security Cooperation 2017. Through their endorsement and request for development of a full proposal by the ASEAN Secretariat (ASEC) and JICA, the value of the initiative to ASEAN was recognized at both the Special SOM-18<sup>th</sup> AMAF+3 and 19<sup>th</sup> AMAF+3 Meetings in 2019.

JICA and the ASEAN Secretariat initiated the discussions on the formulation of a new project in February 2018. After collecting the necessary information and data in the region, JICA developed and presented a conceptual framework of the project on the occasion of Special SOM-18<sup>th</sup> AMAF+3 Meeting held in Viet Nam on 7 August 2019, in which the concept proposal was welcomed by SOM-AMAF+3 Leaders. The project proposal was approved by the ASEAN Secretariat in October 2021. However, the further administrative process in Japan in preparation for the project has been delayed due to the COVID-19 situation in 2021-2022.



According to the JICA’s project preparation procedures, a study was initiated and is currently carried out by JICA as Project Implementation Agency in preparation for the project activity details (*i.e.* sub-activities and budget allocations). The study results will be further discussed and confirmed between JICA and the ASEAN Secretariat. Therefore, at this stage the planned sub-activities and its budget allocations have not yet been finalized and confirmed although the tentative sub-activities and budget allocations were reported in the past PCMs in 2020 and 2021.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

Under a series of the planned capacity development activities, workshops/meetings/training are open to both men and women to participate in. There is an equal opportunity for men and women.

### 5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification

#### 5.1 Logical Framework

GOAL (Overall Objectives, Impact)	Indicators	Means of Verification
Safety and good quality food for consumers’ daily needs and healthy life	<ul style="list-style-type: none"> <li>- Safe and good quality of food improved</li> <li>- Safe and good quality food available and sold at any retail shops</li> <li>- Healthy and active life commenced</li> </ul>	<ul style="list-style-type: none"> <li>- Safe and good quality food available at any retail shops</li> <li>- Healthy and active life</li> </ul>
OUTCOME	Indicators	Means of Verification
Securing safe and good quality food in sustainable food value chain in the ASEAN Economic Community	Safe and good quality food maintained and available in food value chain	Food value chain in place effectively and sustainably
OUTPUT 1*	Indicators	Means of Verification
Action Plan for marketing and promotion of ASEAN GAP is developed	N/A	N/A
OUTPUT 2*	Indicators	Means of Verification
Capacities of SPS are strengthened through improvement of pesticide analysis	N/A	N/A
OUTPUT 3	Indicators	Means of Verification
Food safety on fishery sector is improved by promotion of GAqP and development of ASEAN guidelines and relevant principles on fisheries inspection mechanism	<ul style="list-style-type: none"> <li>- Hygiene management system of fishery products is assessed and shared</li> <li>- Issues on Certification and Accreditation Systems for ASEAN GAqP are identified and shared</li> <li>- ASEAN guidelines for inspection of fish and fisheries products are developed</li> </ul>	<ul style="list-style-type: none"> <li>- Annual Progress Reports</li> <li>- Project Completion Report</li> <li>- ASEAN guidelines for inspection of fish and fisheries products</li> </ul>

<b>ACTIVITY 3</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 3.1</b> To assess and share information on hygiene management system of fishery products	to be confirmed (tbc)	tbc
<b>Sub-activities</b> (under preparation by JICA)	tbc	tbc
<b>Activity 3.2</b> To strengthen the implementation of ASEAN Good Aquaculture Practices (ASEAN-GAqP) with Experts Working Group (EWG) ASEAN GAqP	tbc	tbc
<b>Sub-activities</b> (under preparation by JICA)	tbc	tbc
<b>Activity 3.3</b> To formulate ASEAN guideline for inspection for fish and fisheries products at each point on supply chain	tbc	tbc
<b>Sub-activities</b> (under preparation by JICA)	tbc	tbc
<b>OUTPUT 4 *</b>	<b>Indicators</b>	<b>Means of Verification</b>
Strategies for promoting PPP-based FVC is developed	N/A	N/A

**Note:** \* shows Outputs in the agriculture activities, which are not under the implementation responsibility of SEAFDEC.

## 5.2 Project Implementation Plan for 2023–2026

As described above, the planned activities and its budget allocations have not yet been finalized by JICA.

## 5.3 Proposed Budget for 2022–2025

As described above, the planned activities and its budget allocations have not yet been finalized by JICA.

## PART II: PROJECT ACHIEVEMENTS IN 2022

Note: No activity in 2022 because the new project is expected to commence in 2023

## PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

To be confirmed.

**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

	Project ID: 202006008		
<b>Program Category</b>	ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title</b>	Assistance for Capacity Development in the Region to Address International Fisheries-related Issues		
<b>Program Strategy No.</b>	V	<b>Total Period</b>	2020–2024
<b>Lead Department</b>	Secretariat (SEC)	<b>Lead Country</b>	None
<b>Donor/Sponsor</b>	Japanese Trust Fund (JTF)	<b>Total Donor Budget</b>	USD 455,000
<b>Project Partner(s)</b>	FAO, FRA, etc.	<b>Budget for 2023</b>	USD 80,500
<b>Lead Technical Officer</b>	Pattaratjit Kaewnuratchadasorn	<b>Project Participating Country</b>	All Members Countries

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

Regional approaches in addressing the major gaps in the international fisheries-related issues tend to impede the sustainable development of fisheries and aquaculture in the Southeast Asian region. The project aims to provide a platform where discussions among the ASEAN-SEAFDEC Member Countries can be made, including regional approaches that could be raised to the international fisheries forum (e.g. meetings of FAO, RFMOs, CITES, and WTO negotiations on fisheries subsidies, etc.). A number of key recommendations by regional and international experts at the meetings to be organized by the project could be used as a basis for regional actions by SEAFDEC and national actions by ASEAN Member States (AMSs). Major outputs of several regional meetings organized by the project over the years include: regional common/coordinated positions and recommendations for national and regional action plans to safeguard the interest in the region, and supports AMSs on awareness raising for international fisheries-related issues. As a result, inputs from SEAFDEC and AMSs at global level, such as the FAO Committee on Fisheries (COFI), the Endangered Species of Wild Fauna and Flora (CITES), WTO – Fisheries Subsidies Negotiations can be made.

### 2. Background and Justification

Over the years, SEAFDEC has monitored the potential international issues on fish and fish products in Southeast Asia and provided a platform for AMSs through the organization of Experts Meetings and Regional Technical Consultations where the discussions concluded with key recommendations on the trade-related and environment-related issues on international concerns. For example, the proposed listing of commercially-exploited Aquatic Species (CEAS) into the CITES Appendices is one of the crucial issues that could impact not only on the management of fisheries but also the economies of the countries in the region. Such impacts are anticipated not only as a result of new regulations in the trade of the species being listed in the CITES Appendices but also in the trade of look-alike species, as well as trade in parts or processed forms of the species. The listing of species into the CITES Appendices could therefore result in the termination of data collections on the production of these species, leading to the unavailability of data and information on the status of the species after being listed. Furthermore, difficulties could also be encountered in proposing to delist or down-list the species once these are listed in the CITES Appendices. At the 32<sup>nd</sup> Meeting of the SEAFDEC Program Committee in 2000, SEAFDEC was asked to carefully give consideration to the proposed listing of CEAS into the Appendices of the CITES. In response, SEAFDEC has initiated the implementation of the program “Assistance of Capacity Development in the Region to Address International Fish-Trade Related Issues” under the ASEAN-SEAFDEC Strategic Partnership mechanism.

Over a decade, SEAFDEC has conducted a series of regional fora to facilitate discussions and development of common/coordinated positions among AMSs in the region on the proposals to list certain aquatic species into the CITES Appendices. Moreover, SEAFDEC has also been undertaking technical activities on the conservation and management as well as on the sustainable utilization of various aquatic species that could be proposed for listing in the Appendices, e.g. sharks and rays, seahorses, sea cucumbers, sea turtles, and catadromous eels. These

activities aim to come up with data and information on the status and trends of the production and utilization of these species, as well as the existing conservation and management measures undertaken by the countries in the region. The information compiled would serve as a basis for discussions on the proposed listing of the species in the CITES Appendices. Furthermore, with funding support from the CITES-EU, SEAFDEC has been undertaking from project implemented from 2016 to 2018 that support improvement of data collection at regional and national levels specifically for recording of sharks and rays at the species level, and also the capacity building in the development of Non-Detriment Findings (NDFs) for the conduct of scientific reviews that would justify as to whether the trade endangers the species or not.

To support the Member Countries with regard to international trade-related issues, SEAFDEC also provides several platforms for AMSs to discuss harmonized approaches toward the issue of fisheries subsidies. For example, the Regional Technical Consultation (RTC) on International Fisheries-related Issues on 20-22 June 2018 in Bangkok, Thailand, included discussions on fisheries subsidies. During the 2018 RTC, it was agreed that the scope of fisheries subsidies should focus on the types of fishing gear and not by species, and that fisheries subsidies should not be considered as a standalone issue, as it has a close linkage with other initiatives, *e.g.* sustainability of the fish stocks. In order that the discussions would also address the issues that concern the region, it was agreed that AMSs should consider the possibility of sending a country delegate that comprises especially their national fisheries officers to attend in different clusters of fishery subsidies negotiations. Meanwhile, SEAFDEC also facilitate the identification of a focal point of each AMS as well as the development of the ASEAN common position on fishery subsidies for adoption by the ASEAN Ministers on Agriculture and Forestry (AMAF) to be reflected at the WTO fora upon consideration by the SEAFDEC Council. In 2020, SEAFDEC in collaboration with FAO and WTO jointly organized the Webinar on Fisheries Subsidies: Southeast Asian Region Perspectives to discuss among SEAFDEC Member Countries (MCs) on the possibility to come up with a set of recommendations and the ASEAN common position on fisheries subsidies. SEAFDEC also brought the international organizations to present the brief introduction on fisheries subsidies in the WTO and updated information on the status of the negotiation agenda of WTO on fisheries subsidies. The webinar also provides the platform for SEAFDEC MCs to share views at the national level on the impacts of WTO rules on fisheries subsidies and to discuss this issue together.

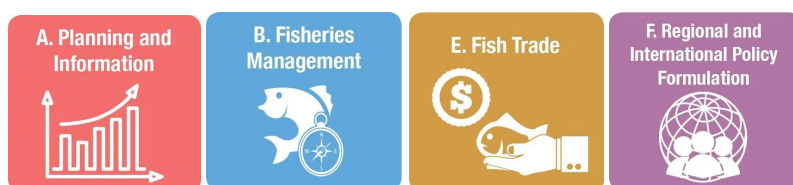
In addition, SEAFDEC has been working on the promotion of sustainable fisheries development in the Southeast Asian region. The SEAFDEC program frameworks to support AMSs have been significantly observed in 1998 when SEAFDEC adopted the Resolution on SEAFDEC Strategic Plans at the 30<sup>th</sup> Meeting of the SEAFDEC Council and more clear after the new millennium in 2001 when ASEAN-SEAFDEC adopted the “Resolution and Plan of Action on Sustainable Fisheries for Food Security in the ASEAN Region” as well as the new decade Resolution and Plan of Action on Sustainable Fisheries for Food Security toward 2020 in 2011 as policy guidelines for SEAFDEC and its member countries. To support the implementation of the Resolution and Plan of Action, taking into account environmental changes and many policies emerging issues pressing at global and regional levels including the problems of IUU fishing, SEAFDEC therefore proposes its continuing efforts to further strengthen the SEAFDEC network among AMSs in order to move forward on the sustainable utilization of fisheries resources in the region. In conjunction with this, the cooperation within the region and among AMSs needs to be further enhanced and included in the project framework under the new JTF 6 Phase II in order to share and exchange information and to work together to meet the final goal of the ASEAN-SEAFDEC Resolutions and Plan of Action that has been committed by all AMSs. In this connection, this project supports the development and implementation of the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030 (RES&POA-2030) as follows;

- RES#19 “Promote joint ASEAN approaches and positions in international trade in fish and fishery products produced in the region, by harmonizing the standards, criteria, and guidelines, and developing mutually-recognized agreements on sustainability and food safety management systems;
- POA#82 “Strengthen cooperation and mechanisms among AMSs to work towards common positions that could be reflected in international fish trade related fora, *e.g.* World Trade Organization (WTO), Food and Agriculture Organization of the United Nations (FAO)/COFI Sub-Committee on Fish Trade, Office International des Epizooties (OIE), Codex Alimentarius Commission (CAC), and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)” through provide the platform for Regional Technical Consultation (RTC) (or Senior Official Meeting if required) to discuss the international fish trade-related issues which may impact the development of fisheries and aquaculture in the Southeast Asian region.

- POA#88 “Increase participation and involvement of AMSs in international fora and technical committees, e.g. CITES, CAC, FAO, OIE, Regional Fisheries Bodies (RFBs) and WTO; and promote ASEAN interest, recognizing that fisheries policies of relevance to the ASEAN are increasingly discussed and agreed upon at the global” through supports SEAFDEC staff to participate the relevant regional/international forum on international fish trade.

Furthermore, this project also supports the strengthening global cooperation for Sustainable Development Goals (SDGs), such as e.g. SDG14: “Life below Water” to conserve and sustainably use the oceans, seas and marine resources; and SDG17: Strengthen the means of implementation and revitalize the global partnership for sustainable development. SEAFDEC continues to support the sustainable use of ocean-based resources through AMSs on awareness rising for international fisheries-related issues.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

Equal participation is provided to men and women.

### 5. Project Goal, Outputs, Activities, Indicators and Verification

#### 5.1 Logical Framework

GOAL (Overall Objectives)	Indicators	Means of Verification
Sustainable utilization and sound management of fisheries resources through appropriate regional approaches in international fish trade	<ul style="list-style-type: none"> <li>- Regional cooperation in international fish trade</li> <li>- Responsible fisheries practice is maintained</li> </ul>	<ul style="list-style-type: none"> <li>- Agreed positions on concerns related to international fish trade</li> <li>- Effective and efficient fisheries management in place</li> </ul>
OUTCOME 1	Indicators	Means of Verification
Actions of AMSs at the international fora reflecting a more understanding with supportive data/information	All AMSs can update and share their status on the international fish trade-related issues	Improved information and capacities of AMSs to meet requirements of international fish trade
OUTPUT 1	Indicators	Means of Verification
The status of international fish trade-related issues updated and informed AMSs	Detailed information on international fish trade-related issues	Updates of international fish trade-related issues
ACTIVITY 1	Indicators: key inputs	Means of Verification
<b>Activity 1.1:</b> Participation in the relevant regional/international forum on international fish trade, e.g. FAO COFI, CITES, etc.	Participation of one SEAFDEC staff in FAO COFI, CITES, etc.	<ul style="list-style-type: none"> <li>- Meeting report</li> <li>- Back-to-Office report</li> <li>- Newsletter</li> <li>- Appropriate budget allocated for meetings participations</li> </ul>
<b>Activity 1.2:</b> The status of international fish trade-related issues reviewed	At least once a year to review/updated status of the international fish trade-related issues	Updates of international fish trade-related information and issues

<b>OUTPUT 2</b>	<b>Indicators</b>	<b>Means of Verification</b>
Cooperation among AMSs aiming to safeguard fisheries and aquaculture of the Southeast Asian region through the development the common/ coordinated positions on the international fish trade-related issue and acknowledge the impact from the international fish trade-related issues	<ul style="list-style-type: none"> <li>- Strengthened cooperation in the region</li> <li>- Common/ coordinated positions on the international fish trade-related issue developed</li> </ul>	Common/coordinated positions on the international fish trade-related issue
<b>ACTIVITY 2</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 2.1:</b> A platform for Regional Technical Consultation (RTC) (or Senior Official Meeting if required) provided to discuss the international fish trade- related issues which may impact to the development of fisheries and aquaculture in the Southeast Asian region	<ul style="list-style-type: none"> <li>- RTC</li> <li>- Expected number (50 persons) of participants</li> </ul>	<ul style="list-style-type: none"> <li>- Consultation report</li> <li>- Number (50 persons) of participants</li> </ul>
<b>Activity 2.2:</b> RTC organized to discuss and develop a common/coordinated position and policy recommendations for AMSs	<ul style="list-style-type: none"> <li>- RTC</li> <li>- Expected number (50 persons) of participants</li> </ul>	<ul style="list-style-type: none"> <li>- Report of the RTC</li> <li>- The Country's Position on the proposed international trade-related instruments (e.g. CEAS by COP as well as the country's views on each proposal to be addressed at the Council Meeting for consideration and adoption, WTO negotiation on fisheries subsidies, etc.)</li> <li>- ASEAN-SEAFDEC Common Positions on Inclusion of the Commercially-exploited Aquatic Species (CEAS) to the CITES Appendix</li> </ul>
<b>OUTPUT 3</b>	<b>Indicators</b>	<b>Means of Verification</b>
Communications and cooperation with AMSs through the Regional Fisheries Policy Network (RFPN) strengthened	<ul style="list-style-type: none"> <li>- Better communications and improved cooperation between SEAFDEC and AMSs</li> <li>- Effective RFPN roles</li> </ul>	<ul style="list-style-type: none"> <li>- Appropriate and effective communications with their respective AMSs and among AMSs</li> <li>- Efficient actions by RFPN members</li> </ul>
<b>ACTIVITY 3</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 3.1:</b> Capacities of RFPN enhanced through the participation in SEAFDEC meetings/ workshops	Participation of RFPN members in SEAFDEC meetings/workshops	<ul style="list-style-type: none"> <li>- Meeting report</li> <li>- Back-to-Office report</li> <li>- Newsletter</li> </ul>
<b>Activity 3.2:</b> SEAFDEC Fisheries Country Profiles updated under the assignments of RFPN	SEAFDEC Fisheries Country Profiles updated	Updated SEAFDEC Fisheries Country Profiles in the SEAFDEC website
<b>Activities 3.3:</b> Communications with AMSs improved through the support /advice of RFPN members	Information obtained, planned work initiated and actions taken timely	Work plan completed based on appropriate information obtained from AMSs

<b>OUTPUT 4</b>	<b>Indicators</b>	<b>Means of Verification</b>
Information on international fisheries-related issues disseminated in the Southeast Asian region	Updated information on international fisheries-related issues disseminated	Number of publications and their dissemination
<b>ACTIVITY 4</b>	<b>Indicators: key inputs</b>	<b>Means of Verification</b>
<b>Activity 4.1:</b> Preparation, production and dissemination of the publications on international fisheries-related issues or the results of the project	Publications produced and disseminated	Publications on international fisheries-related issues

## 5.2 Project Implementation Plan for 2020–2024

Activities	2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Output 1:</b>																				
Activity 1.1																				
Activity 1.2																				
<b>Output 2:</b>																				
Activity 2.1																				
Activity 2.2																				
<b>Output3:</b>																				
Activity 3.1																				
Activity 3.2																				
Activity 3.3																				
<b>Output4:</b>																				
Activity 4.1																				

## 5.3 Proposed Budget for 2020–2024

(Unit: USD)

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2024)
Output 1	Activity 1.1	7,500	7,500	10,000	3,000	7,000
	Activity 1.2	1,000	1,000	1,000	1,000	1,000
Output 2	Activity 2.1	26,000	26,000	25,000	25,000	25,000
	Activity 2.2	-	-	25,000		-
Output 3	Activity 3.1	50,000	55,000	50,000	50,000	50,000
	Activity 3.2	500	500	500	500	500
Output 4	Activity 4.1	1,000	1,000	1,500	1,000	1,000
	<b>Sub-Total</b>	<b>86,000</b>	<b>91,000</b>	<b>113,000</b>	<b>80,500</b>	<b>84,500</b>

## PART II: PROJECT ACHIEVEMENTS IN 2022

### 1. Project Achievements in the Present Year

In 2022, the Project staff participated in the international meetings including the 74<sup>th</sup> Meeting of the Standing Committee of CITES in Lyon, France, 6-14 March 2022, the FAO Technical Consultation on Voluntary Guidelines for Transshipment, 30 May–3 June 2022, and FAO’s 35COFI Meeting to obtain the updated information of international fisheries-related issues. The Voluntary Guidelines for Transshipment was endorsed at the 35COFI in September 2022. It becomes a voluntary instrument for combating IUU fishing within the framework of the FAO Code of Conduct for Responsible Fisheries.

In 2022, the Project enhanced the regional cooperation among the AMSs by providing the regional platforms to share information regarding fish trade-related and emerging issues, and develop common/coordinated positions on the proposed listing of aquatic species in CITES Appendices. The key important deliverables were developed as follows:

1. ASEAN-SEAFDEC Positions on the Proposed Listing of Commercially-exploited Aquatic Species into the CITES Appendices for consideration at CITES-CoP19.
2. The Report of the Study on Impacts of COVID-19 Pandemic on the Fisheries Sector of the ASEAN-SEAFDEC Member Countries on 24 February 2021, and submitted to the SEAFDEC Council during its 54<sup>th</sup> Meeting in May 2022.
3. The Key Indicators and Detailed Roadmap for Monitoring and Evaluation of the Implementation of the RES&POA-2030. The M&E framework was circulated to the AMSs for the country's inputs for the baseline 2021.

In addition, the Project supported human capacity development through the training courses and webinar to raise awareness and build capacity of the AMSs on emerging international issues, e.g. stock assessment (fisheries subsidies), Japan's Catch Documentation Scheme.

The project also strengthened the regional cooperation and network among the national officers of AMSs through the Regional Capacity Building (RECAP) Network. The RECAP 2022, supported 19 national officers for increasing awareness, knowledge and understanding on gender concepts and gender mainstreaming in small-scale fisheries and aquaculture for the sustainable development in Southeast Asia.

## 2. Activities and Budget in the Present Year

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1:</b> The status of international fish trade-related issues updated and informed AMSs								
<b>Activity 1.1</b> Participation in the relevant regional/ international forum on international fish trade e.g. FAO COFI, CITES, etc. (events were organized through online platforms)	III	-	-	-	3	-	-	6,513.07
<b>Activity 1.2</b> Review the status of international fish trade-related issues:	IV							
<b>Output 2:</b> Cooperation among AMSs aiming to safeguard fisheries and aquaculture of the Southeast Asian region through the development the common/ coordinated positions on the international fish trade-related issue and acknowledge the impact from the international fish trade-related issues								
<b>Activity 2.1:</b> Regional Technical Consultation on Development of the ASEAN–SEAFDEC Common Positions on the Proposed Listing of Commercially–exploited Aquatic Species into the CITES Appendices (31 August-1 September 2022)	I	4	15	12	5	-	6	40,000
<b>Activity 2.2</b> 2.2.1 Study on Impacts of COVID-19 Pandemic on the Fisheries Sector of ASEAN-SEAFDEC Member Countries	I							
- Writeshop for the finalization of the Study Report of COVID-19 Pandemic on the Fisheries Sector of the ASEAN-SEAFDEC Member Countries, 23-24 February 2022		-	-	3	3	-	-	247.33



Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
- Regional Workshop for the Finalization of the Study Report on Impacts of COVID-19 Pandemic on the Fisheries Sector of the ASEAN-SEAFDEC Member Countries, 20 April 2022, online meeting		14	11	14	16	-	-	279.55
2.2.2 Development of the Key Indicators and Detailed Roadmap for Monitoring and Evaluation of the Implementation of the RES&POA-2030								
- Regional Workshop on Development of the Key Indicators and Detailed Roadmap for Monitoring and Evaluation of the Implementation of the RES&POA-2030, 23-24 March 2022 (online meeting)		20	18	12	19	-	-	310.41
- Regional Workshop on Finalization of the Key Indicators for Monitoring and Evaluation of the Implementation of the RES&POA-2030, 14-15 June 2022 (online meeting)		14	11	14	17	-	-	279.55
2.2.3 Follow-up action for the Fisheries Subsidies - Organization of the Second Regional Training Workshop on Stock Assessment in Support the Implementation of the International Commitments for Sustainable Use of Fisheries Resources in Southeast Asia, 29 Aug-6 September 2022 (hybrid)		5	12	-	2	1	3	26,000
<b>Output 3: Communications and cooperation with AMSs through the Regional Fisheries Policy Network (RFPN) strengthened</b>								
<b>Activity 3.1</b> Regional Training Course on Gender Mainstreaming in Small-scale Fisheries and Aquaculture for Sustainable Development in Southeast Asia (20-29 September 2022) (in-person)		10	5	10	3	2	-	46,500
Activity 3.2 SEAFDEC Fisheries Country Profiles updated under the assignments of RFPN - Publication of the Small-scale Fisheries of Southeast Asia: A Regional Digest								3,000

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMSs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 4:</b> Information on international fisheries-related issues disseminated in the Southeast Asian region								
<b>Activity 4.1</b> Preparation, production and dissemination of the publications on international fisheries-related issues or the results of the project - Posting the news on social medias - Bookcard and brochures to dissemination	V							1,597.74

### 3. Expected Outcome/Outputs and Achievements

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Outcome</b> Actions of AMSs at the international fora reflecting a more understanding with supportive data/information		
<b>Output 1:</b>		
Activity 1.1 Participation in the relevant regional/ international forum on international fish trade <i>e.g.</i> FAO COFI, CITES, etc. - Participation in the 74 <sup>th</sup> Meeting of the Standing Committee of CITES in Lyon, France 6-14 March 2022). - Participation in FAO Technical Consultation on Voluntary Guidelines for Transshipment, 30 May–3 June 2022	International fish trade-related issues <i>e.g.</i> FAO, CITES, etc. updated	SEAFDEC staff attended international meetings organized by CITES and FAO, and obtained the updated information on the relevant issues.
Activity 1.2 Review the status of international fish trade-related issues		
<b>Output 2:</b>		
Activity 2.1 Regional Technical Consultation (RTC) for Development of the ASEAN-SEAFDEC Common Position on the Proposed Listing of Commercially-exploited Aquatic Species (CEAS) into the CITES Appendices 30 August-1 September 2022	<ul style="list-style-type: none"> <li>- Information compilation on the CEAS (<i>e.g.</i> stock status and its biological information, trade, market) and the possible impacts to the proposed inclusion of commercially-exploited aquatic species into the CITES Appendices.</li> <li>- The ASEAN-SEAFDEC common/coordinated positions on the proposed listing of commercially-exploited aquatic species into the CITES Appendices at the CoP19 for further submission to the SEAFDEC Council and the ASEAN for consideration.</li> <li>- Recommendations for the conservation and sustainable utilization of the CEAS</li> </ul>	The RTC was successfully organized in-person mode on 30 August-1 September 2022. A total number of participants were 45 persons from SEAFDEC Member Countries and resource persons from FAO and the universities. At the end, the RTC came up with the following: <ul style="list-style-type: none"> <li>- Technical information and country views on the CEAS (<i>e.g.</i> stock status and its biological information, trade, market) and the possible impacts to the proposed inclusion of commercially-exploited aquatic species into the CITES Appendices.</li> <li>- ASEAN-SEAFDEC positions on</li> </ul>

Activities	Expected Outcome/Outputs	Results/Achievements
		<p>the proposed listing of commercially-exploited aquatic species into the CITES Appendices at the CoP19 for further submission to the SEAFDEC Council and the ASEAN for consideration.</p> <ul style="list-style-type: none"> <li>- Recommendations for the conservation and sustainable utilization of the CEAS.</li> </ul>
<p>Activity 2.2 Study on Impacts of COVID-19 Pandemic on the Fisheries Sector of ASEAN-SEAFDEC Member Countries</p> <ul style="list-style-type: none"> <li>- Writeshop for the finalization of the Study Report of COVID-19 Pandemic on the Fisheries Sector of the ASEAN-SEAFDEC Member Countries, 23-24 February 2022)</li> <li>- Regional Workshop for the Finalization of the Study Report on Impacts of COVID-19 Pandemic on the Fisheries Sector of the ASEAN-SEAFDEC Member Countries, 20 April 2022, online meeting</li> </ul>	<ul style="list-style-type: none"> <li>- The Study on Impacts of COVID-19 Pandemic on the Fisheries Sector of ASEAN-SEAFDEC Member Countries</li> <li>- The Recommendations to mitigate the Impacts of COVID-19 Pandemic on the Fisheries Sector of the ASEAN-SEAFDEC Member Countries</li> </ul>	<p>The Report of the Study on Impacts of COVID-19 Pandemic on the Fisheries Sector of the ASEAN-SEAFDEC Member Countries was finalized</p>
<p>Development of the Key Indicators and Detailed Roadmap for Monitoring and Evaluation of the Implementation of the RES&amp;POA-2030</p> <ul style="list-style-type: none"> <li>- Regional Workshop on Development of the Key Indicators and Detailed Roadmap for Monitoring and Evaluation of the Implementation of the RES&amp;POA-2030, 23-24 March 2022 (online meeting)</li> <li>- Regional Workshop on Finalization of the Key Indicators for Monitoring and Evaluation of the Implementation of the RES&amp;POA-2030, 14-15 June 2022 (online meeting)</li> </ul>	<ul style="list-style-type: none"> <li>- Key Indicators of M&amp;E POA-2030</li> <li>- Timelines for Monitoring and Evaluation of the Implementation of the RES&amp;POA-2030</li> </ul>	<ul style="list-style-type: none"> <li>- Thee two (2) Regional Workshops were virtually organized on 23-24 March 2022 and 14-15 June 2022, respectively.</li> <li>- The Key Indicators and rating scale criteria of M&amp;E POA-2030 was finalized.</li> <li>- Timelines to monitor and evaluate the implementation of the RES&amp;POA-2030 was agreed.</li> </ul>

Activities	Expected Outcome/Outputs	Results/Achievements
<p>Follow-up action for the Fisheries Subsidies Organization of the Second Regional Training Workshop on Stock Assessment in Support the Implementation of the International Commitments for Sustainable Use of Fisheries Resources in Southeast Asia, 29 Aug-6 September 2022</p>	<ul style="list-style-type: none"> <li>- 20 national officers were trained</li> <li>- To build on the first FAO-SEAFDEC regional training workshop to provide participants with a deeper understanding of the concepts of population dynamics models and how to develop them in a specific context for management.</li> <li>- To provide participants with hands-on experience in using the latest computational tools to analyze fishery and other environmental data and understand how to collect and analyze data for ecological and environmental studies. This will primarily be done with the help of labs and tools in Excel and R.</li> <li>- To mentor the participants in the examination of their datasets to enable them to assess the status of their resources.</li> <li>- To exchange views and identify participants and their country needs, including potential for a medium and/or long-term capacity development program in the region through a series of the comprehensive training courses in the future.</li> </ul>	<ul style="list-style-type: none"> <li>- 20 national officers were trained (10 persons online and 10 persons onsite)</li> <li>- Participants gained deeper understanding of the concepts of population dynamics models such as length-based stock production ratio (LBSPR), surplus production model, yield per recruit, productivity susceptibility analysis, data processing and verification, and relationship between catch and CPUE, and others.</li> <li>- They learned how to develop and interpret the results of the assessment and developed science-based management advice for management plans towards sustainable utilization of fisheries resources. They learned the use of labs and tools in Excel and R programs.</li> </ul>
<p>Webinar on Japan Catch Documentation Scheme, 26 July 2022</p>	<ul style="list-style-type: none"> <li>- Information on Act on Ensuring the Proper Domestic Distribution and Importation of Specified Aquatic Animals and Plants</li> <li>- Clarification in response to questions by the SEAFDEC Member Countries regarding national implementation in response to the Japan CDS</li> </ul>	<ul style="list-style-type: none"> <li>- The webinar successfully organized with a total 40 participants.</li> <li>- The MCs obtained information on the Act on Ensuring the Proper Domestic Distribution and Importation of Specified Aquatic Animals and Plants</li> <li>- The MCs clarified their concerns in the Act on Ensuring the Proper Domestic Distribution and Importation of Specified Aquatic Animals and Plants.</li> </ul>
<p><b>Output 3:</b> Strengthened cooperation with ASEAN Member Countries through RFPN</p>	<p>Note: the RFPN program has been pending due to the situation of COVID-19 since 2020. RECAP program is proposed to be implemented in 2022-2024.</p>	
<p>Activity 3.1 3.1.1 Regional Training Course on Gender Mainstreaming in Small-scale Fisheries and Aquaculture for Sustainable Development of Southeast Asia, 20-29 September 2022 (at SEAFDEC/TD and Rayong province)</p>	<p>20 national officers are expected to be trained and 4 staff from SEAFDEC Departments.</p> <p>At the end of the Training Course, it was expected that trainees will</p> <ul style="list-style-type: none"> <li>- increase awareness and knowledge and understanding of the trainees on gender concepts, gender roles, identify issues in fisheries sector</li> <li>- gain a clear understand on importance and the application of</li> </ul>	<ul style="list-style-type: none"> <li>- 15 national officers and 4 staff from AQD, IFRDMD, MFRDMD were trained.</li> <li>- Participants learned better knowledge and understood gender concepts, gender roles.</li> <li>- gained a clear understanding on importance and the application of tools such as gender analysis, gender indicators, gender budgeting, and its implication for small-scale fisheries and</li> </ul>

Activities	Expected Outcome/Outputs	Results/Achievements
	<p>tools such as gender analysis, gender indicators, gender budgeting, and its implication for small-scale fisheries and aquaculture development and management and projects/activities</p> <ul style="list-style-type: none"> <li>- be able to develop gender action plan which integrates gender in small-scale fisheries and aquaculture development and management and projects/activities</li> <li>- be able to apply knowledge and skills to their professional works when returning to their respective office and to extend the skills on gender analysis to their coworkers and relevant stakeholders (<i>e.g.</i> leaders, and fishers in fishing communities)</li> <li>- strengthen the partnership and cooperation among the trainees and with SEAFDEC for promotion gender perspectives in small-scale fisheries and aquaculture of Southeast Asia</li> </ul>	<p>aquaculture development and management and projects/activities.</p> <ul style="list-style-type: none"> <li>- Participants developed a gender action plan which integrates gender in small-scale fisheries and aquaculture development and management and projects/activities.</li> <li>- A regional network established among the trainees from AMSs and with SEAFDEC for promotion of gender perspectives in small-scale fisheries and aquaculture of Southeast Asia.</li> </ul>
Activity 3.2 SEAFDEC Fisheries Country Profiles updated under the assignments of RFPN		
<b>Output 4:</b> Information on international fisheries-related issues disseminated in the Southeast Asian region		
Activity 4.1 Produce and disseminate the publications related to international fisheries related issues or the results of the project		

#### 4. List of Publications in 2022

Publications	Type of Media	Attached e-file/links
1. The Report of the Study on Impacts of COVID-19 Pandemic on the Fisheries Sector of the ASEAN-SEAFDEC Member Countries on 24 February 2021, and submitted to the SEAFDEC Council during its 54 <sup>th</sup> Meeting in May 2022.	e-file	<a href="http://repository.seafdec.org/handle/20.500.12066/6952">http://repository.seafdec.org/handle/20.500.12066/6952</a>
2. ASEAN-SEAFDEC Common Positions on the Proposed Listing of Commercially-exploited Aquatic Species into the CITES Appendices for CITES-CoP19.		being in progressing of SEAFDEC Council and ASEAN approval (as of 15 September 2022)
3. Key indicators for monitoring and evaluation of the implementation of the RES&POA-2030		<a href="http://www.seafdec.org/respoa2030-kiws/">http://www.seafdec.org/respoa2030-kiws/</a>

Publications	Type of Media	Attached e-file/links
4. VDO on the Webinar on the Japan Catch Documentation Scheme (26 July 2022)	VDO	<a href="https://www.youtube.com/watch?v=9uAwoNfWBSY">https://www.youtube.com/watch?v=9uAwoNfWBSY</a>
5. Small-scale Fisheries of Southeast Asia: A Regional Digest	Printed and e-file	<a href="https://repository.seafdec.org/handle/20.500.12066/6947">https://repository.seafdec.org/handle/20.500.12066/6947</a>

## 5. Evaluation on Workshops/Training Courses by Participants of AMSs

Activities	Evaluation
<b>Output 1:</b>	
Activity 1.1	-
Activity 1.2	-
Activity 1.3	-
<b>Output 2:</b>	
Activity 2.1	-
Activity 2.2	<p>Second Regional Training Workshop on Stock Assessment in Support the Implementation of the International Commitments for Sustainable Use of Fisheries Resources in Southeast Asia, 29 Aug-6 September 2022.</p> <p>1. Did you find this course useful? 18% Useful in my job 82% Highly relevant</p> <p>2. Do you think you meet your expectations? 100% yes</p> <p>3. Would you want additional programming (R and C++) courses to be the focus? 82% yes 8% maybe</p> <p>4. Do you understand the limitations of your dataset? 64% undoubted yes 27% yes 9% maybe</p> <p>5. Overall course rating. 55% excellent 45% outstanding</p>
<b>Output 3:</b>	
Activity 3.1	-
Activity 3.2	-
<b>Output 4:</b>	
Activity 4.1	-

## 6. Major Impacts and Issues

Since the COVID-19 situation had been improved in many countries, national measures have been lifted up allowing the project staff to participate in international events such as FAO COFI, CITES were organized in 2022 through physical mode.

Mid of 2022, after the lift-up on the national regulations for COVID-19 prevention, Member Countries are able to travel abroad. However, the SEAFDEC events still maintain the rules for preventive infections of COVID-19. The costs incurred, such as insurance, are secured for this reason. Some training courses such as the Second Regional Training Workshop on Stock Assessment in Support the Implementation of the International Commitments for Sustainable Use of Fisheries Resources in Southeast Asia was held on 29 August-6 September 2022. This Second training was held in a hybrid platform, onsite participation was more effective than online participation.

## PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

### 1. Project Summary in 2023

In 2023, SEAFDEC will continue to support SEAFDEC staff to participate in the relevant regional/international fora e.g. ASEAN, FAO, CITES, etc. and will update the status of the international fish trade-related issues by providing a platform for Regional Technical Consultation (RTC) for AMSs to discuss the international fish trade-

related issues which may impact to the development of fisheries and aquaculture in the Southeast Asian region.

In addition, regarding the Regional Capacity Building Network (RECAB Network), this program was endorsed by the SEAFDEC Council during its 53<sup>rd</sup> Meeting in 2021. In 2023, the SEAFDEC Secretariat will collaborate with AQD to host the Regional Training Course on Integrated Trophic Aquaculture.

## 2. Outcome, Outputs and Activities and Proposed Budget

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Outcome:</b>	Actions of AMSs at the international fora reflecting a more understanding with supportive data/information	
<b>Output 1:</b>	The status of international fish trade-related issues updated and informed AMSs	
Activity 1.1	<p>Participation in the relevant regional/international forum on international fisheries and fish trade, <i>e.g.</i> FAO events, CITES, etc.</p> <p>SEAFDEC staff participate in the international/regional fora to update the international fish trade-related issues <i>e.g.</i> ASEAN, CITES, FAO events, etc.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Traveling Costs: USD 1,500</li> <li>- Daily Subsistence Allowances: USD 1,000</li> <li>- Accommodations: USD 500</li> <li>Sub-total: USD 3,000</li> </ul>	<b>3,000</b>
Activity 1.2	The status of international fish trade-related issues reviewed. Information and current situation on the issues from the international events are updated and shared with the AMSs for their reference and consideration for further appropriate action.	<b>1,000</b>
<b>Output 2:</b>	Cooperation among AMSs aiming to safeguard fisheries and aquaculture of the Southeast Asian region through the development the common/ coordinated positions on the international fish trade-related issue and acknowledge the impact from the international fish trade-related issues	
Activity 2.1	<p>Provide platform for Regional Technical Consultation (RTC) or even Senior Official Meeting (if required) to discuss and consider the international fish trade related issues which may impact the development of fisheries and aquaculture in the Southeast Asian Region.</p> <p>The Regional Technical Consultation is organized with the participation from AMSs and experts to seek views and update the status on the international fish trade related issues in their country which may impact the development of fisheries and aquaculture in the Southeast Asian Region. The outputs from the RTC are the regional interest to be addressed at the international fora.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Traveling Costs: USD 13,000</li> <li>- Daily Subsistence Allowances: USD 3,300</li> <li>- Accommodation: USD 5,200</li> <li>- Meeting package: USD 2,500</li> <li>- Others: USD 1,000</li> <li>Sub-total: USD 25,000</li> </ul>	<b>25,000</b>

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Output 3:</b>	Communications and cooperation with AMSs through the Regional Fisheries Policy Network (RFPN) strengthened RFPN	
Activity 3.1	<p>Support fisheries officers of the AMS by conducting the Regional Capacity Building Network (RECAB)”.</p> <p>In 2023, the RECAB 2023 will conduct the Regional Training Course on Integrated Multi-Trophic Aquaculture (IMTA). The course is designed for aquaculture professionals and managers who are interested in the potential applications of IMTA. The participants should have basic knowledge of food chains and food webs, biology of aquatic organisms, as well as aquaculture techniques. The course will be organized for 10 days. Tentatively, a total of 10 national fisheries officers nominated by SEAFDEC Member Countries will be fully sponsored by the project. The participants will be able to understand the IMTA concept and approaches, environmental carrying capacity assessment, farming of different aquatic species <i>e.g.</i> shrimp, seaweed. The participants will also learn the different IMTA models during their field visit studies.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Travel cost USD 10,000</li> <li>- DSA for participants USD 5,000</li> <li>- Honorarium for resource persons USD 5,000</li> <li>- Accommodation USD 8,000</li> <li>- Transportation USD 5,000</li> <li>- Food USD 7,000</li> <li>- Other expenses (insurance, visa, etc.) USD 10,000</li> <li>Sub-total: USD 50,000</li> </ul>	<b>50,000</b>
Activity 3.2	Support activities to enhance the capacity of the Network	<b>500</b>
<b>Output 4:</b>	Information on international fisheries-related issues disseminated in the Southeast Asian region	
Activity 4.1	<p>Produce and disseminate the publications related to international fisheries related issues or the results of the project Meeting Reports, posters, brochures are produced and disseminated.</p> <p><b>Estimated expenditures:</b></p> <ul style="list-style-type: none"> <li>- Printing meeting results and/or Meeting Report USD 1,000</li> </ul>	<b>1,000</b>

### 3. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>												
Activity 1.1												
Activity 1.2												
<b>Output 2:</b>												
Activity 2.1												
<b>Output 3:</b>												
Activity 3.1												
Activity 3.2												
<b>Output 4:</b>												
Activity 4.1												



#### 4. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Output 1: The status of international fish trade-related issues updated and informed AMSs</b>	
<b>Activity 1.1.</b> Participation in the relevant regional/international forum on international fish trade, e.g. FAO, CITES, etc.	<ul style="list-style-type: none"> <li>- The SEAFDEC and Member Countries obtained the updated information on the international fisheries and fish trade-related issues</li> <li>- The coordination between SEAFDEC, Member Countries and organizations strengthened on international fisheries related matters.</li> </ul>
<b>Activity 1.2.</b> Review the status of international fish trade-related issues	Information and current situation on the issues from the international events updated and shared with all AMSs.
<b>Output 2: Cooperation among AMSs aiming to safeguard fisheries and aquaculture of the Southeast Asian region through the development the common/ coordinated positions on the international fish trade-related issue and acknowledge the impact from the international fish trade-related issues</b>	
<b>Activity 2</b> Provide platform to develop the regional recommendations, common/coordinated positions and regional fishery policy	
<b>Activity 2.1</b> Provide a platform for Regional Technical Consultation (RTC) or even Senior Official Meeting (if required) in order to discuss and consider the international fish trade related issues which may impact the development of fisheries and aquaculture in the Southeast Asian Region.	<ul style="list-style-type: none"> <li>- Regional issues/concerns addressed at the international fora such as the draft of regional policy recommendation</li> <li>- This draft further submitted to the SEAFDEC Council Director and ASEAN mechanism for endorsement and also high level respectively.</li> </ul>
<b>Output 3: Communications and cooperation with AMSs through the Regional Fisheries Policy Network (RFPN) strengthened</b>	
<b>Activity 3</b> Strengthened cooperation with ASEAN Member Countries through RFPNs (RECAB)	
<b>Activity 3.1 and 3.2</b> Support National Fisheries Officers through the Regional Capacity Building Network (RECAB)” (formerly called RFPNs).  SEAFDEC organizes the training course under the capacity building program, titled “Regional Capacity Building Network (RECAB)” which was adopted by the SEAFDEC Council during its 53 <sup>rd</sup> Meeting in 2021. The Regional Training Course on Integrated Multi-Trophic Aquaculture will be hosted by AQD.	<ul style="list-style-type: none"> <li>- Enhanced the knowledge on Multi-Trophic Aquaculture.</li> <li>- Regional cooperation and network among the AMSs on officers on Integrated Multi-Trophic Aquaculture.</li> </ul>
<b>Output 4: Information on international fisheries-related issues disseminated in the Southeast Asian region</b>	
<b>Activity 4</b>	
<b>Activity 4.1</b> Produce and disseminate the publications related to international fisheries related issues or the results of the project.	<ul style="list-style-type: none"> <li>- Meeting reports or the results of the project disseminated.</li> <li>- News of the events disseminated through social media.</li> </ul>

**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 201301006
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Fisheries Resource Survey & Operational Plan for M.V. SEAFDEC 2		
<b>Program Strategy No:</b>	VI	<b>Total Period</b>	Since 2004
<b>Lead Department:</b>	Training Department	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	Host Countries of the Survey	<b>Total Project Budget:</b>	None
<b>Project Partner(s):</b>	SEAFDEC Member Countries	<b>Budget for 2022:</b>	None
<b>Lead Technical Officer(s):</b>	Sukchai Arnupapboon (TD)	<b>Project Participating Country(ies)</b>	SEAFDEC Member Counties

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

Since the establishment of the Southeast Asian Fisheries Development Center (SEAFDEC) in 1968, the Training Department (TD) continues its technical support to the SEAFDEC Member Countries on four major components: (1) Marine fisheries resources research survey; (2) Marine environmental oceanographic research survey; (3) Onboard navigation and marine engineering training; and (4) Sea trial on fishing operation, oceanographic instruments, and fishing vessel. In 2004, M.V. SEAFDEC 2, a coastal training and research vessel, has been granted by the Government of Japan to support SEAFDEC Member Countries on fishery resources and marine environmental research surveys to fulfill the needs of the Member Countries. The major outputs from the survey are survey data, cruise reports, technical documents on fisheries resource stock status, marine biodiversity and other specific requirements, *e.g.*, oceanography and marine environment, etc.

In 2022, SEAFDEC/TD conducted one (1) cruise M.V. SEAFDEC 2 No. 64-1/2022, from 23 to 28 January 2022 (6 days). The research cruise aims to conduct trawl fishing operations to study on the comparison on the Catch Per Unit Effort (CPUE) of fisheries resources survey between Research Vessel of SEAFDEC Training Department and Department of Fisheries Thailand, and study on microplastic contamination in sea surface layer. During the year 2022, SEAFDEC coordinated with Member Countries, *e.g.* Myanmar, the Philippines, and Thailand to support the development of shipboard research survey plan.

In the year 2023, SEAFDEC/TD expected to support Member Countries, *e.g.* Myanmar, the Philippines, and Thailand to conduct the fisheries resource and environmental research survey. In addition, SEAFDEC-JAIF Project Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia plans to conduct a shipboard survey “Marine Environment and Fishery Resources Survey by Using a Research Vessel and Evaluate the Impacts of Microplastics on the Fisheries Resources” during the quarter 3 or 4 of year 2023 with expected 31 days.

### 2. Background and Justification

Since the establishment of SEAFDEC in 1968, the technical support to Member Countries on marine capture and exploitation of fishery resources focused on human resource development by using SEAFDEC’s research vessels has been a significant mandate of SEAFDEC. Since the 1970s, SEAFDEC has been supporting Member Countries in fishery resources survey and exploration, human resource development on fishing technology and marine engineering. In line with the SEAFDEC’s Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030, SEAFDEC has its mandate to support the Member Countries to explore the potential of under-utilized fishery resources through comprehensive fishery resources surveys and promote their exploitation in a precautionary manner based on analysis of the best available scientific information. With the operations of SEAFDEC research vessels, SEAFDEC can support the Member Countries to strengthen knowledge, including local knowledge, and science-based development and management of fisheries by

enhancing the national capacity to collect, analyze, and share fisheries data and information. The envisaged outcome of fisheries resources and marine environmental survey by SEAFDEC research vessel could establish the reference points and come up with estimated biomass or capacity level to determine the maximum sustainable yield, allowable biological catch, or allowable effort for marine and inland fisheries. In addition, activities under the resources survey of the onboard practical session will improve the capability of fishing crew and workers in the fishing industry and conduct an educational and skill development program for new crew members and workers entering the industry.

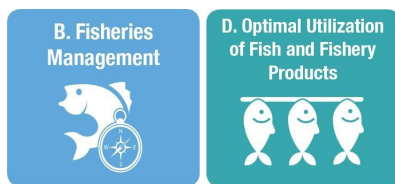
In 2002, the Government of Japan approved the construction of new fishery research and training vessel namely “M.V. SEAFDEC 2” along with the procurement of the requisite fishing gear, fishing deck machineries, and survey equipment with the main purposes to conduct fishery resource and oceanographic research survey and shipboard training on the related topic of the fishing technology, marine engineering and marine environment in the SEAFDEC Member Countries. M.V. SEAFDEC 2 has been continuously supporting the Member Countries for conducting fishery resources and marine environmental surveys since 2004.

Early 2019, M.V. SEAFDEC 2 was improved and reconditioned with installing the equipment onboard, *e.g.*, modern navigation aid equipment, engine parts and fishing accessories as supported by the Government of Japan through the Japan International Cooperation Agency (JICA), and the overall improvement was completed early 2020. In addition, M.V. SEAFDEC 2 has been completely installed the new Scientific Echo Sounder SIMRAD Ek-80 in the end of 2021.

The expected outputs of the utilization of M.V. SEAFDEC 2 on the fishery resources survey are cruise reports, technical documents on fisheries resource stock status, marine biodiversity and other specific requirements, *e.g.* oceanography, marine environment, etc. SEAFDEC expects that the results from the survey could facilitate the establishment and implementation of a comprehensive policy for the sustainable management and development of marine capture fisheries at national, sub-regional and regional levels. The other significant expected outputs are to support human resource development of national researchers in various fields including fishery resources, marine environment, oceanography, fisheries biology, fishing gear technology, as well as navigators and marine engineers to support the shipboard survey. In order to achieve the expected outputs as mentioned above, SEAFDEC/TD works in close collaboration with the Member Countries and potential partners at national, sub-regional and regional levels by supporting the Member Countries for conducting a fishery resource and marine environmental survey.

Since 2004, M.V. SEAFDEC 2 has carried out sixty-four (64) cruise surveys with four major components: (1) Marine fisheries resources research survey; (2) Marine environmental oceanographic research survey; (3) Onboard navigation and marine engineering training; and (4) Sea trial on fishing operations, oceanographic instruments and fishing vessel.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

Shipboard activities by using M.V. SEAFDEC 2 are available for female and male researchers. The limited number of female researchers participate onboard research cruise due to the limited number of bedrooms and lavatories available for females onboard. Generally, the quota for female researchers are four (4) persons, limited by only bedroom with four (4) bunks and one (1) separated lady bathroom and lavatory.

## 5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification

### 5.1 Logical Framework

GOAL (Overall Objectives, Impact)	Indicators	Means of Verification
Sustainable marine fisheries resources in Southeast Asia		
OUTCOME	Indicators	Means of Verification
National fisheries management by using the update reference data and information from the Marine Fisheries Resources and Marine Environment survey and indicator of resource abundance	Data and information from the Marine Fisheries Resources and Marine Environment survey and indicator of fisheries resource abundance	National report on the fisheries resource abundance
OUTPUT 1	Indicators	Means of Verification
A set of scientific data <i>i.e.</i> fisheries resource, marine environmental and oceanography data collected from the cruise survey	A set of scientific data <i>i.e.</i> fisheries resource, marine environmental and oceanography data collected from the cruise survey	- Cruise report - Data of fisheries resources and oceanography store in the SEAFDEC database
ACTIVITY 1	Indicators; key Inputs	Means of Verification
The marine fisheries resources and marine environmental survey conducted by using M.V. SEAFDEC 2	Cruise of M.V. SEAFDEC 2 to support the SEAFDEC Member Countries on fisheries marine fisheries resources and marine environmental survey, and human resources development	Cruise Report of fisheries resources and marine environmental survey, and shipboard training
OUTPUT 2	Indicators	Means of Verification
Competent researcher in the marine fisheries resources research survey and SEAFDEC ship staffs on the navigation and Engineers engineering	Number of researcher onboard fisheries resources and marine environmental survey conducted by the SEAFDEC Member Countries	Cruise Report of fisheries resources and marine environmental survey, and shipboard training
ACTIVITY 2	Indicators: key inputs	Means of Verification
The marine fisheries resources and marine environmental survey and training cruise conducted by using M.V. SEAFDEC 2	Cruise of M.V. SEAFDEC 2 to support the SEAFDEC Member Countries on fisheries marine fisheries resources and marine environmental survey, and human resources development	Cruise Report of fisheries resources and marine environmental survey, and shipboard training

### 5.2 Project Implementation Plan for 2022–2024

Activities	2020				2021				2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Output 1:</b>																				
Activity 1																				
<b>Output 2:</b>																				
Activity 2																				

### 5.3 Proposed Budget for 2022–2024

(Unit: USD)

Output	Activities	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year5 (2024)
Output 1	Activity 1	Cost Sharing Policy				
Output 2	Activity 2	Cost Sharing Policy				
<b>Sub-Total</b>						

*Remark: The Cost Sharing Policy appears in the enclosed document*

## PART II: PROJECT ACHIEVEMENTS IN 2022

### 1. Project Achievements in the Present Year (2022)

SEAFDEC/TD conducted one (1) cruise by using M.V. SEAFDEC 2, namely, Comparison on the Catch Per Unit Effort of Fisheries Resources by Trawling between the Research Vessels of SEAFDEC/TD and the Department of Fisheries Thailand in the Gulf of Thailand (6 days). The envisaged outcome of the cruise was initially improvement of the benefit utilization of M.V. SEAFDEC 2 through making the standardization between SEAFDEC research vessel and national government research vessel.

The objectives are 1) conduct trawl fishing operations to compare the Catch Per Unit Effort (CPUE) of fisheries resources survey between Research Vessel of SEAFDEC Training Department and research vessel of the Department of Fisheries Thailand, and 2) study marine debris and microplastic contamination in sea surface layer collected by Neuston net.

In this cruise the standard procedures and practices to prevent the spread of COVID19 onboard M.V. SEAFDEC 2 were carried out with quarantine and antigen test by the test kits of crews and researchers. The cruise completes with twelve (12) trawl fishing operations, twelve (12) stations of underwater marine debris sample collections, seventeen (17) tracks of marine debris visual observation, and twenty (20) stations of oceanographic survey.

The envisaged output of the cruise survey was not only the data obtained from the research survey but also capacity building to researchers (7 persons) and crew members (17 persons) of SEAFDEC/TD and Department of Fisheries Thailand (3 persons).

### 2. Activities and Budget in the Present Year

Activities	Type of activity	Number of Participants						Budget Spent (USD)
		AMs		SEAFDEC		Others		
		F	M	F	M	F	M	
<b>Output 1:</b>								
Activity 1 Cruise M.V. SEAFDEC 2 No.64-1/2022	I		3	1	23			12,399.12
<b>Output 2:</b>								
Activity 1 Cruise M.V. SEAFDEC 2 No.64-1/2022 (The same cruise as output 1*)	II							

\* The same Cruise M.V. SEAFDEC 2 No.64-1/2022 from 23–28 January 2022 (6 days) can provide output 1 and 2

### 3. Expected Outcome/Outputs and Achievements

Activities	Expected Outcome/Outputs	Results/Achievements
<b>Outcome</b>		
<b>Output 1:</b>		
<b>Activity 1.</b> Cruise M.V. SEAFDEC 2 No.64-1/2022. The research cruise is to Comparison the Catch Per Unit Effort of Fisheries Resources by	<ol style="list-style-type: none"> <li>A set of scientific data, <i>i.e.</i> fisheries resources from the cruise survey</li> <li>Cruise Report on the Comparison on the Catch Per Unit Effort of Fisheries Resources by Trawling between Research Vessel of SEAFDEC/TD and the Department of Fisheries Thailand in the Gulf of Thailand.</li> </ol>	<ol style="list-style-type: none"> <li>Cruise M.V. SEAFDEC2 No.64-1/2022 was conducted from 23 to 28 January 2022.</li> <li>Twelve (12) trawl fishing operations were conducted during the cruise.</li> <li>Twenty (20) stations of oceanographic survey by using Bongo net (larvae), Neuston net (microplastic), and Conducting Temperature and Depth Sensor.</li> <li>Seventeen (17) tracks of marine debris visual observation.</li> </ol>

Activities	Expected Outcome/Outputs	Results/Achievements
Trawling between Research Vessel of SEAFDEC Training and study microplastic contamination in sea surface layer collected by Neuston net.		<ol style="list-style-type: none"> <li>Twelve (12) stations of underwater marine debris sample collections.</li> <li>Cruise Report on the Comparison on the Catch Per Unit Effort of Fisheries Resources by Trawling between Research Vessel of SEAFDEC/TD and the Department of Fisheries Thailand in the Gulf of Thailand.</li> </ol>
<b>Output 2:</b>		
<b>Activity 1</b> Cruise M.V. SEAFDEC 2 No.64-1/2022. (The same cruise as output 1*)	Five (5) scientists/ researchers of SEAFDEC/TD and the Department of Fisheries Thailand improved skills and gained experience in marine fisheries resources and marine environment	<ol style="list-style-type: none"> <li>Seven (7) Researchers of SEAFDEC/TD and three (3) researchers of the Department of Fisheries Thailand improved skills and gained experience in marine fisheries resources and marine environment</li> <li>Seventeen (17) ship staff improved skills and gained experience in research cruise</li> </ol>

\* Cruise M.V. SEAFDEC 2 No.64-1/2022 can provide output 1 and output 2

#### 4. List of Publications in 2022

Publications	Type of Media	Attached e-file
Cruise Report of M.V. SEAFDEC 2 No. 64-1/2022	Hard copy	(E-Copy)

#### 5. Evaluation of Workshops/Training Courses by Participants of AMSs

Activities	Evaluation
<b>Output 1:</b>	
Activity 1.1	<i>Nil</i>
<b>Output 2:</b>	
Activity 2.1	<i>Nil</i>

#### 6. Major Impacts and Issues

The utilization of the SEAFDEC's Research and Training Vessel was affected by the COVID-19 in 2022. Under the Covid-19 situation in Thailand, SEAFDEC/TD avoided to conduct the survey by M.V. SEAFDEC 2 for the cruise more than 1 weeks to avoid the inflection of COVID-19 while M.V. SEAFDEC 2 visited to port of call.

In addition, M.V. SEAFDEC 2 is now upgrading and improving some necessary scientific and survey equipment *e.g.* net monitoring sensor in order to enhance the efficiency of trawling operation in the cruise survey and cruise training.

### PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

#### 2. Project Summary in 2023

SEAFDEC is collaborating with the Member Countries *e.g.* Myanmar, the Philippines, and Thailand in developing a cruise plan in 2023. The consultations are reported in the activity 3.1 Technical consultation meeting to develop a research cruise plan for research/ training vessels of SEAFDEC and Member Countries under Project Sustainable Utilization of Fisheries Resources and Resources Enhancement in Southeast Asia (Working paper WP03-St1-5). With that, SEAFDEC will follow up the coordination with aforementioned Member Countries to finalize the cruise survey activities in 2023.

SEAFDEC-JAIF Project on Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia, plans to conduct a shipboard survey “Marine Environment and Fishery Resources Survey by Using a Research Vessel and Evaluate the Impacts of Microplastics on the Fisheries Resources” during the quarter 3 or 4 of year 2023 with expected service 31 days. The envisaged output of the cruise survey is expected to collect the marine debris. Microplastic and fisheries resources data obtained from the research survey can contribute to capacity building to researchers of Member Countries and SEAFDEC/TD. The cruise plans to conduct in the Gulf of Thailand.

### 3. Outcome, Outputs and Activities and Proposed Budget

(Unit: USD)

Proposed Activities	Descriptions	Proposed Budget
<b>Outcome</b>	National fisheries management by using the update reference data and information from the Marine Fisheries Resources and Marine Environment survey	
<b>Output 1:</b>	A set of scientific data <i>e.g.</i> fisheries resources, marine environmental and oceanography data collected from the cruise survey	
Activity 1.1	National fisheries research survey by SEAFDEC Member Countries	Cost sharing
Activity 1.2	Marine Environment and Fishery Resources Survey by Using a Research Vessel, and Evaluate the Impacts of Microplastics on the Fisheries Resources	90,000 (Supported by JAIF)
<b>Output 2:</b>	1. Capacity building for the researchers of SEAFDEC Member Countries on fishery resources survey 2. Competency of SEAFDEC researcher and ship staffs (navigators and engineers)	
Activity 2.1	National fisheries research survey by SEAFDEC Member Countries	Cost sharing
Activity 2.2	Marine Environment and Fishery Resources Survey by Using a Research Vessel and Evaluate the Impacts of Microplastics on the Fisheries Resources. (Similar cruise as activity 1.2)	90,000 (Supported by JAIF)

### 4. Implementation Plan of Activities in 2023

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Output 1:</b>												
Activity 1.1	Pending for requesting from Member Countries											
Activity 1.2							Expected in quarter 3 or 4 of the year 2020 (31 days)					
<b>Output 2:</b>												
Activity 2.1	Pending for requesting from Member Countries											
Activity 2.2							Expected in quarter 3 or 4 of the year 2020 (31 days)					

### 5. Expected Activity Results in 2023

Planned activity	Expected Activity Results
<b>Activity 1</b>	
<b>Activity 1.1</b> National fisheries research survey by SEAFDEC Member Countries	1. A set of scientific data, <i>e.g.</i> fisheries resource, marine environmental and oceanography data collected from the cruise survey 2. Cruise report of the national fisheries research survey
<b>Activity 1.2</b> Marine Environment and Fishery Resources Survey by Using a Research Vessel, and Evaluate the Impacts of Microplastics on the Fisheries Resources	1. A set of scientific data, <i>e.g.</i> fisheries resource, marine environmental and debris data collected from the cruise survey 2. Cruise report of the national fisheries research survey

Planned activity	Expected Activity Results
<b>Activity 2</b>	
<b>Activity 2.1.</b> National fisheries research survey by SEAFDEC Member Countries	Thirty (30) scientists/researchers of the Member Countries improved skills and gained experience in marine fisheries resources and marine environment
<b>Activity 2.2.</b> Marine Environment and Fishery Resources Survey by Using a Research Vessel, and Evaluate the Impacts of Microplastics on the Fisheries Resources	<ol style="list-style-type: none"> <li>1. Twenty (20) scientists/researchers of SEAFDEC/TD and the Member Countries improved skills and gained experience in marine fisheries resources and marine environment</li> <li>2. List of scientists and researchers as network on the marine fisheries resources and marine environment in the Gulf of Thailand.</li> </ol>



**REQUEST FOR  
UTILIZATION OF SEAFDEC RESEARCH VESSEL**

<b>SECTION I: SURVEY INFORMATION</b>	
Research Vessel	<input type="checkbox"/> M.V. SEAFDEC <input type="checkbox"/> M.V. SEAFDEC 2
Survey Objectives	: _____ _____ _____
Expected Survey Period	: <u>    Total    </u> days (From <u>mm/yyyy</u> to <u>mm/yyyy</u> )
Area of Survey	: _____
Port of Call	: _____
Survey Activities	: 1. _____ 2. _____ 3. _____ 4. _____
Requesting Agency	: _____
Contact Person	Name: _____ Designation: _____ Address: _____ Email: _____

<b>SECTION II: REQUIREMENT FOR SAMPLING GEAR/EQUIPMENT AND ASSISTANCE FROM SEAFDEC</b>		
Indicate sampling fishing gear(s) to be used	Require assistance for data analysis	If yes, describe how SEAFDEC should assist
<input type="checkbox"/> Purse Seine*	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Bottom Trawl	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Mid-water Trawl	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Pelagic Longline	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Bottom Vertical Longline	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Automatic Squid Jigging	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Trap	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Gill Net	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Others	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Indicate sampling oceanographic equipment to be used	Require assistance for data analysis	If yes, describe how SEAFDEC should assist
<input type="checkbox"/> CTD	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Van Dorn	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Smith-McIntyre Grab	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Van Veen Grab	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Gravity Core	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Box Core	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Neuston Net	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> 330 µm <input type="checkbox"/> 1000 µm		
<input type="checkbox"/> Bongo Net	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Phytoplankton Net	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Others	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Indicate hydroacoustic system to be used	Require assistance for data analysis	If yes, describe how SEAFDEC should assist
<input type="checkbox"/>	Simrad EK80**	<input type="checkbox"/> Yes <input type="checkbox"/> No

**Note:**

- \* available only for M.V. SEAFDEC
- \*\* available only for M.V. SEAFDEC 2

SEAFDEC will provide to requesting agency data and information from each station, namely Fishing Logsheet, Oceanographic Logsheet, and Navigation Information, including weather information, *e.g.* temperature, pressure, wind speed, current speed and direction.

**PROJECT DOCUMENT  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			Project ID: 202201001
<b>Program Category</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title</b>	USAID/SEAFDEC/Sustainable Fish Asia-SEA Project		
<b>Program Strategy No.</b>	I	<b>Total Period</b>	2023–2027
<b>Lead Department</b>	Training Department	<b>Lead Country</b>	None
<b>Donor/Sponsor</b>	USAID	<b>Total Project Budget</b>	USD 2.9 million
<b>Project Partner(s)</b>	None	<b>Budget for 2023</b>	USD 500,800
<b>Lead Technical Officer</b>	TBC	<b>Project Participating Country</b>	All Member Countries

**PART I: PROJECT DESCRIPTION**

**1. Executive Summary**

SEAFDEC is a distinctive regional organization that excels at managing fisheries and conserving biodiversity. Through a direct contribution to SEAFDEC, the United States Agency for International Development (USAID) can accelerate work to strengthen and speed up the implementation of the laws, regulations, and frameworks that are necessary to combat IUU fishing, conserve biodiversity, and encourage corporations to use fair labor and sustainable fishing methods. By eliminating IUU and unsustainable fishing, USAID/RDMA created the USAID Sustainable Fish Asia (SuFiA) Project in 2021 to enhance the management of marine biodiversity and fisheries resources in the Indo-Pacific region. Through improved regional cooperation, USAID/RDMA will engage with SEAFDEC to develop the capability and commitment of its Member Countries and public, corporate, and civil society players to manage vital marine and fisheries resources (including inland fisheries in the Lower Mekong)

**2. Background and Justification**

Regional Development Mission for Asia (RDMA) of USAID is engaging SEAFDEC through a ‘co-creation process’ to develop a 5-year (2023–2027), estimated USD 2.9 million, Public International Organization (PIO) Agreement named USAID-SEAFDEC/Sustainable Fish Asia (USAID-SEAFDEC/SUFIA-SEA Project). Through the co-creation process, USAID/RDMA collaborated with SEAFDEC developed the new project objectives and activities under the PIO. This project aligns with both SEAFDEC and USAID/RDMA’s key strategic plans, cross-cutting principles, previous learning, and upcoming activity priorities.

For SEAFDEC, it is essential to take into account a number of several regional strategic frameworks when designing this project. These are the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030 (RES&POA-2030), the “Resolution on the Future of SEAFDEC,” Plan of Operation and Program of Works. The activities are developed based upon SEAFDEC’s intention to integrate and align with several, key international frameworks and guidelines e.g., the UN Sustainable Development Goals (SDGs, specifically SDG 1, 2, 5, 13,14)

The PIO Grant Program Description Activities cover four thematic areas as follows:

**1) Data-driven Fisheries Management for Climate Change Mitigation and Adaptation**

To address the urgent issue of rapidly declining fish stock due to the negative impact of climate change and the lack of regional data, there is an urgent need to jointly develop an appropriate regional model to improve regional data collection and to enable forecasting fish stock status and related trends, through a series of technical consultations with relevant governments, key agencies, and scientists. The aim is to produce the best scientific information on fish stock status and trends for food security and sustainable development of fisheries in the region based on existing or newly established data collection systems. The PIO agreement may cover research areas on climate change impact to fish stock to enhance scientific knowledge on the socio-economic, biological and life cycle of resources, and economic impacts and to guide decisions on mitigation and adaptation measures in

fisheries management. Proper integration of fisheries and aquaculture management into the regional and national policies on climate change mitigation and adaptation measures is a major key issue to ensure sustainable fisheries and protect the livelihoods and food security of the commercial and small-scale fisheries in the Southeast Asian region.

## **2) *Exploration of Seaweed Culture as Part of Blue Economy and Climate Change Mitigation***

Blue economy development has gained attention in the region, and one of the most important marine commodities identified is seaweed. Seaweed makes seawater less corrosive and helps to remove carbon dioxide from the atmosphere for at least 500 million years. Several studies revealed that wild seaweed areas can provide habitat for fishery *refugia*<sup>1</sup> (SEAFDEC, 2018) as a nursery ground and spawning areas of many fish and other aquatic animals. Although seaweed farming plays an important role in providing the incomes, food security, healthy aquatic environment, and ecosystem, the economic and environmental value of wild versus cultivated seaweed in relation to the prevention function as fisheries *refugia* has not been studied. The PIO agreement provides an opportunity to assess seaweed farming areas vs wild seaweed utilization areas in the region. Results of this assessment can support the establishment of regional policy in sustainable management of coastal habitats as well as the promotion of seaweed farming to facilitate blue economy development in the region.

## **3) *Reducing Negative Impacts from Fishing on the Marine Ecosystem***

The regional “Strategies for Trawl Fisheries Bycatch Management<sup>2</sup>” was in 2011 to mitigate problems associated with bycatch in trawl fisheries, the major fishing gear used in the Southeast Asian region. Aligned to this strategy, the activities need to focus on the reduction of trawler’s negative impact to the coastal and marine ecosystem, especially the seafloor, the development of new fishing gears and operational procedures to promote protection of the marine ecosystem, conserve biodiversity, and sustainable fishing and production in the region.

## **4) *Sustainable Inland Fisheries Management***

The inland capture fishery statistics for many countries in the Southeast Asian region are commonly regarded as being poorly reported and/or inaccurate (FAO, 2002). Inland fisheries typically consist of many small-scale fisheries, hence there is a need to establish an appropriate long-term inland fisheries management policy for the region to improve and ensure sustainable livelihood opportunities and strengthen collaboration among the key stakeholders. The activity to sustain inland fisheries production through small-scale fisheries livelihood improvement includes inland fisheries data collection system establishment.

### **Geographic Coverage**

The geographical areas cover the Southeast Asia region and will benefit ASEAN Member Countries. Activities will work through regional and sub-regional approaches, focusing on the emerging issues described above. The table below provides information on which SEAFDEC Department is responsible for each of the major activities and their corresponding geographic coverage.

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<sup>1</sup> More information, please visit the website <https://fisheries-refugia.org/>

<sup>2</sup> This strategy was developed by FAO/HQ to ensure more sustainable use of fisheries resources and healthier marine ecosystem in the Coral Triangle and Southeast Asian waters by reducing bycatch, discards, and fishing impact by trawl fisheries. A series of activities in 5 countries had been implemented according to this strategy, where the participating countries implemented the project under the management of SEAFDEC/TD.

Activity (SEAFDEC Department)	Geographic coverage	Remarks
Climate change mitigation and adaptation in fisheries (MFRDMD)	Sulu-Sulawesi seas Possible to expand concept/idea to other sub-regional areas including Gulf of Thailand where several transboundary fisheries resources are defined, including Anchovy, Indo-Pacific Mackerel, and Blue Swimming Crabs.	<ul style="list-style-type: none"> <li>- Stock conditions and future trend stock assessment toward establishment of a subregional platform for joint tuna fisheries management of the concerned countries, including Indonesia, Malaysia, and Philippine.</li> <li>- Referred to the past and ongoing sub-regional initiatives such as Gulf of Thailand - Monitoring Control and Surveillance Network (SEAFDEC mechanism), FAO/ GOTFISH Project, and other relevant bilateral arrangements of Gulf of Thailand countries.</li> </ul>
Blue economy development (climate change mitigation and adaptation in aquaculture) (AQD)	Region-wide	<ul style="list-style-type: none"> <li>- Applying Geographic Information System (GIS) and Remote Sensing (RS) technologies/innovations to estimate carbon reduction by wild seaweed and seaweed farming in the SEA region.</li> <li>- A regional platform to discuss possible expansion of commercial seaweed culture about climate change mitigation reduction. Focus given to small-scale seaweed farmers in the SEA region.</li> </ul>
Reducing impact from fishing (TD)	Gulf of Thailand (GoT) Possible to expand the concept of and findings from the activities to the regional platform, as well as to place technical/policy recommendations for consideration by ASEAN mechanism.	<ul style="list-style-type: none"> <li>- Major fishing areas of bottom trawlers are in the GoT where the shallow depth of water (as compared to other coastal areas in the region) is appropriate to operate the bottom trawling.</li> <li>- New design of fishing gear innovation to reduce the impact to ecosystems of coastal and marine environments will benefit long-term development of small-scale and commercial capture fisheries in the region.</li> </ul>
Sustainable Inland Fishery Resources Development and Management Department (IFRDMD)	<ul style="list-style-type: none"> <li>- Region-wide (inland fisheries profile review and update)</li> <li>- Lower Mekong Basin (EAFM, IUU fishing documentations)</li> </ul>	<ul style="list-style-type: none"> <li>- Technical review of inland fisheries management and development in ASEAN member States.</li> <li>- A new set of guidelines on Ecosystems Approach to Fisheries Management (EAFM), policy recommendations for inland fisheries management including combating IUU Fishing in the lower Mekong basin (Cambodia, Lao PDR, Thailand, and Viet Nam).</li> </ul>

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

A gender perspective will be incorporated into the project design with the guidance of SEAFDEC's Gender Strategy and the Policy Brief on Applying Human Rights-based and Gender Equality Approaches to Small-Scale Fisheries in Southeast Asia. This will guarantee that the project will be carried out with attention for social inclusion and gender equality. For the purpose of ensuring that interventions would address concerns and gaps identified, the findings of a preliminary gender analysis have been incorporated into the activity design. There

will be chances for cooperation with other stakeholders to tackle issues that may fall outside the purview of SEAFDEC.

## PART II: PROJECT DEVELOPMENT STATUS IN 2022

- 1) **Co-creation Process with SEAFDEC, key stakeholders including member states and its partners (October 2021 - January 2022):** The output of the co-creation process is the Activity Description for the PIO grant, detailing specific interventions under the grant. The co-creation process included multiple phases such as (a) reading and research; (b) survey and key informant interviews; (c) employee and member focus group discussions; (d) activity design workshops; and (e) activity description development sessions. Through these co-creation activities, the Activity Description document was developed with concurrence from SEAFDEC prior to submitting to USAID/RDMA. This document included the suggestions and agreements made during the co-creation process defining the goals and objectives of the PIO grant, theory of change, results framework, illustrative activities, and specific areas that align with the USAID SUFIA Project goal.
- 2) **Development of an application (January-February 2022):** USAID/RDMA sent the Request for Application (RFA) to SEAFDEC. In response, SEAFDEC developed both Technical and Budget applications to be submitted to USAID/RDMA. The Technical application included the Activity Description developed in item 1.
- 3) **Awarding Process (2022):** SEAFDEC submitted the Technical and Budget Applications, USAID/RDMA is being reviewed and approved. Upon finalization, USAID/RDMA would send the PIO grant to SEAFDEC for review and signature.

## PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

### 1. Project Summary in 2023 (tentative)

The project activities are expected to implement in the first quarter of 2023 with recruitment of a project manager; a monitoring, evaluation and learning specialist; a communication specialist; two project assistants (administrative/finance); and direct home office labors including procurement of project equipment *e.g.* computer notebooks, cell phones. The project inception workshop will be organized in the first year as well as an expert consultation on tuna stock assessment and model development: Sulu-Sulawesi Sea (SSS) sub-region. The Sulu-Sulawesi Sea project national inception workshops will be organized in three countries: Indonesia, Malaysia, and the Philippines. In addition, an expert consultation on inland fisheries management using ecosystem approach to fisheries and on-site visit on US's Marine Mammal Protection Act (MMPA) will be also conducted in the first year.

### 2. Planning of Project Activities (tentative)

Proposed Activities	Duration
Project Inception Workshop	1 <sup>st</sup> quarter of 2023
Expert consultation on tuna stock assessment and model development: Sulu-Sulawesi Sea (SSS) sub-region	3 <sup>rd</sup> or 4 <sup>th</sup> quarter of 2023
Sulu-Sulawesi Sea project national inception workshops will be organized in three countries: Indonesia, Malaysia, and the Philippines	3 <sup>rd</sup> quarter of 2023
Expert consultation on inland fisheries management using ecosystem approach to fisheries	3 <sup>rd</sup> quarter of 2023
Onsite visit on US's MMPA	4 <sup>th</sup> quarter of 2023

### 3. Implementation Plan and Expected Results of Activities in 2023

After the approval of the project, the implementation of project activities will be started in 2023. At the initial stage, the project activity will start with an inception workshop to engage with the SEAFDEC Member Countries, and project partners including private sectors in order to share the work plan to ensure that the activity and other ongoing projects and initiatives will work and avoid duplication efforts. In the past, SEAFDEC has implemented project activities based on a sub-regional approach where there are four sub-regions in the Southeast Asian region including the Gulf of Thailand, Andaman Sea, Sulu-Sulawesi Seas, and the Mekong River. In the first year, the Sulu-Sulawesi Seas sub-region will be emphasized especially in tuna stock assessment and model development. The national inception workshops will be organized in three countries *i.e.* Indonesia, Malaysia, and the



Philippines. The proposed activities are expected to obtain baseline data from the participating countries, identify key information for the model on stock assessment, develop a timeline and plan for data/information collection and discuss an appropriate model for forecasting tuna landing/production trends. The project activity on expert consultation on inland fisheries management using an ecosystem approach to fisheries will also be organized in the first year. This activity is expected to sustain inland fisheries production through small-scale fisheries livelihood improvement including inland fisheries data collection system establishment. In addition, the project activity on the visit regarding US's Marine Mammal Protection Act (MMPA) will be conducted with the aim to provide knowledge and understanding of the US's regulation on MMPA.

**PROJECT DOCUMENT**  
**PROPOSED ACTIVITIES FOR THE YEAR 2023**

<b>Project ID:</b> 202201002			
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Sustainable Management of Fisheries, Marine Living Resources and their Habitats in the Bay of Bengal Region for the Benefit of Coastal States and Communities		
<b>Program Strategy No:</b>	I	<b>Total Period</b>	2023–2026
<b>Lead Department:</b>	Training Department	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	GEF and Norad	<b>Total Project Budget:</b>	<b>GEF IW and CC-M allocation</b> 9,478,899 USD  <b>SEAFDEC</b> 2,650,205 (IW + Norad) 2,274,538 IW 375,667 Norad
<b>Project Partner(s):</b>	IUCN and BOBP-IGO	<b>Budget for 2023:</b>	TBD
<b>Lead Technical Officer:</b>	TBD	<b>Project Participating Country(ies)</b>	SEAFDEC: Indonesia, Malaysia, Thailand  (BOBP: Bangladesh, India, Maldives, and Sri Lanka)

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

The Transboundary Diagnostic Analysis (TDA) and Strategic Action Programme (SAP) phase of the BOBLME identified three priority transboundary concerns :1) overexploitation of marine living resources, 2) degradation of critical habitats, and 3) pollution and water quality. A BOBLME program framework was developed with BOBLME countries to agree on priority issues to address and these were included in this project: “*Sustainable management of fisheries, marine living resources and their habitats in the Bay of Bengal region for the benefit of coastal states and communities*”. The project will address the following barriers: i) Institutional, legal and administrative barriers; with incomplete regional policy cycles and weak national-regional as well as science-policy interfaces, leading to poor governance; ii) socio-economic barriers; by improving stakeholder awareness, capacity, gender equity and participation, and introducing valuation of ecosystem services, leading to improved governance; and iii) reversing the lack of integration of climate change in planning and management to enhance the resilience of its fisheries, critical habitats, and people’s livelihoods.

The project objective is to contribute to sustainable management of fisheries, marine living resources and their habitats in the Bay of Bengal region, to reduce environmental stress and improve environmental status for the benefit of coastal states and communities. This will be achieved through five interlinked Project components based on the SAP themes, and with an added component to strengthen the institutional arrangements for regional partnerships coordination and collaboration, ecosystem-based monitoring, and assessment (substantial funding for Component 3 yet to be confirmed).

- Component 1 Sustainable Management of Fisheries
- Component 2 Restoration and conservation of critical marine habitats and conservation of biodiversity
- Component 3 Management of coastal and marine pollution to improve ecosystem health
- Component 4 Improved livelihoods and enhanced resilience of the BOBLME
- Component 5 Regional mechanism for planning, coordination and monitoring of the BOBLME



## 2. Background and Justification

In view of the shortcomings in the baseline scenario identified during the PPG phase (and summarized below), the Governments of Bangladesh, India, **Indonesia**, **Malaysia**, Maldives, Sri Lanka, **Thailand** have requested assistance from the GEF to formulate and implement this BOBLME Phase 2 project, and has received additional funding from Norad as co-finance. The project will produce key IW Global Environmental Benefits and CCM benefits through five well-defined components, as follows:

### **Component 1: Sustainable Management of Fisheries**

The baseline activities with respect to the implementation of EAFM and specifically the development and implementation of fisheries management plans at national levels in the BOBLME have institutionalized EAFM. However, without an extension of investment to include plans for sub-regional areas and transboundary species the social, economic and environmental benefits within the LME will be undermined. Similarly, the lack of coordinated efforts to combat IUU fishing in the sub-regional and region also undermines efforts to manage fisheries and ensure social, economic, and environmental benefits derived from the fisheries are sustained. Improving regional networks to more easily and rapidly share information on suspected IUU fishing activities will increase the capacity for apprehension of IUU fishers and close loopholes that encourage transboundary transgression. At a community level access to improved technology and training will increase community-based surveillance and reporting of IUU fishing activity and remove obstacles to non-reporting of catch.

The proposed GEF project will help national, provincial and local government resource managers, private sectors partners, non-governmental organizations, and local resources users to reorient their practices by adopting participatory ecosystem approaches to fisheries management that will conserve marine and coastal ecosystem services (including climate change resilience) and support the sustainable use of resources to enable livelihoods, strengthen food security, and promote gender mainstreaming. The project will also work with partners to strengthen capacities for transboundary cooperation for the monitoring, control and surveillance of IUU fishing, building on baseline activities that currently are individual to each country.

### **Component 2: Restoration and conservation of critical marine habitats and conservation of biodiversity**

Current baseline national actions have identified degradation of critical habitats such as mangroves, coral reefs and seagrasses as priorities to address. Over 4,500 km<sup>2</sup> of mangroves have been lost in the region over the last 30 years. The major cause of loss of mangroves has been conversion for agriculture (82%) and conversion for aquaculture (12%). Coral reefs in South Asia and Southeast Asia continue to suffer, including from rises in SST which results in bleaching. Reefs that continue to be at greatest risk from a combination of (i) coastal development, (ii) overexploitation and destructive fishing practices, (iii) the impact of inland pollution and erosion, and (iv) marine pollution, are the reefs around Aceh and the islands off Sumatra in Indonesia and Malaysia west coast. There is insufficient information to assess the status of seagrass, although it is thought that many of the BOBLME region's seagrass beds are either already degraded or threatened. Protection of critical habitats and ETP species needs to increasingly be incorporated into EAFM and more MMA are required nationally but also planning at a sub-regional and regional level to ensure necessary protection and representation is assured.

The proposed GEF project will lead to improved management and status of degraded, vulnerable and critical coastal and marine habitats and Endangered, Threatened and Protected (ETP) species in the BOBLME through integrating marine spatial management tools, such as Marine Managed Areas (MMAs), and Vulnerable Ecosystems (VEs) into fisheries and biodiversity conservation management of critical habitats in the Andaman Sea and other areas in the Bay of Bengal. The project will support national, provincial and local government resource managers, private sector partners, non-governmental organizations, and local resources users to strengthen management of existing MMA's and establish new MMA's where agreed. Regional and national capacity development programs will be established.

### **Component 3: Management of coastal and marine pollution to improve ecosystem health**

Under the baseline scenario the problems causing poor water quality and transboundary pollution will continue unabated. The priority issues of sewage-borne pathogens, organic load from sewage and other sources, marine litter, increasing nutrient inputs, oil pollution, POPS and PTS, and mercury pollution will all intensify. The effects of pathogens and high organic loads are likely to be localized except in the Ganges-Brahmaputra-Meghna system where sewage and other organic contaminants are shared in the northern part of the Bay of Bengal due to high river discharge and ocean circulation patterns. Marine litter, including plastic and discarded fishing gear, will continue to be transported long distances in the marine environment and will continue to be a major transboundary issue. Increasing nutrient inputs from rivers will lead to inner-shelf hypoxic zones that will adversely affect transboundary fish stocks - a large (approx. 60,000 km<sup>2</sup>) hypoxic or 'dead' zone in the northwest part of the Bay

has been detected. Increasing nutrients will result in Harmful Algal Blooms (HABs), also known as red tides. The widespread discharge of untreated or inadequately treated domestic, industrial and agricultural wastewater and marine origin pollution will continue.

The proposed GEF project will lead to reductions in the amount of marine litter and pollution from fishing through the marking and recovery and recycling of gear and reduction of pollution from fishery landing areas. These changes will benefit coastal populations and other stakeholders such as tourism. The reduction in marine litter will benefit marine life. This component will also constitute a platform to support implementation of the FAO 2018 Voluntary Guidelines on Marking Fishing Gear and support countries in their participation in the newly commencing IMO-FAO-Norway GloLitter Project.

The proposed GEF project will further support increased understanding and awareness of the issues and strengthen monitoring and reporting at LME level and participation in the GPNM and GPML.

#### **Component 4: Improved livelihoods and enhanced resilience of the BOBLME**

Under the current baseline, livelihoods and resilience in the coastal communities of the BOBLME remain vulnerable. Over 50 percent of all of the world's coastal poor live in the countries of the BOBLME. Although under the current baseline investment the contribution to GDP by fisheries remains low, marine living resources remain important for the livelihoods of millions of people and communities (in particular as a source of food). Most of the region's governments have set marine and freshwater fishery production targets to meet demands, many of which are at the limits of stock sustainability and consequently require accuracy and precision on catch information to ensure biological limits are not exceeded. Most countries have relatively well-formulated legislation and policies to regulate the different sectors, however harmonization across sectors is still required. This includes harmonization within government services that are applied in multi-layered manner (national-provincial/state and local). Many countries now have "decentralization" policies that present new challenges for the coordination and implementation of policies.

The proposed GEF project will contribute to positive changes in the overall well-being of coastal people and their involvement in both fishery management and biodiversity conservation. This is expected to lead to both enhanced ecosystem resilience of the BOBLME and of local livelihoods and food security. Vulnerability to natural hazards, and climate variability and change will be reduced and livelihoods diversified for selected coastal communities, with equal opportunities for women, men and youth. This component will also constitute a platform to support implementation of key concerns of the FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication SSF-Guidelines (VGSSF), as well as the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VG-Tenure).

#### **Component 5: Regional mechanism for planning, coordination and monitoring of the BOBLME**

Under the current baseline, transboundary cooperation on management of shared coastal and marine resources across the BOBLME will remain limited. Some cooperation exists within and between organizations including Association of Southeast Asian Nations (ASEAN), the Bay of Bengal Programme (BOBP-IGO), the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), the Asia-Pacific Fishery Commission (APFIC), the Indian Ocean Global Ocean Observing System (IOGOOS), Indian Ocean Tuna Commission (IOTC), Network of Aquaculture Centres in Asia and Pacific (NACA), South Asia Association for Regional Cooperation (SAARC), South Asia Cooperative Environment Programme (SACEP), and Southeast Asian Fisheries Development Center (SEAFDEC), and the Regional Plan of Action to Promote Responsible Fishing Practices including Combating Illegal, Unreported and Unregulated Fishing in the Region (RPOA-IUU).

The proposed GEF project will strengthen the capacity of stakeholders at all levels (in countries and regional partners) to plan and coordinate management activities at regional level. The project will strengthen regional cooperation between countries and between government agencies within countries with the engagement of civil society and the private sector. The Project will focus on strengthening the mechanisms at regional and national levels for planning, coordination, and monitoring of the BOBLME. The project will support the development of the "Consortium for the Conservation and Restoration of the BOBLME" (CCR-BOBLME) which by the end of the project will meet regularly to promote information exchange and capacity development; monitor BOBLME health and status and monitor progress of the SAP implementation activities and projects. The establishment of the CCR-BOBLME will involve the development of a cooperative agreement for monitoring ecosystems targets in the SAP and compilation, analysis, safe storage and sharing of information of historical baseline ecosystem data at national and regional levels.

The overall project objective is to contribute to sustainable management of fisheries, marine living resources and their habitats in the Bay of Bengal region for the benefit of coastal states and communities. This objective will be achieved by the following five interlinked Components along with associated Outcomes, Outputs and tentative activities.

Working with stakeholders, the project will work on addressing the priorities identified in the Program Committees of SEAFDEC, the SEAFDEC Council and ASEAN priority areas/targets for fisheries. In particular, the project will focus on:

- **Building regional cooperation around fishery management and combating IUU fishing** under Outcome 1.2 focused on reducing the IUU catch on the BOBLME
- **Tackling improved management and use of Ecosystem approach**, particularly under Outcome 1.1, focused on the institutionalization of the ecosystem approach to fisheries management at national level, including targeted transboundary fish stocks
- **Addressing environmental aspects of fisheries and build wider cooperation across ministries of environment**, collaborating with IUCN and the Ministries of Environment for the implementation of Component 2
- **Support small scale fisheries** and promote the implementation of the FAO Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication throughout the project and particularly under Component 4 of the project, and supporting IUCN in the execution of that component.
- **Complementing the FAO programs of support and FAO cooperation with SEAFDEC**, promoting FAO and SEAFDEC policy documents, such as
  - **SEAFDEC Code of Conduct for Responsible Fisheries**, which focuses attention on the cultural needs of the region, the tropical multispecies nature of fisheries and the need for management that reflects regional needs. This reflects regional requirements for full utilization of catches as a mechanism for resolving discards and bycatch whilst supplying marine protein to coastal communities and creating jobs.
  - **SEAFDEC regional initiatives on combating Illegal, Unreported and Unregulated (IUU) fishing in Southeast Asia** and optimizing energy use in fisheries in the Southeast Asian region through fishing vessels energy audits. The project on the Promotion of Sustainable Fisheries and IUU Fishing-related Countermeasures in Southeast Asia, which is being implemented by SEAFDEC with funding support from the Japanese Trust Fund (JTF), includes the Promotion of Regional Database for Fishing Vessels Records, and Port State Measures implementation in Southeast Asia. An EAFM training program is also being sustained through SEAFDEC in collaboration with other partners. BOBLME will build on the process initiated by relevant SEAFDEC JTF projects to address the issue to combat IUU fishing.
  - **BOBLME** will promote and provide support for the implementation of the **Regional Plans of Actions**, such as the **RPOA-Neritic Tuna, RPOA-Capacity, and RPOA-IUU**.
  - **The implementation of FAO's Strategic Objectives** and regional priority areas of work related to Climate Change and sustainable natural resource management, One-Health and Blue Growth in fisheries, the FAO's Committee on Fisheries (COFI), implements a broad range of binding and voluntary instruments such as the Code of Conduct for Responsible Fisheries (CCRF) and International Plans of Action (IPOAs). The BOBLME will facilitate the promotion of these policies and will provide guidance on how to address IUU fishing and other transboundary fisheries management issues, while providing lessons learned based on experience of putting those instruments into practice.

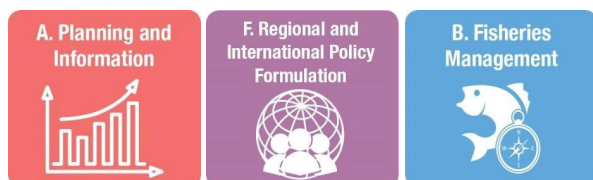
#### **Contribution to the SDGs**

- Expected outcomes of the proposed project are fully consistent with the Sustainable Development Goals (SDGs) and will contribute to a range of important socio-economic and environmental SDG targets, especially SDG 14 : Conserve and sustainably use the oceans, seas and marine resources, and its targets 1-5: by 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution; by 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans; minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels; by 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time possible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics; and by 2020, conserve at least 10 percent of coastal and marine areas, consistent with national and international law and based on the best available scientific information

### Contribution to the ASEAN-SEAFDEC Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030

- The project will directly contribute to the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030, including the support to priority actions related to A. Planning and Information; B. Fisheries Management, and F. Regional and International Policy Formulation.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

The project is fully aligned to and supports SEAFDEC, FAO and GEF policies on gender equality and mainstreaming. In particular, in relation to supporting countries to implement the FAO Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines) and their commitments to gender equality and achieving SDG Goal 5 (gender equality and empowering all women and girls). The SSF Guidelines call for equal participation of women and men in organizations and in decision-making processes. Policies and legislation must support equality, and both women and men must have access to appropriate technologies and services to carry out their work. Gender equity and equality are core objectives and guiding principles of the SSF Guidelines.

In fisheries, women's involvement in, and contribution to, the sector is more significant than often assumed. These roles can include gleaning, near-shore fishing, and aquaculture to post-harvest activities. FAO (SOFIA 2018) estimated that in 2016, overall, women accounted for nearly 14 percent of all people directly engaged in the fisheries and aquaculture primary sector as compared with an average of 15.2 percent across the reporting period 2009–2016. However, when both the primary and secondary sectors of aquaculture and fisheries are considered the workforce was evenly divided between men and women.

During the SAP development phase, BOBLME participating countries recognized the importance of gender in fisheries and small-scale fisheries in the region in particular. A comprehensive gender analysis was undertaken during this phase. BOBLME member countries and partners considered this analysis as current and relevant. Support to BOBLME countries to implement these recommendations is still required.

This comprehensive gender analysis and audit was undertaken of the BOBLME and made a range of recommendations on mainstreaming gender in the ongoing project and the SAP implementation<sup>1</sup>. The gender audit covered a number of international and regional instruments and national development and fisheries policies. The findings indicated uneven progress in tackling gender inequalities and accounting of gender issues overall and a cultural and institutional environment that was not conducive to gender mainstreaming initiatives.

Key entry points to mainstream gender in the SAP were identified as follows:

- Addition of a statement of political will or commitment to gender
- Consideration of gender-sensitive actions
- Addition of a section on cross-cutting issues covering gender training, communication, legislation, capacity building at field level, gender-disaggregated data collection, and research on gender issues
- Consideration of incentives and accounting mechanisms
- Earmarking of a specific budget for gender-related activities at the project level and strategic actions
- Addition of a pathway to impact, and
- Use of outcome mapping as a form of monitoring and evaluation

<sup>1</sup> BOBLME 2012: Mainstreaming gender in the BOBLME Project, Gender audit and recommended actions for mainstreaming a gender perspective in the BOBLME project and its Strategic Action Programme (SAP) [https://www.boblme.org/mainstreaming\\_gender.html](https://www.boblme.org/mainstreaming_gender.html)

The last two are seen as pivotal in capturing the changes that are expected as a result of both mainstreaming gender in the project, and the project's own influence in progressing towards gender equality. In addition to these, key recommendations for future action by the BOBLME partner countries include:

- Commissioning of a gender-sensitive review of legislation and regulatory frameworks in the BOBLME partner countries
- Following through the mainstreaming of gender in the NAPs, mirroring what has been proposed to mainstream gender in the SAP
- Tackling gender-disaggregated data collection as soon as possible
- Ensuring the continuous provision of gender inputs throughout the project duration
- Strengthening the participatory processes undertaken so far by the project
- Avoiding falling in the Women in Development/efficiency rhetoric and maintaining a focus on the addressing of gender issues and inequality, and
- Supporting gender training and capacity building at all levels, beyond the life of the project

A draft Gender Action Plan (GAP) for the project has been prepared along with tentative activities. This GAP will be developed fully during the inception work planning period and based on country needs and consultations with implementing partners. This updated GAP will include gender specific outcomes, outputs and activities, budgets and revised indicators for the project, including an updated project baseline.

Gender focal points and/or champions in each country will be identified and consulted throughout the GAP elaboration process.

The updating of the GAP will be undertaken at the same time as the national and regional work planning and will include capacity development for key staff.

## **5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification**

See Appendix with project framework

### **PART II: PROJECT STATUS**

The GEF CEO endorsed the Project on 30 March 2022. The Operational Partners Agreement (OPA) between SEAFDEC and FAO will be signed around the end of 2022.

### **PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023**

The detailed project activities plan will be agreed upon when the project enters into the Inception Phase. Operational Partner's Results Matrix updated as of June 2022 are appended herewith.

## Operational Partner's Results Matrix (BOBLME Project Results Framework for SEAFDEC)

## BOBP-IGO, SEAFDEC, IUCN

Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
Project Objective: To contribute to sustainable management of fisheries, marine living resources and their habitats in the Bay of Bengal region for the benefit of coastal states and communities  Overall project indicators	1. Areas under sustainable management (MPA, Fisheries) GEF indicator  2. Landings [or value] of fisheries  3. Sequestration of Carbon (CO <sub>2</sub> ). (refers to Outcome 2.2)  4. Gender balance in project activities	1. 6.2 million km <sup>2</sup> under existing management in 2019  2. Landings (value) of 6 million tonnes under existing management  3. 170,000 tCO <sub>2</sub> sequestered (refers to Outcome 2.2)  4. Gender balance at inception.	1. 3.1 million km <sup>2</sup> x under improved management in 2023  2. Landings (value) 3 million tonnes under sustainable management  3. 1,500,000 tCO <sub>2</sub> sequestered (refers to Outcome 2.2)  4. Gender balance at mid-term	1. 6.2 million km <sup>2</sup> x under improved management in 2025  2. Landings (value) 6 million tonnes under sustainable management  3. 2,959,482 tCO <sub>2</sub> sequestered (refers to Outcome 2.2)  4. Gender balance achieved	Government statistics RFB reports Project reports Project reports Gender review		Government agencies, Implementing partners RFB IUCN FAO
<b>Component 1: Sustainable Management of Fisheries</b>							
Outcome 1.1 The ecosystem approach to fisheries management institutionalized at national level, including targeted transboundary	Practitioners applying EAFM in each country EAFM plans implemented in project areas (through Focus Area approach) Number of institutions applying EAFM Policies include	1. 300 x people applying EAFM  2. 0 x EAFM plans under implementation  3. 10 x institutions	1. 500 x practitioners (to be confirmed on implementation): BOBP-IGO – 250 SEAFDEC – 250 IUCN – N/A  2. 8 x project	1. 1000 practitioners 500 BOBP-IGO 500 SEAFDEC N/A IUCN  2. 16 x project supported EAFM plans	Project progress reports Project evaluations Project training reports National policies Regional strategies Project reviews	National strategies to support implementation of EAFM implementation are maintained. Practitioners and government staff are able to dedicate	Government agencies Implementation partners

Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
fish stocks  Indicating for BOBP-IGO only	EAFM Gender balance of implementation activities (involvement of men and women)	currently applying EAFM  4. 4 x policies include EAFM  5. Gender balance at inception	supported EAFM plans implemented through Focus Area approach BOBP-IGO – 4 project plans SEAFDEC – 4 project plans IUCN – N/A  3. 16 Institutions applying EAFM BOBP-IGO – 8 institutions SEAFDEC – 8 institutions IUCN – N/A  4. 6 x policies include EAFM BOBP-IGO – 3 institutions SEAFDEC – 3 institutions IUCN – N/A  5. Gender balance at MTR.	implemented through the Focus Area approach. BOBP-IGO – 4 project plans SEAFDEC – 4 project plans IUCN – N/A  3. 16 Institutions applying for EAFM. BOBP-IGO – 8 institutions SEAFDEC – 8 institutions IUCN – N/A  4. 8 x policies include EAFM BOBP-IGO – 4 institutions SEAFDEC – 4 institutions IUCN – N/A  5. Gender Balance at completion achieved		time to support project activities	
Output 1.1.1 At least 2 EAFM plans implemented in each country. Output 1.1.2. National and regional platforms established or strengthened to involve grassroots stakeholders in management decision-making Output 1.1.3 EAFM training embedded in national and regional training institutions.							

Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
Outcome 1.2 IUU catch in the BOBLME reduced:	<p>1. IUU catch (in tonnes) in the BOBLME (2014 BOBLME Baseline<sup>1</sup>).</p> <p>2. BOBLME wide Regional plan of action to combat IUU (RPOA-IUU) endorsed.</p> <p>3. NPOA-IUU endorsed.</p> <p>4. Tools for promoting good practice in combating IUU developed.</p> <p>5. Regional platform for capacity development on MCS and training.</p> <p>6. Gender balance in project activities.</p>	<p>1. Catch reported in BOBLME assessment tonnes</p> <p>2. No RPOA-IUU</p> <p>3. 5 x countries with endorsed NPOA-IUU</p> <p>4. Some tools exist for promoting good practice in combating IUU developed (TBD on inception).</p> <p>5. No regional platform or training</p> <p>6. Gender balance at inception</p>	<p>1. 10% reduction in IUU catch. BOBP-IGO – 4 countries SEAFDEC – 4 countries IUCN – N/A</p> <p>2. BOBLME RPOA IUU drafted BOBP-IGO – 2 countries SEAFDEC – 2 countries IUCN – N/A</p> <p>3. 3 additional countries prepare NPOA-IUU BOBP-IGO – 1 countries SEAFDEC – 2 countries IUCN – N/A</p> <p>4. 8 x countries develop tools for promoting good practice in combating IUU BOBP-IGO – 4 countries SEAFDEC – 4 countries IUCN – N/A</p> <p>5. Regional</p>	<p>1. 20 % reduction in IUU catch BOBP-IGO – 4 countries SEAFDEC – 4 countries IUCN – N/A</p> <p>2. BOBLME RPOA-IUU endorsed by countries. BOBP-IGO – 2 countries SEAFDEC – 2 countries IUCN – N/A</p> <p>3. 8 countries with implemented NPOA-IUU BOBP-IGO – 4 countries SEAFDEC – 4 countries IUCN – N/A</p> <p>4. 8 x countries with tools for promoting good practice in combating IUU developed BOBP-IGO – 4 countries SEAFDEC – 4</p>	<p>RFB reports FAO PSMA reports Country reports Project evaluation Project reports RPOA-IUU BOBLME Regional platform TOR.</p>	<p>Capacity of government to estimate IUU catch. Political support to combatting IUU remains strong. Practitioners and government staff are able to dedicate time to support project activities Agreement between countries on regional actions can be reached.</p>	<p>Government agencies Implementation partners</p>

<sup>1</sup> The baseline document is



Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
			platform piloted and training of 80 people BOBP-IGO – 40 people SEAFDEC – 40 people IUCN – N/A  6. Gender balance at mid-term BOBP-IGO – gender targets SEAFDEC – gender targets IUCN – N/A	countries IUCN – N/A  5. Regional platform operating and 80 (of 160) people trained.  BOBP-IGO – 80 people SEAFDEC – 80 people IUCN – N/A  6. Gender balance at completion achieved BOBP-IGO – gender targets SEAFDEC – gender targets IUCN – N/A			
Output 1.2.1 BOBLME countries join and implement a Regional Plan of Action (RPOA) on IUU fishing Output 1.2.2. National POAs-IUU and national IUU MCS systems and Vessel Monitoring System (VMS) strengthened Output 1.2.3 Tools for promoting best practice to combat IUU developed and implemented. (MCS, PSM and traceability, and policies and national actions to combat IUU fishing developed and implemented in national pilot/investment projects) Output 1.2.4 Regional Capacity Development Program on port inspections, MCS and traceability implemented							

Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
Component 2: Restoration and conservation of critical marine habitats and conservation of biodiversity							
Outcome 2.1 Coastal and Marine Managed Areas (MMAs) contribute to conservation of biodiversity	1. Hectares of protected areas under management  2. Number of MMA's established or strengthened  3. Regional capacity development programme  4. Gender balance target.	1. 2,000,000 hectares under existing management  2. At least 8 MMAs in need of strengthening.  3. No regional capacity development programme for BOBLME.  4. Gender balance at inception.	1. 1,000,000 hectares under improved management (IUCN)  2. Strengthening process in at least 8 MMAs in progress and achieving measurable results. (IUCN)  3. Regional capacity development programme for BOBLME developed and 100 people trained (IUCN)  4. Gender balance at mid-term (IUCN)	1 2,000,000 hectares under improved management (IUCN)  2. At least 8 MMAs strengthened and under improved management based on advice from the Green List assessment process. (IUCN)  3. Regional capacity development programme for BOBLME developed and 200 people trained (IUCN)  4. Gender balance at project completion (IUCN)	Project progress reports Project evaluations Project training reports National policies Regional strategies Project reviews Green List assessment reports	Stakeholders can agree on protected area management measures. Political support to implementing MPA/MMA remains strong. Practitioners, stakeholders and government staff are able to dedicate time to support project activities. Agreement between countries on regional actions can be reached.	Government agencies Implementation partners

Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
Output 2.1.1 MMAs established or strengthened, and contribute to conservation of transboundary biodiversity.							
Output 2.1.2 Regional capacity development program promoting best practices in management and evaluation of MMAs							
Outcome 2.2 National MMAs established or strengthened resulting in improved MMA management effectiveness at national level: (CCM Bangladesh)	1. Area of mangroves protected/conserved and under improved management.  2. Sequestration of Carbon (CO <sub>2</sub> ).  3. Gender balance target.	1. 0 hectares with improved management (of 303,000 Ha hectares).  2. 170,000 tCO <sub>2</sub> sequestered  3. Gender balance at baseline.	1. 150,000 hectares with improved management (of 303,000 Ha hectares).  2. 1,500,000 tCO <sub>2</sub> sequestered  3. Gender balance target at mid-term.	1. 303,000 hectares with improved management (of 303,000 Ha hectares).  2. 2,959,482 tCO <sub>2</sub> sequestered  3. Gender balance at project completion	Project (sub component progress reports Project evaluations Project training reports National policies Regional strategies Project reviews	Stakeholders can agree on protected area management measures. Political support to CCM actions and mangrove conservations remains strong. Practitioners, stakeholders and government staff are able to dedicate time to support project activities. Interagency coordination is able to support implementation effectively. Interagency agreement can be reached.	Government agencies Implementation partners IUCN
Output 2.2.1 Enhancing the role of Sundarbans ecosystem services and conservation of forest stocks in Bangladesh							
Output 2.2.2 Improved management effectiveness of existing and new National MPAs							

Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
Outcome 2.3 Regional consensus and agreements reached on reduction of threats to marine biodiversity in coastal and open waters	1. Regional plan of action for ETP species.  2. National ETP species plans developed (e.g. whale sharks and sea turtles)  3. Gender balance target.	1. No regional plan of action for ETP exists.  2. 4 x national ETP in BOBLME countries.  3. Gender balance at baseline.	1. 1 x BOBLME Regional plan of action for ETP species. (IUCN)  2. 6 x ETP plans in BOBLME countries. (IUCN)  3. Gender balance target at mid-term. (IUCN)	1. 1 x BOBLME Regional plan of action for ETP species. (IUCN)  2. 8x National ETP species plans developed (e.g. whale sharks and sea turtles) (IUCN)  3. Gender balance at project completion. (IUCN)	Regional ETP plan endorsed by countries. National ETP plans developed and endorsed. Project progress reports Project evaluations Project training reports National policies Regional strategies Project reviews	Stakeholders can agree on protected area management measures. Political support to implementing MPA/MMA remains strong. Practitioners, stakeholders and government staff are able to dedicate time to support project activities. Agreement between countries on regional actions can be reached.	Government agencies Implementation partners IUCN
Output 2.3.1 A regional plan of action for ETP species Output 2.3.2 Legislative frameworks on ETP species harmonized across countries.							
<b>Component 3: Management of coastal and marine pollution to improve ecosystem health</b>							
Outcome 3.1 Pollution from discharge of untreated sewage and wastewater; solid waste and marine litter; and nutrient loading reduced or minimized in selected hotspots in river, coastal and marine waters.	1. Good practice documents / National guidelines developed  2. Improved waste management practiced in 8 fishing ports  3. Action plans for gear marking developed and disseminated  4. Gender balance	1. Poor waste management practices  2. No gear marking scheme exists  3. Gender balance at baseline	4 Fishing ports / fish landings covered by studies with recommendations / Good Practice documents BOBP-IGO – 2 fishing ports/landing sites SEAFDEC – 2 fishing ports/landing sites IUCN – N/A	8 National Guidelines on waste management BOBP-IGO – 4 fishing ports/landing sites SEAFDEC – 4 fishing ports/landing sites IUCN – N/A  8 Action Plans on gear marking	National Guidelines documents Action Plans Project progress reports Project evaluations GPNM / GPML reports	Agreement reached on fishing ports / fish landings Political support / will on combatting marine pollution remains strong Resource users' and private sector participation in waste management and gear marking schemes	Government agencies Implementation partners IUCN

Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
	target in capacity development and waste management practice		4 National guidelines on waste management BOBP-IGO – 2 SEAFDEC – 2 IUCN – N/A  4 Action Plans on gear marking BOBP-IGO – 2 SEAFDEC – 2 IUCN – N/A	BOBP-IGO – 4 SEAFDEC – 4 IUCN – N/A  8 countries participate in GPNM / GPML BOBP-IGO – 4 SEAFDEC – 4 IUCN – N/A		maintained	
Output 3.1.1 Dissemination of improved waste management practices in fishing harbours							
Output 3.1.2 Promotion of marking of fishing gears and the development and dissemination of corresponding regional guidelines							
Outcome 3.2 Demonstration Investments in Eco-Waste Infrastructure Solutions: Thanlyin and Ayeyarwady Watersheds	This is the ADB-led BOBLME Child Project						

Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
Component 4: Improved livelihoods and enhanced resilience of the BOBLME (supporting implementation of key concerns of the FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication SSF-Guidelines; VG-SSF)							
Outcome 4.1 Enhanced resilience and reduced vulnerability to natural hazards, climate variability and change of selected coastal communities:	<p>1. Community resilience plans developed based on valuation of ecosystem services (integrated with fisheries management and MMA and delivered through the project Focus Area approach)</p> <p>2. Number of national Policies or strategies developed integrating sectors relevant to BOBLME</p> <p>3. Gender mainstreaming strategy developed</p>	<p>1. No resilience plans in selected communities</p> <p>2. x 8 National policies exist but are not integrated</p> <p>3. No gender mainstreaming strategy exists,</p>	<p>1. 8 x resilience plans developed and implemented using project Focus Area approaches implemented (1x in each country) BOBP-IGO – provision of inputs and linkages with EAFM areas SEAFDEC – provision of inputs and linkages with EAFM areas IUCN – 8 resilience plans developed</p> <p>2. x 8 integrated national polies/strategies endorsed. BOBP-IGO – provision of inputs and linkages with EAFM work under component 1</p> <p>SEAFDEC – provision of inputs and linkages with EAFM work under component 1</p> <p>IUCN – 8 resilience</p>	<p>1. x 8 resilience plans developed. An additional x 8 communities may be considered to give x 16 if funds available at MT. BOBP-IGO – provision of inputs and linkages with EAFM areas SEAFDEC – provision of inputs and linkages with EAFM areas IUCN – 8 resilience plans developed x 8 communities</p> <p>2. x 8 integrated national polies/strategies endorsed. BOBP-IGO – provision of inputs and linkages with EAFM areas SEAFDEC – provision of inputs and</p>	<p>Project progress reports National Policies/strategies developed. Community plans developed and endorsed by communities. Project evaluations Project training reports</p>	<p>Communities /stakeholders participate in and agree plans. Practitioners, stakeholders and government staff are able to dedicate time to support project activities.</p>	<p>Government agencies Implementation partners IUCN</p>

Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
			plans developed  3. gender mainstreaming strategy implemented, IUCN leading	linkages with EAFM areas IUCN – 8 resilience plans developed  3. Gender balance in project activities. IUCN leading			
Output 4.1.1 Resilience plans developed based on valuation of ecosystem services. Output 4.1.2 Inclusion of coastal fisheries and aquaculture in poverty reduction and development, as well as climate change policies, strategies and planning processes promoted Output 4.1.3. Gender considerations mainstreamed into relevant policy and regulatory frameworks							
Outcome 4.2 Enhanced sustainable livelihoods and diversification for selected coastal communities.	1. Number of Livelihood diversification strategies developed.  2. Sites piloting livelihood diversification for women (through project Focus Areas)  3. Number of innovative financial services and insurance mechanisms developed.  4. Regional capacity development programme on alternative livelihoods and promotion of	1. No strategies present.  2. No sites piloting livelihood diversification for women.  3. No financial services developed.  4. No regional training programme.  5. No gender mainstreaming at baseline.	1. 8 x strategies developed (1 for each community). BOBP-IGO – provision of inputs and linkages with EAFM areas SEAFDEC – provision of inputs and linkages with EAFM areas IUCN – 8 strategies  2. 8x sites piloting livelihood diversification for women. BOBP-IGO – provision of inputs and linkages with component 1. SEAFDEC – provision of inputs	1. 8 x strategies developed (1 for each community).  2. 8x sites piloting livelihood diversification for women. BOBP-IGO – provision of inputs and linkages with component 1. IUCN – 8 sites  3. Financial services	Project progress reports Livelihood diversification strategies Community plans developed and endorsed by communities. Project evaluations Project training reports	Communities /stakeholders participate in and agree livelihood diversifications plans. Practitioners, stakeholders and government staff are able to dedicate time to support project activities	Government agencies Implementation partners IUCN

Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
	decent work. 5. Gender balance in project implementation		and linkages with component 1 IUCN – 8 sites  3. Financial services developed. BOBP-IGO – N/A SEAFDEC – N/A IUCN – financial services developed  4. No regional training programme developed and initiated. BOBP-IGO – attendance and provision of inputs when required. SEAFDEC – attendance and provision of inputs when required IUCN – leading development of regional training programme  5. Gender mainstreaming target at mid-term. IUCN leading	developed, available and utilized. BOBP-IGO – N/A SEAFDEC – N/A IUCN – financial services developed  4. Regional training programme on-going. BOBP-IGO – attendance and provision of inputs when required. SEAFDEC – attendance and provision of inputs when required IUCN – leading development of regional training programme  5. Gender mainstreaming at project completion IUCN leading			
Output 4.2.1 Livelihood diversification for women piloted (in at least one site per country) Output 4.2.2. Access to innovative financial services and insurance mechanisms improved Output 4.2.3. Regional capacity development programme for selected coastal communities on alternative livelihoods, promoting decent work, social protection for empowerment.							



Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
Component 5: Component 5: Regional mechanism for planning, coordination and monitoring of the BOBLME							
Outcome 5.1. Strengthened institutional mechanisms at regional and national levels for planning, coordination, and monitoring of the BOBLME	1. A regional mechanism established to coordinate action on BOBLME. 2. National multi stakeholder mechanisms established to coordinate action on the BOBLME. 3. Financing partnerships agreed 4. National inter and intra ministerial committees established (or strengthened if they exist). 5. BOBLME monitoring system developed. 6. Gender balance in implementation.	1. No regional mechanism established to coordinate action on BOBLME. 2. No national multi stakeholder mechanisms established to coordinate action on the BOBLME. 3. No financing partnerships. 4. Some coordinating mechanism exist but no national inter and intra ministerial committees established. 5. No BOBLME monitoring system developed. 6. Gender	1. 1 x regional mechanism established to coordinate action on BOBLME. BOBP-IGO – facilitate participation SA countries SEAFDEC – Facilitate participation SEA countries IUCN – leading the regional mechanism 2. 8 x National multi stakeholder mechanisms established to coordinate action on the BOBLME. BOBP-IGO – facilitate participation SA countries SEAFDEC – Facilitate participation SEA countries IUCN – leading the national multistakeholder mechanism 3. Financing	1. 1 x regional mechanism established to coordinate action on BOBLME. BOBP-IGO – facilitate participation SA countries SEAFDEC – Facilitate participation SEA countries IUCN – leading the regional mechanism 2. 8 x National multi stakeholder mechanisms established to coordinate action on the BOBLME. BOBP-IGO – facilitate participation SA countries SEAFDEC – Facilitate participation SEA countries IUCN – leading the national mechanism	Regional agreement on coordination of the BOBLME. National and regional meeting reports Project reports. Draft sustainable financing strategy document, National coordination committees established or strengthened. Regular reports on the health of the BOBLME.	There is political and financing support for establishing and sustaining a regional governance mechanism for the BOBLME. Practitioners, stakeholders and government staff are able to dedicate time to support project activities Countries are able to reach agreement on BOBLME coordination.	Government agencies Implementation partners IUCN FAO

Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
		balance at baseline	<p>partnerships drafted. BOBP-IGO – inputs SEAFDEC – inputs IUCN – leading</p> <p>4. 8 x National inter and intra ministerial committees established. BOBP-IGO – inputs SEAFDEC – inputs IUCN – leading</p> <p>5. BOBLME monitoring system developed. BOBP-IGO – inputs SEAFDEC – Inputs IUCN – leading</p> <p>6. Gender balance at mid-term BOBP-IGO – inputs SEAFDEC – inputs IUCN – leading</p>	<p>3. Financing partnerships agreed BOBP-IGO – inputs SEAFDEC – inputs IUCN – leading</p> <p>4. 8 National inter and intra ministerial committees established. BOBP-IGO – inputs SEAFDEC – inputs IUCN – leading</p> <p>5. BOBLME monitoring system developed and on-going. BOBP-IGO – inputs SEAFDEC – inputs IUCN – leading</p> <p>6. Gender balance at project completion BOBP-IGO – inputs SEAFDEC – inputs IUCN – leading</p>			

Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
Output 5.1.1 CCR-BOBLME established to promote stakeholder participation and awareness, ecosystem assessment, and application of best practices in implementation of the SAP 5.1.2 Long-term partnership arrangements agreed for sustainable regional coordination mechanism and sustainable financing for ecosystem-based management in the BOBLME 5.1.3 National inter-sectoral coordination committees to support SAP implementation established. 5.1.4 Stakeholder consultation mechanism established for engagement of civil society, cooperatives, and the private sector 5.1.5 Baseline data collection and analysis systems developed for monitoring systems and sharing information.							
Outcome 5.2. Adaptive results-based management and sharing of information and lessons learned	1. Project communication strategy  2. Number of lessons learned/policy documents  3. SAP implementation monitoring systems  4. Gender balance on implementation	1. No project communication strategy  2. No lessons learned/policy documents  3. No SAP implementation monitoring systems  4. Gender balance at baseline	1. x 1 Project communication strategy BOBP-IGO – inputs SEAFDEC – inputs IUCN – leading  2. 20 lessons learned/policy documents BOBP-IGO – inputs SEAFDEC – inputs IUCN – leading  3. SAP implementation monitoring systems in place BOBP-IGO – inputs SEAFDEC – inputs IUCN – leading  4. Gender balance at mid-term BOBP-IGO – inputs SEAFDEC – inputs IUCN – leading	1. x 1 Project communication strategy BOBP-IGO – inputs SEAFDEC – inputs IUCN – leading  2. 40 lessons learned/policy documents BOBP-IGO – inputs SEAFDEC – inputs IUCN – leading  3. SAP implementation monitoring systems in place. BOBP-IGO – inputs SEAFDEC – inputs IUCN – leading  4. Gender balance at project completion BOBP-IGO –	Project communication strategy. Lessons learned documents Project reports Reports on SAP implementation		Government agencies Implementation partners IUCN FAO

Results Chain	Indicators	Baseline	Mid-term milestone	Final Target	Means of Verification (MOV)	Assumptions	Responsible for data collection
				inputs SEAFDEC – inputs IUCN – leading			
Output 5.2.1 Communication Strategy developed and implemented Output 5.2.2. Programme findings and lessons learned identified and contribute to IW:LEARN and LME Learn/Interaction with IW:LEARN (1% of budget) Output 5.2.3. Regional information sharing mechanism developed enabling broad access to best practices and lessons learned in the participating countries Output 5.2.4. Monitoring system operating and providing systematic and regular information updates on progress towards reaching BOBLME SAP targets							

**PROJECT DOCUMENT  
ACHIEVEMENTS IN THE YEAR 2022  
AND  
PROPOSED ACTIVITIES FOR THE YEAR 2023**

			<b>Project ID:</b> 202301003
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Promoting the Blue Economy and Strengthening Fisheries Governance of the Gulf of Thailand through the Ecosystem Approach to Fisheries (GoTFish Project)		
<b>Program Strategy No:</b>	1	<b>Total Period:</b>	2023–2027
<b>Lead Department:</b>	Training Department	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	GEF–International Water (FAO is GEF Agency)	<b>Total Project Budget:</b>	USD 7,326,823 (Total Project Cost) USD 3,730,132 (estimated total for SEAFDEC)
<b>Project Partner(s):</b>	SFP and University of Queensland	<b>Budget for 2023:</b>	TBD
<b>Lead Technical Officer:</b>	Training Department	<b>Project Participating Country(ies)</b>	Cambodia, Malaysia, Thailand, and Viet Nam

**PART I: PROJECT DESCRIPTION**

**1. Executive Summary**

The GoTFish project is designed to address the key barriers to sustainable transboundary fisheries management of the Gulf of Thailand (GoT), related to institutional, legal and administrative issues at regional and national levels, including lack of appropriate forum for GoT-wide multi-national dialogue for planning, monitoring and reporting to address current unsustainable practices in fisheries resource use and management and conservation of aquatic biodiversity; the lack of integration of socio-economic constraints (such as lack of or inadequate incentives, climate resilience and gender considerations into the planning and management of GoT Fisheries. The aim of the project is “Improved natural resource governance in the GoT through the implementation of the Ecosystem Approach to Fisheries (EAF) contributing to the broader, regional fisheries objectives of the South China Sea Strategic Action Programme (SCS-SAP)”. To achieve this, the GoTFish Project will work on four main components:

**Component 1:** Regional transboundary fisheries governance and management strengthened, will focus on the institutionalization of transboundary fisheries governance and management issues for more effective decision-making in the GoT. This will be achieved by supporting the creation of a regional mechanism that can set the protocols for information sharing related to shared stocks of priority species and/or fisheries, as well as setting up the governance structure and enhanced capacity for developing the Ecosystem Approach to Fisheries regional and national plans.

**Component 2:** Alignment of incentive mechanisms, will work on improving the understanding of the roles of incentives (positive and negative) that can support sustainable and well-managed fisheries resources in the GoT, particularly market incentives such as the Fisheries Improvement Schemes for transboundary species, and behaviour change incentives.

**Component 3:** Ecological Corridor of Critical and Important Habitat for Aquatic Resources in the Gulf of Thailand (with a focus on Malaysia), will contribute to the conservation of globally significant biodiversity, identifying the existing ecological corridors in the GoT that are important both for biodiversity and fisheries. This component will be primarily executed in Malaysia (in particular, in the East Coast of Peninsular Malaysia) through the use of Biodiversity funding from GEF.

**Component 4:** Stakeholder engagement, communication, monitoring and evaluation, will contribute to IW focal area by facilitating project coordination and monitoring of project performance to achieve the expected outputs,

enhancing the participation of stakeholders (with a strong focus on women’s involvement), and on creating, documenting, sharing and using of knowledge related to transboundary sustainable fisheries practices and aquatic ecological corridors.

During 2021-April 2022, the Project document was formulated based on the approved Project Identification Form (PIF) formulation phase through a series of national and regional consultations and workshops with the Gulf of Thailand Countries namely: Cambodia, Malaysia, Thailand and Viet Nam. The project will be executed by SEAFDEC, Sustainable Fisheries Partnership (SFP) and University of Queensland (UQ) and Department of Fisheries Malaysia. SEAFDEC will execute the Component 1 and 4. The Project document was submitted to GEF in May 2022 and it is on the process of the consideration by the GEF Council. It is expected to start the Project in 2023.

## 2. Background and Justification

The GoT covers an area of 391,665km<sup>2</sup> and is bounded by Cambodia, Malaysia, Thailand and Viet Nam. The natural resource use of the GoT LME and the neighboring South China Sea LME provides a wide variety of additional marine-based cultural and provisioning ecosystem services, such as food security, nutrition and livelihoods, critical to the GoT’s coastal populations as well as the export economies of its neighboring countries.

FAO, therefore, developed the Project Identification Form (PIF), title “Promoting the blue economy and strengthening fisheries governance of the Gulf of Thailand through the Ecosystem Approach to Fisheries (GoTFish Project)”, in consultation with various stakeholder and submitted to Global Environment Facilities (GEF) in 2020. The GoTFish Project was also proposed as SEAFDEC Pipeline Project in the 43<sup>rd</sup> Meeting of the SEAFDEC Project Committee in 2020.

During the Project Identification Form (PIF) development, it was agreed by key stakeholders that to reverse the environmental degradation of the Gulf of Thailand and its loss of resilience and sustainability, particularly related to fisheries resources, the project should address key barriers related to:

- **Institutional, legal and administrative issues**, such as the lack of an appropriate “platform” or “forum” for region-wide multi-stakeholder dialogue to serve as decision-making bodies for the development, implementation and monitoring of regional fisheries management plans and/or action plans based on key issues. Discussions for the agreement on the type of regional mechanism will be addressed within **Project Outcome 1.1**;
- **Socio-economic and capacity barriers**, through the use of an Ecosystem Approach to Fisheries that takes into consideration the human, ecological and governance dimension of fisheries, focusing on enhancing resilience and the capacity to implement measures and changes by different actors (community, private sector, government, etc.) at different levels (local, national, regional, global), which will be addressed as part of **Project Outcome 1.2**;
- **Market and traceability barriers**: through a better engagement with the private sector and the role that social and community-based incentives can play to shift that behaviour towards a sustainable use of the fisheries resources, which will be addressed as part of **Project Outcome 2.1**. The project has also mobilized Biodiversity Funds in Malaysia from their own STAR allocation and **under Component 3**, the project will work on addressing barriers related to MPA and ecosystem connectivity (not only fisheries, but also other important, vulnerable and threatened migratory species.
- **Stakeholder Engagement (including Gender), Communications and M&E**: The Component 4 of the project will focus on Stakeholder engagement (including gender analysis to ensure the full participation of women in the project), as well as effective communication and monitoring and evaluation.

In the PIF, there is a detailed description of the baseline scenario and associated baseline projects. The project will focus on promoting regional cooperation (through the existing mechanisms such as APFIC, SEAFDEC, COBSEA, PEMSEA), as well as within the initiatives ongoing in these four (4) Gulf of Thailand countries (*e.g.* CAPFISH program in Cambodia, Malaysia’s work on MPAs, Thailand’s NPOA-IUU, Viet Nam’s Master Plan on Fisheries Development, etc.) and other regional and international efforts (FAO-IPOA, VGSSF, SEAFDEC regional projects (*e.g.* Fisheries *Refugia*, etc.) and regional instruments (SEAFDEC Code of Conduct for Responsible Fisheries, etc.), as well as the Regional Plans of Actions (RPOA-Neritic Tuna, RPOA- Capacity, RPOA-IUU), and other relevant works, from NGOs and CSOs, academia, and the private sector (specially under Component 2), and other biodiversity and MPA related work (specially under Component 3).

Working with stakeholders, the project will work on addressing the priorities identified in the Programme Committees of SEAFDEC, the SEAFDEC Council and ASAEAN priority areas/targets for fisheries. In particular, the project will focus on:

- **Building regional cooperation around fishery management and combating IUU fishing**, throughout the project, and particularly under Outcome 1.1, with work directed for the restoration of fisheries resources and marine biodiversity ecosystem services and strengthening regional transboundary governance and cooperation of GoT fisheries.
- **Tackling improved management and use of Ecosystem approach**, throughout the project and particularly under Outcome 1.2, with the development and implementation of the Ecosystem Approach to Fisheries (EAF) management plans in the Gulf of Thailand enhances the resilience against climate change and manages fishing effort of fisheries stakeholders (women and men) (related to SAP Fisheries Objective 1). This Outcome 1.2 will also focus on Strengthening capacity for management as well as assessment of fisheries.
- **Addressing environmental aspects of fisheries and build wider cooperation across ministries of environment**, throughout the project and through Outcome 3.1, focused on the integration of habitat and biodiversity conservation considerations in the management of fisheries in the Gulf of Thailand through deeper understanding of the ecological transboundary corridors existing in the Gulf of Thailand, leading to enhanced resilience of vulnerable aquatic species and those important for regional food security and sovereignty, (related to SAP-Fisheries Objective 1).
- **Support small scale fisheries** and promote the implementation of the FAO Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication throughout the project and particularly in the development of knowledge tools under Component 4 of the project.
- **Complementing the FAO programmes of support and FAO cooperation with SEAFDEC**, promoting FAO and SEAFDEC policy documents, such as
  - SEAFDEC Code of Conduct for Responsible Fisheries, which focuses attention on the cultural needs of the region, the tropical multispecies nature of fisheries and the need for management that reflects regional needs. This reflects regional requirements for full utilization of catches as a mechanism for resolving discards and bycatch whilst supplying marine protein to coastal communities and creating jobs.
  - SEAFDEC regional initiatives on combating Illegal, Unreported and Unregulated (IUU) fishing in Southeast Asia and optimizing energy use in fisheries in the Southeast Asian region through fishing vessels energy audits. The project on the Promotion of Sustainable Fisheries and IUU Fishing-related Countermeasures in Southeast Asia, which is being implemented by SEAFDEC with funding support from the Japanese Trust Fund (JTF), includes the Promotion of Regional Database for Fishing Vessels Records, and Port State Measures implementation in Southeast Asia. An EAFM training program is also being sustained through SEAFDEC in collaboration with other partners. GoTFish will build on the process initiated by relevant SEAFDEC JTF projects to address the issue to combat IUU fishing.
  - SEAFDEC's Gulf of Thailand Sub-regional platform, which has been facilitated by the SEAFDEC-Sweden project, initiated the first attempts to regional fisheries collaboration in key species in the Gulf of Thailand, documenting information related to the fisheries and migratory patterns of key species with the aim of facilitating development of joint management plans in the GoT, and specific plan of actions for the selected species. The GoTFish project will build on these processes, particularly the working groups/task forces initiated by the SEAFDEC-Sweden project.
  - GoTFish will promote and provide support for the implementation of the Regional Plans of Actions, such as the RPOA-Neritic Tuna, RPOA-Capacity, and RPOA-IUU.
  - The implementation of FAO's Strategic Objectives and regional priority areas of work related to Climate Change and sustainable natural resource management, One-Health and Blue Growth in fisheries, the FAO's Committee on Fisheries (COFI), of which all GoT participating countries are members, implements a broad range of binding and voluntary instruments such as the Code of Conduct for Responsible Fisheries (CCRF) and International Plans of Action (IPOAs). GoTFish will facilitate the promotion of these policies, and will provide guidance on how to address IUU fishing and other transboundary fisheries management issues, while GoTFish will provide lessons learned based on experience of putting those instruments into practice.

### Contributions to the SDGs

Expected outcomes of the proposed project are fully consistent with the Sustainable Development Goals (SDGs) and will contribute to a range of important socio-economic and environmental SDG targets, especially SDG 14: Conserve and sustainably use the oceans, seas and marine resources, and its targets 1-5: by 2025, prevent and

significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution; by 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans; minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels; by 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics; and by 2020, conserve at least 10 percent of coastal and marine areas, consistent with national and international law and based on the best available scientific information.

### **Contribution to the ASEAN-SEAFDEC Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030**

The project will directly contribute to the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030, including the support to priority actions related to A. Planning and Information; B. Fisheries Management, and F. Regional and International Policy Formulation.

### **3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030**



### **4. Gender Sensitivity of the Project**

The Component 4 activity which is Stakeholder engagement, communication, monitoring and evaluation which executing by SEAFDEC will focus on Stakeholder engagement including gender analysis to ensure the full participation of women in the project.

### **5. Project Goal, Outcome, Outputs, Activities, Indicators and Verification**

#### **5.1 Project overall framework**

##### **Goal**

Improved natural resource governance in the Gulf of Thailand through the implementation of the Ecosystem Approach to Fisheries (EAF) contributing to the fisheries objectives of the South China Sea Strategic Action Programme (SCS-SAP).



<p><b>COMPONENT 1:</b> Regional transboundary fisheries governance and management strengthened.  <b>Executing Agency:</b> Southeast Asian Fisheries Development Center</p>	
<p><b>OUTCOME 1.1:</b> Fisheries resources and marine biodiversity ecosystem services are restored through strengthened regional transboundary governance and cooperation of GoT fisheries, building their resilience through improved habitat and fisheries management (SCS-SAP Fisheries Objective 11)</p>	
<p><b>Indicators:</b></p> <p>Indicator 1.1.1– At least 1 sub-regional (GoT countries) stakeholder working group and a key sub-regional issue identified and regional policy best practices shared.</p> <p>Indicator 1.1.2– At least 1 (a) policy area in the GoTFish country polices identified as benefiting from improved consistency (b) revised RPOA for management with sub-regional arrangement between Implementation States (e.g. possible bilateral arrangement between Implementation State), that takes into account gender considerations and the different needs of women and men in the fisheries sector.</p> <p>Indicator 1.1.3– At least 2 decisions and/or recommendation related to shared stock management endorsed through the active participation of Inter-Ministry Committees/National Level Committees.</p> <p>Indicator 1.1.4– One regional mechanism for sharing data and information and reviewing the state of management of the GoT fisheries based on existing platforms ((e.g. SEAFDEC- GoT Countries Technical Working Group, ASEAN Network for Combating IUU Fishing (ANIUU), ASWGFi, RPOA-IUU etc).</p> <p>Indicator 1.1.5– One regional mechanism for transboundary GoT, based on existing platforms ((e.g. SEAFDEC- GoT Countries Technical Working Group, ASEAN Network for Combating IUU Fishing (AN-IUU), ASWGFi, RPOA-IUU etc).</p> <p>Indicator 1.1.5b: At least 2 decisions and/or recommendation related to shared stock management endorsed through the active participation of Inter-Ministry Committees/National Level Committees.</p>	
<p>Output 1.1.1: Updated and regionally coherent fisheries policies across the GoT countries and strengthened national legal frameworks</p>	<p><u>Activity 1.1.1a:</u> Review of the current legal frameworks and policies across the four GoTFish countries to identify similarities and differences.</p> <p><u>Activity 1.1.1b:</u> Provide a sub-regional platform to consider the review and identify areas for better regional consistency</p>
<p>Output 1.1.2: Established regional stakeholder working groups for improved transboundary fisheries management and addressing key regional issues</p>	<p><u>Activity 1.1.2a:</u> Undertake a brief review of the objectives and mode of operations of past and present working groups that have formed under different projects and initiatives</p> <p><u>Activity 1.1.2b:</u> Establish regional stakeholder working groups based on the results of the review and the agreed priority issues (see 1.1.4) to provide for stakeholders with common concerns to come together and share best practices and lessons learnt in order to develop targeted and time-bound activities to address priority fisheries issues in the GoT.</p>
<p>Output 1.1.3: Development and implementation of regional and national action plans to address common fisheries issues</p>	<p><u>Activity 1.1.3a:</u> Provide an up-to-date assessment of the content and progress in implementation of existing Regional Action Plans (RAPs), Regional Plans of Action (RPOAs), particularly actions under the transboundary Indo-Pacific mackerel plan that was developed by GoT countries.</p> <p><u>Activity 1.1.3b:</u> Assist GoT countries implement the existing RPOAs by providing a forum for sub-regional implementation arrangements between GoTFish States that demonstrate national commitments to actions (e.g. national budgets committed to implement the plans). This could involve the development of NPOAs, where appropriate or implementation through national EAFM plans.</p>
<p>Output 1.1.4: Prioritization of regional, sub-regional and national transboundary related issues for fisheries management and related biodiversity and environmental issues.</p>	<p><u>Activity 1.1.4:</u> Through sub-regional workshops for stakeholders, identify and confirm 3 to 4 priority transboundary fisheries and 3 to 4 priority cross-cutting issues as input into the development and implementation of sub-regional and national EAFM plan(s). These issues need to be linked to the integration</p>

	of the connectivity and biodiversity considerations considered under Component 3.
Output 1.1.5: Agreed mechanism for a regional approach to transboundary fisheries management in the Gulf of Thailand	<u>Activity 1.1.5a:</u> Review the costs and mode of operation of regional fisheries bodies (RFBs) in other similar large marine ecosystems of the world. <u>Activity 1.1.5b:</u> Carry out a cost/benefit analysis and examine opportunities and constraints to a transboundary and cooperative fisheries management approach in the GoT. Agree and implement at least one regional mechanism that involves sharing data and information and reviewing progress in fisheries management. The mechanism/arrangements to include involvement of Inter-Ministry Committees/ National Level Committees
<b>OUTCOME 1.2:</b> Development and implementation of Ecosystem Approach to Fisheries management (EAFM) plans in the Gulf of Thailand enhances the resilience against climate change and manages fishing effort of fisheries stakeholders (women and men) (related to SCS-SAP Fisheries Objective 1)	
<b>Indicators:</b> Indicator 1.2.1– At least one major capacity building exercise be provided to key stakeholders (including both women and men) in each of the four GoT participating States along with ongoing involvement of these stakeholders in the development and implementation of EAFM plans. Indicator 1.2.2– 30 % of raw fish supply that is converted to fishmeal comes from fisheries with an EAFM plan. Indicator 1.2.3– Four national EAFM plans based on issues common to GoT countries are implemented and reviewed based on up-to-date resource assessments, and with relevant participation of stakeholders and evidence of national commitment (e.g. national budgets) following the EAF and addressing gender considerations. Indicator 1.2.3b– Up-to-date assessments on the status of the fisheries resources, ecosystem structure and function, habitats, and ETPs are provided every 2 years throughout the project. Indicator 1.2.4– At least 1 GoT sub-regional EAFM plan developed for a transboundary fishery to include issues common across GoT countries, with evidence that implementation has been initiated (e.g. national budget committed to implement the plans), following the EAF.	
Output 1.2.1: Stakeholder capacity to develop EAFM plans is strengthened, taking into consideration the different needs of women and men.	<u>Activity 1.2.1a:</u> Develop gender-sensitive capacity building opportunities for key stakeholders to participate fully in the development and implementation of sub-regional and national plans. These could include gender-specific capacity development actions, supporting networks, trainings, implementing gear and post-harvest technologies, where appropriate to EAFM, and practices, awareness raising, and adaptive management for effective decision-making, linking with Outcome 1.1.
Output 1.2.2: Strengthened national fisheries management plans are implemented through the EAF approach.	<u>Activity 1.2.2a:</u> Provide a platform to share experiences in developing and implementing national EAFM plans and assist countries in (i) strengthening the plans and (ii) monitoring and evaluating progress in implementing these plans by setting up an adaptive management scheme that includes biennial reviews and improvement advice. Assist SW Viet Nam update its Trawl Fisheries FMP to be more EAF-based in its approach. <u>Activity 1.2.2b:</u> Provide an up-to-date assessment of the status of the GoT fishery resources, habitats, ETPs and ecosystem structure and function, and capacity development on its use by GoT countries, informed by EwE modelling.
Output 1.2.3: EAFM plan(s) developed, addressing priority risks and opportunities to human well-being, ecosystem integrity and	<u>Activity 1.2.3a:</u> Develop a sub-regional EAFM plans based on transboundary priority risks and opportunities to human wellbeing and ecosystem integrity using the best available knowledge on the biological and

<p>governance (including the components 2 and 3) including the implications of climate change on GoT countries' fisheries</p>	<p>ecological dimensions of key transboundary GoT fisheries, as well as the human and governance dimensions for the sectors and communities that depend on them. Knowledge generated under Component 3, focused on biodiversity connectivity and effectiveness of conservation areas, will be integrated into these EAFM plans.</p> <p><u>Activity 1.2.3b:</u> Collate relevant fisheries data in a sub-regional fisheries information system.</p> <p><u>Activity 1.2.3c:</u> Initiate implementation the EAFM plans based on national commitments (e.g. national budgets committed to the plan).</p> <p><u>Activity 1.2.3d:</u> Contribute to broader planning frameworks and regional marine spatial planning (MSP) such as that developed by the SCS-SAP project, by facilitating the integration of fisheries consideration within the planning of other maritime sectors (such as tourism, oil and gas, transport, etc.) and vice-versa. In particular make spatial data developed during EAFM planning, including ecological corridors and transboundary stocks to any appropriate MSP activity in the GoT sub-region.</p>
<p><b>COMPONENT 2 – Alignment of Incentives</b>  <b>Executing Agency: Sustainable Fisheries Partnership</b></p>	
<p><b>OUTCOME 2.1:</b> Establishment of a market and behavior incentive mechanism which reduces ecosystem stress from fishing, enhances the uptake of good practices supporting fisheries management and supports the transition to climate-resilient fisheries (integrating gender considerations and the different needs of women and men along the fishery value chain) (related to SCS-SAP Fisheries Objective 3).</p> <p><b>Indicators:</b></p> <p>Indicator 2.1.1– 2 market and/or behaviour change incentive mechanisms initiated or refined (with women's participation of at least 30%).</p> <p>Indicator 2.1.2– 10% of fisheries related establishments/operations that meet national or international certification and incorporates biodiversity/ sustainable resources/ resource protection considerations (direct and indirect).</p> <p>Indicator 2.1.3– At least 1 of private/public partnerships created at the regional level.</p> <p>Indicator 2.1.4– At least 1 fisheries improvement projects (FIPs) taking place in the GoT (with clear fisher livelihood improvements and gender considerations).</p> <p>Indicator 2.1.5 – at least one regional market incentive mechanism includes gender considerations and serves to promote women's leadership in sector organizations or decision making in fisheries.</p>	
<p>Output 2.1.1:  Identification of mechanisms and stakeholder platforms to support incentives for sustainable and well-managed GoT fisheries value chains, including those linked to fishmeal for feeds.</p>	<p><u>Activity 2.1.1a:</u> Carry out grounded baseline analyses of at least two supply chains using raw material from key fisheries within the GoT.</p> <p><u>Activity 2.1.1b:</u> Gauge interest of key stakeholder groups to develop market incentives through newly created or already existing improvement frameworks that utilize pre-competitive collaborations and/or public-private alliances.</p> <p><u>Activity 2.1.1c:</u> Prepare a plan to develop or improve/refine at least two market incentive mechanisms that will receive support from the project.</p>
<p>Output 2.1.2:  Market and other innovative incentive mechanisms implemented to enhance sustainable fisheries value chains aimed to promote sustainable sourcing of fish and aquatic products, as well as to transition to low impact fishing practices.</p>	<p><u>Activity 2.1.2a:</u> Develop or refine at least two new or existing market incentive mechanisms to enhance sustainable fisheries value chains that serve to promote environmental and social improvements, including gender equity.</p> <p><u>Activity 2.1.2b:</u> Promote uptake by key supply chains of project supported market incentive mechanisms to engage in sustainable sourcing of fish and aquatic products.</p>

	<p><u>Activity 2.1.2c</u>: Support at least one Fishery Improvement Project (FIP) to meet the requirements of improvement frameworks and incentive mechanisms, so that producers transition to low-impact fishing practices.</p> <p><u>Activity 2.1.2d</u>: Support engaged regional supply chains in two-way communications with markets (e.g., communicating the attributes of project supported market incentive tools and improvement frameworks, connecting engaged supply chains with interested buyers or promoting peer-to-peer learning among supply chain actors).</p>
<p><b>COMPONENT 3:</b> Ecological Corridor of Critical and Important Habitat for Aquatic Resources in the Gulf of Thailand (with a focus on Malaysia)  <b>Executing Agency:</b> University of Queensland; Department of Fisheries Malaysia</p>	
<p><b>OUTCOME 3.1:</b> Improved integration of habitat and biodiversity conservation considerations in the management of fisheries in the Gulf of Thailand through deeper understanding of the ecological transboundary corridors existing in the Gulf of Thailand, leading to enhanced resilience of vulnerable aquatic species and those important for regional food security and sovereignty (SCS-SAP Fisheries Objective 1).</p> <p><b>Indicators:</b>  Indicator 3.1.1– At least 2 biodiversity targets incorporated into EAFM plans (regional and national levels).  Indicator 3.1.2– 1 regional GIS dataset on species and habitat distribution and status (with different levels of access sharing) established.  Indicator 3.1.3– 1 national guidelines for biodiversity.  Indicator 3.1.4– 4 countries participate in GoT technical platform on fisheries and aquatic biodiversity.</p>	
<p>Output 3.1.1:  Mapping of aquatic ecological corridors in the Gulf of Thailand.</p>	<p><u>Activity 3.1.1a</u>: Mapping and archiving of regional ecological and biodiversity assets throughout major marine areas of GoT.</p> <p><u>Activity 3.1.1b</u>: Analysis and potential modelling of fish larval dispersion.</p> <p><u>Activity 3.1.1c</u>: Zoning of core conservation areas (both terrestrial and marine).</p> <p><u>Activity 3.1.1d</u>: Mapping of economic activity areas (e.g., fishing zones, tourism, and local community uses).</p>
<p>Output 3.1.2:  Development of recommendations/guidelines for the alignment of key biodiversity considerations into national, transboundary and/or regional fisheries management plans and action plans.</p>	<p><u>Activity 3.1.2</u>: Development of national guidelines with regards to managing biodiversity and fisheries in the seascape.</p>
<p>Output 3.1.3:  Creation of an interim Gulf of Thailand sub-regional technical discussion platform to address integration of fisheries and aquatic biodiversity.</p>	<p><u>Activity 3.1.3</u>: National level consultations to form an interim Gulf of Thailand sub-regional technical discussion platform.</p>
<p><b>OUTCOME 3.2:</b> Reduced threats to vulnerable species and critical/ important habitats for food security and sovereignty with strengthened national and transboundary protection and management of aquatic resources in East Coast Peninsular Malaysia.</p> <p><b>Indicators:</b>  Indicator 3.2.1– 261,723 ha of conservation area under improved conservation management and sustainable use in the East Coast of Peninsular Malaysia based on global Protected Area (PA) performance standards.  Indicator 3.2.2– 1 New guideline in evaluating fisheries benefits of conservation areas developed and tested in at least 1 project site.  Indicator 3.2.3– 1 improved National or Sub-National Policy on Integrated Coastal and Fisheries Resources Management, and Marine Spatial Planning (MSP) for the east coast of Peninsular Malaysia adopted (subject to Cabinet approval).</p>	
<p>Output 3.2.1:  Identification of ecological corridors of critical and important habitat for aquatic resources in the East Coast of Peninsular Malaysia with spatial maps and information available for EAF planning</p>	<p><u>Activity 3.2.1</u>: Implementation of the seascape approach in managing marine ecological corridors throughout the East Coast Peninsular Malaysia at the state level.</p>

and identification of management and protection measures including protected areas (PAs).	<u>Activity 3.2.2</u> : Identify important biodiversity areas for gazettement as protected areas and preparation of respective management plans.
<p><b>OUTCOME 3.3:</b> Enhanced resilience of ecosystems and associated biodiversity in East Coast of Peninsular Malaysia.</p> <p><b>Indicators:</b>  Indicator 3.3.1– Marine managed areas have been assessed and management improvements increase BD biodiversity benefits and improved linkages with fisheries (targets to be defined during PPG phase).  Indicator 3.3.2– At least 1 participatory ecosystem resilience plan with a monitoring system initiated in marine conservation areas.</p>	
<p>Output 3.3.1: Participatory monitoring system established to reduce fishing and other pressures on marine biodiversity in conservation areas.</p>	<u>Activity 3.3.1a</u> : Establishment of a participatory monitoring system for the management of biodiversity and data collection.
<p>Output 3.3.2: Map priority areas to improve resilience of ecosystem components including identification of existing threats and vulnerabilities (including climate change and other natural and human hazards).</p>	<p><u>Activity 3.3.2.a</u>: Determine priority areas based on habitat/ ecosystem resilience Considerations.  <u>Activity 3.3.2b</u>: Prepare list of recommendations for priority actions in these areas.</p>
<p>Output 3.3.3: Development of participatory ecosystem resilience plans within and beyond Marine Managed Areas, that address the needs of the ecological corridors.</p>	<p><u>Activity 3.3.3a</u>: Incorporate resilience-based management planning and resilience assessment methodology into marine spatial planning system/guideline.  <u>Activity 3.3.3b</u>: Develop resilience strategy to provide guidance on managing marine resources across East Coast Peninsular Malaysia.  <u>Activity 3.3.3c</u>: Capacity building on resilience principles among multiple.</p>
<p><b>COMPONENT 4:</b> Stakeholder engagement, communication, monitoring and evaluation  <b>Executing Agency:</b> SEAFDEC [RCU]</p>	
<p><b>OUTCOME 4.1:</b> Efficient knowledge management and targeted communication, improves the understanding amongst stakeholders of ecosystem and fishery linkages in the Gulf of Thailand (related to SCS-SAP Fisheries Objective 2).</p> <p><b>Indicators:</b>  Indicator 4.1.1– 1 regional and 4 M&amp;E systems in place and monitoring performance against gender sensitive indicators.  Indicator 4.1.2– 10 knowledge sharing events on topics related to transboundary EAFM plans, FIPS, gender issues in fisheries value chains, social and market incentives, etc. carried out and related materials developed, shared and used to affect change.  Indicator 4.1.4– 1 GOTFISH knowledge platform established and easily accessible for stakeholders.  Indicator 4.1.5– At least 10 GoTFish lessons learned collated and accessible., communicated through IW-Learn fora.</p>	
<p>Output 4.1.1: GoT project monitoring system established and implemented. (including mid-term and final evaluations).</p>	<p><u>Activity 4.1.1a</u>: Develop the M&amp;E tracking system for indicators under components 1, 2 and 3 (both at regional and national levels monitoring).  <u>Activity 4.1.1b</u>: Regular monitoring of output level indicators.  <u>Activity 4.1.1c</u>: Mid Term Review (including assessment against output level and GEF Core Indicators).  <u>Activity 4.1.1d</u>: Final Evaluation (including assessment against output level and GEF Core indicators).  <u>Activity 4.1.1e</u>: Annual PSC meetings (including the development of the project exit strategy by the end of the project).  <u>Activity 4.1.1f</u>: Revision of the Environmental and Social Safeguards at the project Midterm.</p>

Output 4.1.2: GoT knowledge management strategy and communication strategy established and implemented.	<u>Activity 4.1.2a</u> : Develop the knowledge management strategy for sharing knowledge and lessons learned related to the GoTFish components. <u>Activity 4.1.2b</u> : Develop the communication strategy for the GotFish. <u>Activity 4.1.2c</u> : Develop and maintain the GoTFish Project Website. <u>Activity 4.1.2.d</u> : Develop 10 lessons learned knowledge materials.
Output 4.1.3: Participation in the activities of the IW Learn Project.	<u>Activity 4.1.3a</u> : Facilitate participation of project stakeholders to the IW Learn annual meetings (budget allocated is 1 % of the IW budget). <u>Activity 4.1.3b</u> : share lessons learned documented in Output 4.1.2 to the IW Learn website.
<b>OUTCOME 4.2</b> : Enhanced stakeholder involvement and gender equity.	
<b>Indicators:</b> Indicator 4.2.1– 1 regional and 4 national project gender and stakeholder engagement strategy implemented. Indicator 4.2.2– 1 regional and 4 GoTFish gender and stakeholder strategy developed and approved by stakeholders.	
Output 4.2.1: GoTFish gender and stakeholder engagement strategy implemented.	<u>Activity 4.2.1a</u> : Revise and implement the GoTFish Gender Strategy, documenting lessons learned. <u>Activity 4.2.1b</u> : Revise and implement the GoTFish Stakeholder engagement strategy of the GoTFish.

## 5.2 Project Implementation Plan for 2023-2027

The project overall workplan of 2023-2027 is shown in **Appendix 22A**.

## 5.3 Project overall proposed budget for 2023-2027

Component	Outcomes	Proposed Budget (USD)	Source of funds	Executing Agency (EA)
1	1.1	800,000	IW funding	SEAFDEC
	1.2	2,330,000	IW funding	SEAFDEC
2	2.1	1,710,000	IW funding	SFP
3	3.1	500,000	IW funding	UQ
	3.1	600,000	BD funding (only Malaysia)	UQ
	3.3	437,795	BD funding (only Malaysia)	UQ
4	4.1	370,000	IW funding	SEAFDEC
	4.2	230,132	IW funding	SEAFDEC
Project Management costs (among the 3 EA)		348, 896		
Total full budget from GEF		<b>7,326,823</b>		

## PART II: PROJECT ACHIVEMENT IN 2022

In 2022, the project has not been started the activities since it was still in the Project Preparation Grant (PPG) phase. Nevertheless, the project formulation has been conducted in 2021 and the PPG Validation Workshop was held on 16–17 March 2022 to discuss and agreed on the project components, outputs, activities, indicators and targets. SEAFDEC, SFP, and UQ as expected the executing agencies (EAs) were submitted the co-finance commitments to FAO in April 2022. The EAs and FAO have made the final review of the Project documents in April 2022. Finally, the full project document was submitted to GEF on 10 May 2022. It is expected that the project will be commenced in January 2023 once GEF approve.



### **PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023**

The detail project activities plan and indicative budget plan for 2023 will be confirmed again once the Project documents is endorsed.

## The Project framework and workplan (as submitted to GEF in May 2022)

Output	Main Activities	Responsible Agency	Year 1				Year 2				Year 3				Year 4				Year 5			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Component 1: Regional transboundary fisheries governance and management strengthened.</b>																						
<b>Executing Agency: SouthEast Asian Fisheries Development Center</b>																						
<i>Outcome 1.1: Fisheries resources and marine biodiversity ecosystem services are restored through strengthened regional transboundary governance and cooperation of GoT fisheries, building their resilience through improved habitat and fisheries management (SCS-SAP Fisheries Objective 11)</i>																						
<b>Output 1.1.1:</b> Updated and regionally coherent fisheries policies across the GoT countries and strengthened national legal frameworks	<b>Activity 1.1.1a</b> Review of the current legal frameworks and policies across the four GoTFish countries to identify similarities and differences.	SEAFDEC																				
	<b>Activity 1.1.1b</b> Provide a sub-regional platform to consider the review and identify areas for better regional consistency	SEAFDEC																				
<b>Output 1.1.2:</b> Established regional stakeholder working groups for improved trans-boundary fisheries management and addressing key regional issues <sup>92</sup>	<b>Activity 1.1.2a</b> Undertake a brief review of the objectives and mode of operations of past and present working groups that have formed under different projects and initiatives																					
	<b>Activity 1.1.2b</b> Establish regional stakeholder working groups based on the results of the review and the agreed priority issues (see 1.1.4) to provide for stakeholders with common concerns to come together and share best practices and lessons learnt in order to develop targeted and time-bound activities to address priority fisheries issues in the GoT.																					
<b>Output 1.1.3:</b> Development and implementation of regional and national action plans to address common fisheries issues.	<b>Activity 1.1.3a</b> Provide an up-to-date assessment of the content and progress in implementation of existing Regional Action Plans (RAPs) Regional Plans of Action (RPOAs), particularly actions under the transboundary Indo-Pacific mackerel plan that was developed by GoT countries.																					



Output	Main Activities	Responsible Agency	Year 1		Year 2		Year 3		Year 4		Year 5			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	<p><b>Activity 1.1.3b</b> Assist GoT countries implement the existing RPOAs by providing a forum for sub-regional implementation arrangements between GoT/Fish States that demonstrate national commitments to actions (e.g. national budgets committed to implement the plans). This could involve the development of NPOAs, where appropriate or implementation through national EAFM plans.</p>													
<p><b>Output 1.1.4:</b> Prioritization of regional, sub-regional and national transboundary related issues for fisheries management and related biodiversity and environmental issues.</p>	<p><b>Activity 1.1.4</b> Through sub-regional workshops for stakeholders, identify and confirm 3 to 4 priority transboundary fisheries and 3 to 4 priority cross-cutting issues as input into the development and implementation of sub-regional and national EAFM plan(s). These issues need to be linked to the integration of the connectivity and biodiversity considerations considered under Component 3.</p>													
<p><b>Output 1.1.5:</b> Agreed mechanism for a regional approach to transboundary fisheries management in the Gulf of Thailand</p>	<p><b>Activity 1.1.5a</b> Review the costs and mode of operation of regional fisheries bodies (RFBs) in other similar large marine ecosystems of the world.</p> <p><b>Activity 1.1.5b</b> Carry out a cost/benefit analysis and examine opportunities and constraints to a transboundary and cooperative fisheries management approach in the GoT. Agree and implement at least one regional mechanism that involves sharing data and information and reviewing progress in fisheries management. The mechanism/arrangements to include involvement of Inter-Ministry Committees/ National Level Committees.</p>													
<p><b>Outcome 1.2: Development and implementation of Ecosystem Approach to Fisheries management (EAFM) plans in the Gulf of Thailand enhances the resilience against climate change and manages fishing effort of fisheries stakeholders (women and men) (related to SCS-SAP Fisheries Objective 1)</b></p>														
<p><b>Output 1.2.1:</b> Stakeholder capacity to develop EAFM plans is strengthened, taking into consideration the different needs of women and men</p>	<p><b>Activity 1.2.1a</b> Develop gender-sensitive capacity building opportunities for key stakeholders to participate fully in the development and implementation of sub-regional and national plans. These could include gender-specific capacity development actions, supporting networks, trainings, implementing gear and post-harvest technologies, where appropriate to EAFM, and practices, awareness raising, and adaptive management for effective decision-making, linking with Outcome 1.1.</p>	SEAFDEC												



Output	Main Activities	Responsible Agency	Year 1				Year 2				Year 3				Year 4				Year 5				
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
<b>Component 2 – Alignment of Incentives</b> Executing Agency: Sustainable Fisheries Partnership																							
<i>Outcome 2.1: Establishment of a market and behaviour incentive mechanism which reduces ecosystem stress from fishing, enhances the uptake of good practices supporting fisheries management and supports the transition to climate-resilient fisheries (integrating gender considerations and the different needs of women and men along the fishery value chain) (related to SCS-SAP Fisheries Objective 3 )</i>																							
<b>Output 2.1.1:</b> Identification of mechanisms and stakeholder platforms to support incentives for sustainable and well-managed GoT fisheries value chains, including those linked to fishmeal for feeds	<b>Activity 2.1.1.a.</b> Carry out grounded baseline analyses of at least two supply chains using raw material from key fisheries within the GoT.	SFP																					
	<b>Activity 2.1.1.b.</b> Gauge interest of key stakeholder groups to develop market incentives through newly created or already existing improvement frameworks that utilize pre-competitive collaborations and/or public-private alliances.	SFP																					
	<b>Activity 2.1.1.c.</b> Prepare a plan to develop or improve/refine at least two market incentive mechanisms that will receive support from the project.	SFP																					
	<b>Activity 2.1.2a.</b> Develop or refine at least two new or existing market incentive mechanisms to enhance sustainable fisheries value chains that serve to promote environmental and social improvements, including gender equity.	SFP																					
<b>Output 2.1.2:</b> Market and other innovative incentive mechanisms implemented to enhance sustainable fisheries value chains aimed to promote sustainable sourcing of fish and aquatic products, as well as to transition to low-impact fishing practices	<b>Activity 2.1.2b.</b> Promote uptake by key supply chains of project supported market incentive mechanisms to engage in sustainable sourcing of fish and aquatic products.	SFP																					
	<b>Activity 2.1.2c.</b> Support at least one Fishery Improvement Project (FIP) to meet the requirements of improvement frameworks and incentive mechanisms, so that producers transition to low-impact fishing practices.	SFP																					
	<b>Activity 2.1.2d.</b> Support engaged regional supply chains in two-way communications with markets (e.g., communicating the attributes of project supported market incentive tools and improvement frameworks, connecting engaged supply chains with interested	SFP																					



Output	Main Activities	Responsible Agency	Year 1				Year 2				Year 3				Year 4				Year 5				
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
	buyers or promoting peer-to-peer learning among supply chain actors).																						
<p><b>Component 3: Ecological Corridor of Critical and Important Habitat for Aquatic Resources in the Gulf of Thailand (with a focus on Malaysia)</b>                      Executing Agency: University of Queensland, Department of Fisheries Malaysia</p>																							
<p><b>Outcome 3.1: Improved integration of habitat and biodiversity conservation considerations in the management of fisheries in the Gulf of Thailand through deeper understanding of the ecological transboundary corridors existing in the Gulf of Thailand, leading to enhanced resilience of vulnerable aquatic species and those important for regional food security and sovereignty (SCS-SAP Fisheries Objective 1)</b></p>																							
<p><b>Output 3.1.1:</b> Mapping of aquatic ecological corridors in the Gulf of Thailand</p>	<p><u>Activity 3.1.1a</u>                      Mapping and archiving of regional ecological and biodiversity assets throughout major marine areas of GoT</p>	UQ/DoF Malaysia																					
	<p><u>Activity 3.1.1b</u>                      Analysis and potential modelling of fish larval dispersion</p>	UQ/DoF Malaysia																					
	<p><u>Activity 3.1.1c</u>                      Zoning of core conservation areas (both terrestrial and marine)</p>	UQ/DoF Malaysia																					
	<p><u>Activity 3.1.1d</u>                      Mapping of economic activity areas (e.g., fishing zones, tourism, and local community uses)</p>	UQ/DoF Malaysia																					
<p><b>Output 3.1.2:</b>                      Development of recommendations/guidelines for the alignment of key biodiversity considerations into national, transboundary and/or regional fisheries management plans and action plans</p>	<p><u>Activity 3.1.2</u>                      Development of national guidelines with regards to managing biodiversity and fisheries in the seascope</p>	UQ/DoF Malaysia																					
	<p><u>Activity 3.1.3</u>                      National level consultations to form an interim Gulf of Thailand sub-regional technical discussion platform</p>	UQ/DoF Malaysia																					
<p><b>Output 3.1.3:</b>                      Creation of an interim Gulf of Thailand sub-regional technical discussion platform to address integration of fisheries and aquatic biodiversity</p>	<p><u>Activity 3.1.3</u>                      National level consultations to form an interim Gulf of Thailand sub-regional technical discussion platform</p>	UQ/DoF Malaysia																					

Output	Main Activities	Responsible Agency	Year 1		Year 2		Year 3		Year 4		Year 5			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Outcome 3.2: Reduced threats to vulnerable species and critical/important habitats for food security and sovereignty with strengthened national and transboundary protection and management of aquatic resources in East Coast Peninsular Malaysia</b>														
<b>Output 3.2.1:</b> Identification of ecological corridors of critical and important habitat for aquatic resources in the East Coast of Peninsular Malaysia with spatial maps and information available for EAF planning and identification of management and protection measures including protected areas (PAs).	<b>Activity 3.2.1</b> Implementation of the seascape approach in managing marine ecological corridors throughout the East Coast Peninsular Malaysia at the state level	UQ/DoF Malaysia												
	<b>Activity 3.2.2</b> Identify important biodiversity areas for gazettelement as protected areas and preparation of respective management plans	UQ/DoF Malaysia												
<b>Outcome 3.3: Enhanced resilience of ecosystems and associated biodiversity in East Coast of Peninsular Malaysia</b>														
<b>Output 3.3.1:</b> Participatory monitoring system established to reduce fishing and other pressures on marine biodiversity in conservation areas.	<b>Activity 3.3.1a</b> Establishment of a participatory monitoring system for the management of biodiversity and data collection	UQ/DoF Malaysia												
<b>Output 3.3.2:</b> Map priority areas to improve resilience of ecosystem components including identification of existing threats and vulnerabilities (including climate change and other natural and human hazards)	<b>Activity 3.3.2.a</b> Determine priority areas based on habitat/ecosystem resilience considerations  <b>Activity 3.3.2.b</b> Prepare list of recommendations for priority actions in these areas	UQ/DoF Malaysia												
<b>Output 3.3.3:</b> Development of participatory ecosystem resilience plans within and	<b>Activity 3.3.3a</b> Incorporate resilience-based management planning and resilience assessment methodology into marine spatial planning system/guideline	UQ/DoF Malaysia												

Output	Main Activities	Responsible Agency	Year 1		Year 2		Year 3		Year 4		Year 5			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
beyond Marine Managed Areas, that address the needs of the ecological corridors.	<b>Activity 3.3.3b</b> Develop resilience strategy to provide guidance on managing marine resources across East Coast Peninsular Malaysia.	UQ/DoF Malaysia												
	<b>Activity 3.3.3c</b> Capacity building on resilience principles among multiple stakeholders (agencies, students, and local communities).	UQ/DoF Malaysia												
<b>Component 4: Stakeholder engagement, communication, monitoring and evaluation</b> Executing Agency: SEAFDEC [RCU]														
<i>Outcome 4.1: Efficient knowledge management and targeted communication, improves the understanding amongst stakeholders of ecosystem and fishery linkages in the Gulf of Thailand (related to SCS-SAP Fisheries Objective 2)</i>														
<b>Output 4.1.1:</b> GoT project monitoring system established and implemented. (including mid-term and final evaluations).	<b>Activity 4.1.1a</b> Develop the M&E tracking system for indicators under components 1, 2 and 3 (both at regional and national levels monitoring).	SEAFDEC/RCU												
	<b>Activity 4.1.1b</b> Regular monitoring of output level indicators.	SEAFDEC/RCU												
	<b>Activity 4.1.1c</b> Mid Term Review (including assessment against output level and GEF Core Indicators).	FAO RCU												
	<b>Activity 4.1.1d</b> Final Evaluation (including assessment against output level and GEF Core indicators).	FAO RCU												
	<b>Activity 4.1.1e</b> Annual PSC meetings (including the development of the project exit strategy by the end of the project).	SEAFDEC/RCU												
<b>Output 4.1.2:</b> GoT knowledge management strategy and communication strategy	<b>Activity 4.1.1f</b> Revision of the Environmental and Social Safeguards at the project Midterm.	SEAFDEC/RCU FAO												
	<b>Activity 4.1.2a</b> Develop the knowledge management strategy for sharing knowledge and lessons learned related to the GoTFish components.	SEAFDEC/RCU												



Output	Main Activities	Responsible Agency	Year 1			Year 2			Year 3			Year 4			Year 5			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
established and implemented	<u>Activity 4.1.2b</u> Develop the communication strategy for the GoFish.	SEAFDEC/ RCU																
	<u>Activity 4.1.2c</u> Develop and maintain the GoTFish Project Website	SEAFDEC/ RCU																
	<u>Activity 4.1.2.d</u> Develop 10 lessons learned knowledge materials.	RCU EAs																
	<u>Activity 4.1.3a</u> Facilitate participation of project stakeholders to the IW Learn annual meetings (budget allocated is 1 % of the IW budget)	SEAFDEC/ RCU																
<u>Output 4.1.3:</u> Participation in the activities of the IW Learn Project.	<u>Activity 4.1.3b</u> Share lessons learned documented in Output 4.1.2 to the IW Learn website.	SEAFDEC/ RCU																
<b>Outcome 4.2: Enhanced stakeholder involvement and gender equity</b>																		
<u>Output 4.2.1:</u> GoTFish gender and stakeholder engagement strategy implemented	<u>Activity 4.2.1a</u> Revise and implement the GoTFish Gender Strategy, documenting lessons learned	SEAFDEC/ RCU																
	<u>Activity 4.2.1b</u> Revise and implement the GoTFish Stakeholder engagement strategy of the GoTFish	SEAFDEC/ RCU																

**PROJECT DOCUMENT**  
**PROPOSED ACTIVITIES FOR THE YEAR 2023**

			<b>Project ID:</b> 202203001
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Blue Horizon: Ocean Relief through Seaweed Aquaculture		
<b>Program Strategy No:</b>	I	<b>Total Period</b>	2023–2026
<b>Lead Department:</b>	Secretariat	<b>Lead Country:</b>	-
<b>Donor/Sponsor:</b>	GEF/WWF-US	<b>Total Project Budget:</b>	<b>GEF IW allocation</b> 6,000,000 USD
<b>Project Partner(s):</b>	BFAR (PH), MARD/D-fish (VN)	<b>Budget for 2023:</b>	TBD
<b>Lead Technical Officer:</b>	TBD	<b>Project Participating Countries</b>	The Philippines and Viet Nam

## PART I: PROJECT DESCRIPTION

### 1. Background/Introduction

Seaweed farming is growing as a lucrative business in coastal provinces - farmed as a foodstuff, used in food processing, as well as cosmetics and medical industries. The livelihoods of the people who live in these coastal areas depend on the quality of water and habitat in these rich marine ecosystems. Seaweeds address numerous environmental threats which impact coastal waters, they remove eutrophying nutrients (such as nitrogen and phosphorus) from the water, reducing hypoxia, and instead turning these nutrients into valuable protein, oils, green chemical feedstock, and a range of industrial products. This provides ecosystem services and biodiversity enhancement. In addition, seaweed captures and stores carbon. On the socio-economic side, seaweed farming provides livelihood resilience for communities. Seaweed can be integrated into multi-trophic systems which can strengthen the economic resilience of coastal communities; all while providing benefits that will stabilize and strengthen the health of the surrounding environment.

While the seaweed industry has a significant untapped potential towards supplying high quality, cost-competitive biomass for new international value chains, including the potential processing and delivery of sustainably produced fishmeal and oil replacement products to green the growing aquaculture sector, there are significant problems that impair the industry from reaching its potential. The structure of the current industry is characterized by high disease outbreaks (*e.g.*, ice-ice disease) due to climate change and low genetic variability of seed stocks; use (and loss) of plastics; and lack of standards and protocols that adhere to an eco-system approach to optimize the environmental footprint of production.

The project ‘Blue Horizon: Ocean Relief through Seaweed Aquaculture’ will work at the global, regional, and national levels to strengthen and develop seaweed value chains. More specifically, the project will work in the coastal and marine ecosystems of Viet Nam and the Philippines, where the potential for the expansion of seaweed aquaculture and seaweed aquaculture value chains exists. Overall, the project is expected to yield environmental and socio-economic benefits. Environmental benefits come from the enhanced ecosystem services provided by the seaweed farms, specifically, mitigation of acidification of the sea, oxygenation of coastal waters, mitigation of eutrophication of marine waters, mitigation of harmful algal blooms, and improvement in the conditions for aquatic biodiversity. Socioeconomic benefits include livelihood opportunities from increased production and quality of seaweed biomass, which yields more profit to seaweed farmers; increased income from production and trade of higher value processed seaweed products, and; increased capacities.

These benefits are expected to be measured as follows:

- 66,000 metric tons of CO<sub>2</sub> emissions mitigated (based on seaweed biomass that falls off during production and ends up sequestering carbon at the ocean bottom)
- 15,000 beneficiaries benefiting from the project
- 4,400 tons of Nitrogen and phosphorus captured



## 2. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



## 3. Gender Sensitivity of the Project

During the project development phase, the Gender Analysis and Gender Action Plan were conducted for the Philippines, Viet Nam, and Regional (3 Gender Analyses and Gender Action Plans total) to ensure gender mainstreaming throughout the project cycle. The Gender Analysis is an examination of gender, the differences between men and women, their access, control, and use of resources, and the implications for the project goals, objectives, outcomes, and outputs. Therefore, the project is fully aligned with and supports SEAFDEC, WWF, and GEF policies on gender equality and mainstreaming. It will also incorporate lessons and practices in promoting gender equity and empowerment along the seaweed value chain.

## 4. Project Goal, Expected Outcomes, and Expected Outputs

The overarching goal of the Project “Blue Horizon: Ocean Relief through Seaweed Aquaculture” is to create new sustainable seaweed value chains that will deliver ecosystem services and provide socioeconomic benefits to communities, particularly to households whose livelihoods depend on marine ecosystems.

To achieve the goal, the project will be conducted in the following four components:

- **Component 1: Regional capacity building for seaweed aquaculture.** This Component includes building regional capacity and plans for seaweed aquaculture, and participation in global seaweed coalitions.
- **Component 2: Enabling Environment for Seaweed Aquaculture in Philippines and Viet Nam.** This involves creating an enabling environment for seaweed aquaculture at the national level – the project will support processes to identify appropriate areas for seaweed expansion, and operationalize management plans specific to such areas, with accompanying plans and coordination mechanisms (national/global) to support this (Component 2).
- **Component 3: Seaweed Value Chains (production + processing + marketing).** This Component requires working with producers and cooperatives to pilot off-shore farms that will serve as proof of concept for off-shore seaweed production. It will also support a proof of concept for a scalable seaweed carbon credit model, and finally, expanded collaboration with the finance sector and private sector.
- **Component 4: Knowledge Management, M&E, and IW Learn (regional).** This Component involves knowledge sharing and monitoring and evaluation. The activities will be monitored and communicated *via* multiple channels. In this way, the project will utilize and expand on current baseline activities in the seaweed industry in the Philippines and Viet Nam to promote the interests of seaweed farmers and their communities and grow the global market for seaweed in a sustainable and responsible fashion.

The project will deliver a number of outputs and outcomes, as described below:

### Component 1 Regional capacity building for seaweed aquaculture

#### Outcome 1.1: Regionally adopted plans and principles to harmonize seaweed aquaculture in Southeast Asia

- Output 1.1.1 Regional Seaweed Technical Working Group, constituted and formally mandated by SEAFDEC Governing Council
- Output 1.1.2. Guide to Promoting a Sustainable Seaweed Industry in the SEA Region, endorsed by the SEAFDEC Governing Council
- Output 1.1.3 SEA Regional Principles for Responsible and Safe Seaweed Aquaculture, including a toolkit for applying principles, aligned to the Safe Seaweed Coalition
- Output 1.1.4 Training modules and information packages to support a sustainable seaweed industry in South East Asia

**Component 2 Enabling Environment for Seaweed Aquaculture in Philippines and Viet Nam**

**Outcome 2.1:** Improved planning for seaweed aquaculture and capture of nutrients from the ocean Output: Communication products, including a website to share project outcomes

- Output 2.1.1 Marine spatial planning that integrates more sustainable seaweed farming
- Output 2.1.2 National Seaweed Plan presented for adoption (VN) and National Seaweed Industry Roadmap (PH) adapted to local levels

**Outcome 2.2:** Robust institutional and regulatory frameworks ensure that the expansion of seaweed farming is sustainable, responsible, and equitable

- Output 2.2.1 Policy and Regulatory gap analysis and associated frameworks (e.g. Circulars; technical guidelines) to facilitate seaweed aquaculture planning, development, and management
- Output 2.2.2 An open-source Information Management System to facilitate national and provincial-level planning and management of the seaweed aquaculture sector (VN)

**Component 3 Seaweed Value Chains (production + processing + marketing)**

**Outcome 3.1:** Improved technologies and testing for seaweed value chains in PH and VN

- Output 3.1.1: Six demonstration farms to provide proof of concept of different seaweed farming options: • Four demonstration farms (of *Eucheumatoid* species) to provide proof of concept of off-the-coast or off-shore scalable seaweed businesses (based on zones identified in 2.1.2). • Two demonstration farms (*Caulerpa* sp.), one in degraded former shrimp ponds and another in an adjacent shallow nearshore area
- Output 3.1.2: Implementation of at least 2 seaweed value chain initiatives (adding value to raw seaweed in seaweed farming communities; improved propagules; transparency)

**Outcome 3.2: Generating benefits from seaweed aquaculture for target communities (PH and VN)**

- Output 3.1.2: Implementation of at least 2 seaweed value chain initiatives (adding value to raw seaweed in seaweed farming communities; improved propagules; transparency)
- Output 3.2.1: Sustainable Seaweed Toolkit and training for improved production, processing, and market access

**Outcome 3.3: Expanded collaboration with the finance sector and private sector to support seaweed value chains in the Philippines and Viet Nam**

- Output 3.3.1. Development of 3-4 bankable business propositions to scale up sustainable seaweed value chain solutions tested under 3.1 and new innovative solutions
- Output 3.3.2: Investment seminars and industry and investment forums conducted in collaboration with government representatives, development partners, and the private sector, including key value chain actors

**Component 4: Knowledge Management, M&E, and IW Learn (regional)**

**Outcome 4.1:** Full participation in IW: LEARN and knowledge management/communication

- Output 4.1.1: Participation in two IW: LEARN regional meetings and one GEF International Waters Conference, delivering IW: LEARN experience notes
- Output 4.1.2: Knowledge management and communication platform and products

**Outcome 4.2:** Monitoring and evaluation system in place

- Output 4.2.1: Monitoring and Evaluation reports (including project progress reports, midterm evaluation, terminal evaluation)

**4.2. Project Implementation Plan for 2023-2026**

The overall implementation plan for 2023-2027 will be provided during the inception phase.

	2023	2024	2025	2026
<b>Component 1: Regional capacity building for seaweed aquaculture</b>				
Outcome 1				
Output 1.1.1				
Output 1.1.2				
Output 1.1.3				
Output 1.1.4				
<b>Component 2: Enabling Environment for Seaweed Aquaculture in Philippines and Viet Nam</b>				
Output 2.1.1 (PH)				
Output 2.1.1 (VN)				

	2023	2024	2025	2026
Output 2.1.2(PH)				
Output 2.1.2(VN)				
Output 2.2.1 (PH)				
Output 2.2.1(VN)				
Output 2.2.2 (VN)				
<b>Component 3: Seaweed Value Chains (production + processing + marketing)</b>				
Output 3.1.1 (PH)				
Output 3.1.1 (VN)				
Output 3.1.2 (VN)				
Output 3.2.1 (VN)				
Output 3.2.2 (PH)				
Output 3.2.3 (PH)				
Output 3.3.1 (PH)				
Output 3.3.1 (VN)				
Output 3.3.2 (PH)				
Output 3.3.2 (VN)				
<b>Component 4: Knowledge Management, M&amp;E, and IW Learn (regional)</b>				
Output 4.1.1				
Output 4.1.2				
Output 4.2.1				

#### 4.3. Project overall proposed budget for 2023-2026

Component	Budget (USD)	Responsible Agencies
1	763,330	SEAFDEC
2	1,411,992	PH+VN
3	2,910,780	PH+VN
4	628,185	SEAFDEC
Project Management costs	285,714	SEAFDEC
Total full budget from GEF	6,000,000	

#### PART II: PROJECT ACHIEVEMENTS IN 2022

The GEF's CEO endorsed the project document in July 2022. It is now in the process of preparation for the project commencement. No technical activities start in 2022.

#### PART III: PROPOSED ACTIVITIES FOR THE YEAR 2023

The detailed activities plan will be agreed upon when the project enters into the Inception Phase.

**PROJECT DOCUMENT**  
**PROPOSED ACTIVITIES FOR THE YEAR 2023**

<b>Project ID:</b> 202203002			
<b>Program Category:</b>	Project under the ASEAN-SEAFDEC ASSP and FCG Mechanism		
<b>Project Title:</b>	Regional Technical Consultation on Aquatic Animal Health Emergencies in Southeast Asia		
<b>Program Strategy No:</b>	II	<b>Total Period</b>	To be determined
<b>Lead Department:</b>	AQD	<b>Lead Country:</b>	Philippines
<b>Donor/Sponsor:</b>	JAIF (pending approval)	<b>Total Project Budget:</b>	-
<b>Project Partner(s):</b>		<b>Budget for 2023:</b>	None
<b>Lead Technical Officer:</b>	Dr. Leobert dela Peña Scientist and Research Division Head, SEAFDEC/AQD	<b>Project Participating Country(ies)</b>	ASEAN Member States

## PART I: PROJECT DESCRIPTION

### 1. Executive Summary

The proposed RTC on Aquatic Animal Health Emergencies in Southeast Asia will bring together again the same representatives during the RTC on AEPRS for Effective Management of Transboundary Disease Outbreaks in Southeast Asia with the added participation of people from the private sector and the academe to assess the status of each member state's contingency plans regarding disease control. The Consultation would also be the avenue to identify the gaps in the contingency plan(s) of each member state. This technical Consultation is intended to facilitate the further development and refinement of a regional aquatic emergency preparedness and response system that will result in the more systematic management of aquatic animal disease outbreaks in the region; the Consultation would also strengthen the cooperation among member states, regional/international organizations, the academe, farmers and other relevant stakeholders on initiatives that support emergency preparedness and response systems for effective management of aquatic animal disease outbreaks.

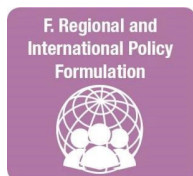
The proposed three-day Consultation/Workshop will comprise of country reports by the AMS's and Japan, technical presentations by the invited experts, workshops to harmonize current practices, identify gaps and initiatives for international/regional collaboration that need to be prioritized and be pushed/supported, refine the Regional Technical Guidelines/Mechanism for early warning system and draft a region-wide contingency plans for aquatic animal health and diseases, as well as a fieldtrip to have a first-hand look and assess actual farm practices.

### 2. Background and Justification

The most serious problems faced by the aquaculture sector are diseases spread and introduced through movements of hatchery-produced stocks, new species for aquaculture, and the development and enhancement of the ornamental fish trade. During the 2012 and 2013 meetings of the SEAFDEC Program Committee, member country representatives conveyed concern regarding the outbreaks of EMS/AHPND and other transboundary diseases in the region and recognized the need for a concerted regional effort to address this. In response, the SEAFDEC Council, during its meeting on April 2014, suggested that aquatic animal health management, particularly the control and prevention of transboundary aquatic animal diseases, be included in the formulation of future programs of SEAFDEC and its partners in the region. Acknowledging the pressing need for sustained regional efforts to address disease problems in farmed aquatic animals, particularly on shrimps, SEAFDEC/AQD and the Department of Agriculture's Bureau of Fisheries and Aquatic Resources of the Philippines, with financial support from the Japan-ASEAN Integration Fund, convened the Regional Technical Consultation on EMS/APHND and other Transboundary Diseases for Improved Aquatic Animal Health in Southeast Asia from 22 to 24 February 2016 in Makati City, Philippines. The Consultation assessed the status of EMS/AHPND and other emerging diseases in farmed shrimps in ASEAN Member States; identified gaps, priority areas for research and development and potential collaborative arrangements; and formulated regional policy recommendations that centered on emergency preparedness and response systems (early warning, detection and response) for an effective management of aquatic animal disease outbreaks in the region.

An ASEAN Regional Technical Consultation on Aquatic Emergency Preparedness and Response Systems for Effective Management of Transboundary Disease Outbreaks in Southeast Asia was conducted by SEAFDEC/AQD and the Government of Thailand (AAHRDD, Department of Fisheries) to address the recommendations of the RTC on AHPND and other transboundary diseases. The Consultation tackled the pressing concern of the ASEAN Member States on how to systematically approach devastating outbreaks of transboundary diseases of aquatic animals in the region following a well-defined Aquatic Emergency Preparedness and Response Systems (EPRS). SEAFDEC/AQD and DOF-AAHRDD coordinated with the ASEAN Network of Aquatic Animal Health Centres (ANAAHC), the existing ASEAN body on aquatic animal health which is mainly responsible for the coordination of aquatic animal health projects and activities in the region.

### 3. Project in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



### 4. Gender Sensitivity of the Project

Gender considerations will be given due attention in the selection process for candidates to participate in the planned workshops and field trip. In post-conflict AMS, it has often been observed that the female gender is often well represented; this and other factors will be taken into account in the selection of participants.

### 5. Project Goal, Expected Outcomes, and Expected Outputs

Relevant to the ASEAN Community Blueprints of enhanced connectivity and sectoral cooperation and a Global ASEAN, the main objective of this proposed meeting is to bring together the representatives of ASEAN Member States and Technical experts again with the addition of people from the private sector and the academe to prepare Contingency Plans for diseases, manuals, and other EPRS toolkits needed in the implementation of the Technical Guidelines on EPRS prepared in the Phase 1 of the project.

Specifically, the objectives are to:

- a. To contribute to systematically managing aquatic animal disease outbreaks in the region through well-defined contingency plans during aquatic animal disease outbreaks; and
- b. To enhance cooperation among ASEAN Member States, regional/international organizations, and other relevant stakeholders on initiatives that support the contingency plans for effectively managing aquatic animal disease outbreaks.

**Expected Output 1.** A meeting (Consultation) is held to assess the contingency plans of each AMS regarding AEPRS, find gaps in each contingency plan, and formulate well-defined contingency plans for high profile diseases that AMSs could adapt.

**Indicators:** Number and profile of ASEAN Member State representatives (sex-disaggregated) and technical experts who participated in the meeting

**Means of Verification:** Documentation report/meeting proceedings/ contingency plans/EPRS toolkits

**Activity 1.1.** Conduct Technical Session 1/Country Reports (Day 1 and 2), which will discuss each of the AMS's current status on its contingency plan(s) regarding aquatic emergency preparedness and response systems concomitant to national laws, legislations, SOPs, and aquatic animal health management strategies, among others.

#### Main Activities

**Activity 1.2.** Conduct Technical Session 2/Invited Resource Speakers (Day 1 and 2), which will comprise presentations of invited experts (organizers will identify speakers) who will explicate the importance of having contingency plans already set up in relation to aquatic emergency preparedness and response systems for effective management of transboundary disease outbreaks.

**Activity 1.3.** Conduct Technical Session 3/ Workshop (Day 1 and 2), which will identify the gaps in each AMS's contingency plans and prepare well-defined contingency plans for high profile diseases that each AMS could use or adapt.

**Activity 1.4.** Conduct a fieldtrip (Day 3) to enhance the participants' awareness/understanding of AEPRS contingency plans being adapted at the farm level.

**Expected Output 2.** Cooperation arrangements/agreements between and among institutions on identified initiatives (particularly in addressing aquatic emergency preparedness and response systems for effective management of aquatic animal disease outbreaks) are established.

**Indicators:** Number of agreed cooperation arrangements/agreements. Cooperation arrangements/agreements are shared with all the ASEAN Member States and other concerned institutions.

**Means of Verification:** Documentation report/meeting proceedings/ contingency plans/EPRS toolkits

#### **Main Activities**

**Activity 2.1.** Related to Technical Session 2 under Output 1, identify joint R&D undertakings on initiatives that support contingency plans for the effective management of aquatic animal disease outbreaks between and among institutions.

### **6. Project status in 2022 and Proposed Activities in 2023**

Currently, AQD is coordinating with the Japan-ASEAN Integration Fund Management Team (JMT) to pursue the conduct of the RTC on Aquatic Animal Health Emergencies in Southeast Asia after the postponement of the project for the past years due to the COVID-19 pandemic. AQD will be re-submitting its proposal to conduct the project by 2023. The proposal will be submitted to JMT in the first quarter of 2023.



**DEPARTMENTAL PROGRAMS FOR THE YEAR 2022–2023**

	<b>Project Title</b>	<b>Lead Department</b>	<b>Appendix No.</b>
1	Quality Seed for Sustainable Aquaculture	AQD	1
2	Healthy and Wholesome Aquaculture	AQD	2
3	Maintaining Environmental Integrity through Responsible Aquaculture	AQD	3
4	Meeting Socio-economic Challenges in Aquaculture	AQD	4
5	Collaborative projects with the Philippine Government	AQD	5
6	Promotion on Strengthening of SEAFDEC Visibility and Enhancing Human Capacity Building	TD	6
7	Improvement of Fisheries Technology and Reduction of the Impact from Fishing Activities	TD	7
8	SEAFDEC Capacity Development through USAID Sustainable Fish Asia Activity	TD	8



## PROJECT DOCUMENT

**Program Categories:** Departmental Programs

**Project Title:** Quality Seed for Sustainable Aquaculture

**Responsible Department:** Aquaculture Department

**Total Duration:** Continuing

**Funding Sources:** AQD

**Estimated Budget for 2023:**

### 1. INTRODUCTION

A sustainable supply of good quality seedstock is key to a successful aquaculture enterprise. Rearing quality seedstock to commercial sizes requires efficient husbandry techniques and suitable farm conditions to achieve increased yield. With the intensification of aquaculture systems in several Southeast Asian countries and the environmental challenges such as those resulting from climate change, the development and use of quality farmed broodstock and adoption of innovative, optimal culture management methods are equally important in ensuring the steady production of seeds and later, marketable aquaculture products.

### 2. PROJECT

#### 2.1 Goal/Overall Objectives

Generate, verify and promote technologies to ensure the sustainable production of quality seed stock for aquaculture as well as for stock enhancement. The specific objectives are to:

- (1) develop good quality broodstock for both traditional and emerging species
- (2) improve quality and production of seedstock through the refinement of hatchery and nursery management methods;
- (3) develop schemes for the production, management, maintenance, and dissemination of genetically selected and improved stocks; and
- (4) produce sufficient seedstock through the adoption of economically viable seed production systems

#### 2.2 Outcomes and Expected Outputs

The program is expected to achieve the following:

- (1) Effective management and/or production of good quality broodstock;
- (2) increased seed stock production through the availability and adoption of refined and efficient hatchery and nursery protocols
- (3) If available, promote genetically selected and improved stocks and apply techniques to optimize their use to improve on-farm aquaculture production enough supply of seeds from major aquaculture commodities through the adoption of technically- and economically-viable breeding and seed production schemes

#### 2.3 Project Description/Framework

The program focuses on studies and activities that determine optimal conditions and cost-effective, science-based methods for the production of quality seedstock. Enhancement of breeding performance, development of potential broodstock as well as the adoption of efficient broodstock management schemes, such as (a) use of different modes of hormone administration to induce maturation early (in the case of the milkfish in stimulating precocious puberty) or otherwise, in captive broodstock; (b) nutritional interventions *e.g.*, formulation of broodstock diets and larval nutrition schemes; and (c) other non-genetic/environmental interventions or approaches that are being adopted. The QSSA studies that have been conducted in 2021 revolve mostly around the verification of the breeding and seed production technologies of priority species such as milkfish, shrimps, giant freshwater prawn, oyster, abalone, sandfish, mud crab and seaweeds with the end view of packaging these technologies for transfer to the target beneficiaries, the fishfarmers.

Suitable hatchery and nursery protocols that have been developed are further refined depending on the level of technology for each species. These technologies are verified and shall be packaged into the most viable or cost-

effective method for seed production. Once ready for dissemination, industry stakeholders, or primarily the fish farmers, shall be informed of advances in hatchery and nursery production methods through training and the production of information, education, and communication or (IEC) materials such as technical manuals.

**Activity 1: Broodstock development**

Information on the reproductive biology, mating/breeding behavior, and production traits in traditional and emerging aquaculture species (slipper lobster, kawakawa, and others) help formulate suitable broodstock management protocols. Nutritional intervention can be done as well to improve reproductive traits.

**Activity 2: Refinement of hatchery and nursery protocols**

To increase the production and rearing of larval and juvenile stages of important aquaculture species, mechanisms that: (a) enhance laboratory production of natural food organisms, e.g. algal paste production, and alternative food items, e.g. polychaetes (*Marphysa iloiloensis*), small rotifers (*Proales similis*), copepods (*Tigriopus* sp.) which serve as early stage diets; as well as (b) improved rearing conditions and interventions that allow the aquatic organisms to adapt and survive well during larval development, are evaluated.

**Activity 3: Increase awareness of available genetically selected/improved stocks and optimize their use for improved on-farm aquaculture production**

This is done either through developing and evaluating selected commercially available breeds or otherwise. Once such stock or strains are noted as superior, the same can be promoted to farmers for use with the goal of increasing on-farm fish yield. Preliminary activities related to stock improvement have been done in mangrove crab, abalone, oyster and milkfish in previous years with the genetic characterization of potential sources of quality stocks from natural habitats. Information on genetically diverse stocks of mudcrab, oyster, abalone, milkfish and seaweed have already been published and some are still awaiting publication. To date however, initiatives toward the use of genetically variable stocks for breeding and/or genetic improvement have not been considered but hopefully these shall be done in the future.

**Activity 4: Promotion of technically and economically-viable breeding and seed production schemes**

It is not enough to disseminate information on innovative and technically feasible breeding and seedstock production methods. One has to ensure that such methods are cost effective thus can generate increased profit for the hatchery/nursery farm operator. The objectives for this activity can be achieved if the technologies that are based on science are verified on farm and will in the process, demonstrate economic viability.

**3. PROGRESS/ACHIEVEMENTS OF ACTIVITIES IN THE YEAR 2022**

Project/Activity Title	Duration	Remarks
<b><i>Broodstock management, breeding protocol development for seed production, stock management/enhancement</i></b>		
<p>Study Title: Use of andrectomized males (neo females) giant freshwater prawn (<i>Macrobrachium rosenbergii</i>) for the production of all-male progenies</p> <p>This study aims to verify the efficiency and the cost analysis of a protocol to produce all-male giant freshwater prawns by applying modified bilateral androgenic gland ablation protocols modified by Aflalo <i>et al.</i> 2006 and Rungsin <i>et al.</i> 2006. The ultimate objective is to increase prawn yield since male prawns are noted to grow larger than female prawns.</p> <p>Potential neo-females were visually observed for signs of gonad development until the 150<sup>th</sup> day post microsurgery. Females showing signs of ovarian development were paired with normal males following pre-mating molt (Aflalo <i>et al.</i>, 2006). Females that successfully mated as indicated by egg clutch on their brood chamber were immediately transferred to and kept in a separate holding unit until eggs were hatched. As of this writing, only three potential neo-females were able to lay eggs and become berried. Egg clutches were either aborted or female died days after fertilization. Moreover, most of the potential neo-female (7 individuals) died during the pairing while some (10 individuals) died even before manifesting gonadal</p>	2021-2022	

Project/Activity Title	Duration	Remarks
<p>development. Currently, there are only 20 potential neo-females are left in this experiment and these are still being observed for gonadal development.</p>		
<b>Refinement of Hatchery and Nursery Protocols</b>		
<p>Study Title: Nursery and grow-out culture of snubnose pompano <i>Trachinotus blochii</i> in pond-based net cages</p> <p>This study hopes to define the optimal conditions for nursery rearing of snubnose pompano in pond-based net cages by determining the best diet, optimal stocking density and the effect of illumination on the growth and survival of pompano fry for increased production. The economic viability of the proposed nursery rearing methods adopting refined protocols shall be evaluated as well.</p> <p>Pompano growth in the nursery phase was better in the treatment diets (formulated diet with taurine and the high value diet without taurine) compared to the commercial diet. When reared in pond-based nursery net cages, it took 4 months for the pompano to reach 50-70g average body weight from an initial weight of 0.5g. Meanwhile, in the grow-out phase it was observed that stocking densities of 3-10 m<sup>-2</sup> were not ideal for pompano pond culture.</p>	2021-2022	
<p>Study Title: Use of biofloc system on mangrove crab larval rearing and indoor nursery culture</p> <p>This study evaluates the effectiveness of biofloc technology on the growth, survival, stress and disease resistance of mangrove crab (<i>S. serrata</i>) in hatchery and indoor nursery tanks. When reared in clear water compared to green water or biofloc water, crab larvae survival from zoea was best in green water (25.43%) followed by clear water (21.42%) and biofloc water (11.54%). On the other hand, when reared in indoor nursery tanks using different culture water, crab instar survival was best in clear water followed by either those reared in green water or biofloc water. As for stress tolerance, survival of the crab instar was best in overall in biofloc water when the crab instars were exposed to different concentrations of formalin. When tested for transport stress tolerance, those reared in biofloc water survived well in the treatments where the stocks were subjected to transport simulation for 12 hours and 24 hours.</p>		
<p>Study Title: Nursery culture of mangrove crab <i>Scylla serrata</i> megalopae in pond-based net cage</p> <p>This study aims to (a) determine the optimum stocking density and the ideal culture period of crab megalopae reared in pond-based net cages, (b) establish a protocol for the feeding management of megalopae in pond-based net cages and (c) evaluate the economic viability of the nursery culture operations using megalopae and (d) produce 3<sup>-5</sup> cm crablets for grow-out farmers.</p> <p>Data from the study showed that the highest survival rate of 87 ± 1% of crab instar was noted at 50 m<sup>-3</sup> stocking density after four weeks of culture. On the other hand, the highest survival rate at 300 m<sup>-3</sup> stocking density after three weeks of culture was at 72 ± 3%. On the whole, the survival rate of crab instar can be achieved at 79% regardless of stocking density and culture periods when luminous bacterial count and presumptive vibrio counts are below the threshold level of 10<sup>4</sup> CFU/crablet and 2 x 10<sup>4</sup> CFU, respectively. Finally, nursing younger crab instars at the megalopae stage for three weeks in pond-based net cages at 300 m<sup>-3</sup> stocking density is feasible.</p>	2021-2022	

Project/Activity Title	Duration	Remarks
<p>Study Title: Verification of adequate feeding rations and use of algal paste for single seed spat production of slipper-shaped oyster <i>Crassostrea iredalei</i></p> <p>This study focuses on (a) determining the algal rations for oysters that will result to maximum growth and increased survival at each of the oysters' larval stage and spat age, (b) assessing the effectiveness of algal paste as food source for the oyster larvae and spat, and (c) in evaluating the economic viability of using cultured live algae versus algal paste (SEAFDEC and commercial) as food source.</p> <p>Some of the highlights of the study include the following: (a) eyed larvae were first observed albeit at a lower percentage, on day 20 of the experiment, (b) the number of harvested eyed larvae was highest in the high algal ration treatment resulting in higher metamorphosis and survival rate than in the mid and low-algal ration treatments, (c) survival from the eyed stage to spats (3mm shell length) was highest at 41% in the high algal ration treatment, and (d) the survival rate from day 0 to day 60 was highest (0.34%) in the treatment with the high algal ration.</p>		
<p>Study Title: Optimizing the survival of micropropagated seaweed <i>Kappaphycus alvarezii</i> through acclimation in tank-based nursery systems</p> <p>This study aims to produce tank-acclimated seaweed micropropagules and to determine if tank acclimation favors better growth and survival over non-acclimation when seaweed micropropagules are later planted in the open sea. It hopes to determine the effective stocking density and optimal acclimation time for seaweed propagules in laboratory-based tanks during the acclimation phase. Results of the study showed that tank acclimation is effective in increasing the survival and growth of propagules in the sea cage nursery system. Moreover, shortening the culture period of the seaweeds in the laboratory to 30 days likewise favors good growth.</p>	2020-2022	
<p>Study Title: Sea-based nursery cage production of farmed eucheumatoids</p> <p>This study aims to (a) increase the production of seaweed propagules/plantlets by improving the survival rate of the propagules and the expansion of sea-based nursery cages; (b) decrease the cost of production of propagules in the sea-based nursery cages at the Igang Marine Station; (c) conduct biosecurity measures to improve the survival of sea-based nursery cage- produced seaweed plantlets; and (d) provide quality propagules as a better alternative source of seaweed seedlings.</p> <p>For this study, new cage facilities were constructed as part of the production area expansion activity. Four new units of 10 x 10 m bamboo framed modules were constructed. From January to July 2022, 18,002 seaweed plantlets were produced and survival increased from last year's 42.7% to 42.7% this year. In view of this income from production was at Php 76,000.00 (approx. USD 1,200). Experiments are still on-going however it is worth noting that based on the data, the biomass of tissue culture plantlets were greater than the farm-sourced propagules. Moreover, the specific growth rate of the tissue cultured plantlets when on-grown was higher especially at DOC 45 and DOC 60. As for carrageenan yield, tissue cultured plantlets gave a higher carrageenan yield at the end of the culture period compared to when farm-sourced plantlets were used.</p>	2021-2022	To be continued in 2023

Project/Activity Title	Duration	Remarks
<p>Study title: Hatchery production of early juveniles sandfish <i>Holothuria scabra</i></p> <p>This study aims to (a) increase the survival of early juvenile sandfish (&gt;5mm) at the hatchery to at least 2%, (b) produce at least 90,000 pieces of early juvenile sandfish at each spawning batch (c) conduct at least 12 spawning and larval rearing batches in a year (d) To produce at least 1 million early juveniles per year. As of June 2022, two out of six spawning batchers achieved survival rates of greater than 2%. The good production per batch was recorded at 30,000 to 50,000 pieces. As of August 2022, nine spawning batches were noted and the total spat production was 158,953 pieces</p>	2021-2022	To be continued in 2023
<p><b><i>Production of nonconventional feed ingredients for use in broodstock diets</i></b></p>		
<p>Study Title: Mass production of mud polychaete <i>Marphysa iloiloensis</i> in indoor tanks</p> <p>This study aims to mass produce <i>M. iloiloensis</i> to support in house research projects and crustacean hatcheries at AQD. It likewise aims to develop a disease screening protocol for the mass production of specific pathogen-free <i>M. iloiloensis</i>. To date, out of 795 jelly cocoons, 75±1% had fertilized eggs. Thus far, 99±12 cocoons are produced per month. Each cocoon contained 3000-10000 eggs. Part of the study included a comparison between the growth and survival of hatchery-bred and wild polychaetes until the adult stages. Based on the results, the wild polychaetes had a higher survival percentage at 78.62% compared to the hatchery-bred polychaetes. In terms of body weight and body length, there was no significant difference between those that were bred in the hatchery as against the wild polychaetes.</p>		
<p><b><i>Production of alternative natural food organisms for hatchery and nursery rearing of commercially important aquatic species</i></b></p>		
<p>Study Title: Development of a modified continuous culture system for the mass production of <i>Nanochlorum</i> sp. and <i>Brachionus rotundiformis</i></p> <p>This study aimed to improve the biomass yield of <i>Nanochlorum</i> sp. and rotifer <i>B. rotundiformis</i> using a practical, modified continuous culture system. The highlights of the study include the following: (a) the optimum pH for <i>Nanochlorum</i> culture has been determined to be between 7.5-8.5; (b) this particular culture system is able to use a cost-effective culture medium (TMRL) at a lower nitrate concentration of 50 mg/L; (c) the dilution rate of the entire system can be controlled with the use of a gate valve-brass cock connection; (d) the <i>Nanochlorum</i> was observed to thrive at a 25-33 ppt salinity; (e) a 30% dilution rate for the modified continuous culture system was established; (f) the starter/ inoculum can be changed every 3-4 days to enable an extended growth period; (g) increased cell yield and higher rotifer growth can be achieved with a better quality <i>Nanochlorum</i>-tilapia water that is treated with 2.22 ppm bleach; and (g) the culture period for the entire system can be extended from 9-3 days with the use of <i>Nanochlorum</i>-tilapia water. Finally, with the use of the modified continuous culture system (plus the tilapia) improved the efficiency of the culture system by reducing the number of tanks and the labor input.</p>	2020-2022	

Project/Activity Title	Duration	Remarks
<p>Study Title: Use of microalgal paste-fed <i>Proales similis</i> in marine fish larviculture: I. Refinement of <i>P. similis</i> mass production schemes II. Assessment of <i>P. similis</i> as first food for marine fish larvae</p> <p>This study aims to evaluate the feeding rate of centrifuged <i>Chlorella sorokiniana</i> paste for <i>Proales similis</i> production and then determine the feeding rate of <i>P. similis</i> as first food (fed centrifuged <i>C. sorokiniana</i> paste) in the larval rearing of small-mouthed marine fish. Results showed that peak <i>P. similis</i> production was at 364 ind/ml at 3–4 days. Moreover, the highest <i>P. similis</i> density was obtained from those with starting density of <math>200 \pm 20</math> ind mL<sup>-1</sup> (573 ind mL<sup>-1</sup>, d5) and significantly higher than those with starting densities of 100 ind mL<sup>-1</sup> (283 <math>\pm</math> 12 ind mL<sup>-1</sup>, d6), 50 ind mL<sup>-1</sup> (224 <math>\pm</math> 29 ind mL<sup>-1</sup>, d6) and 25 ind mL<sup>-1</sup> (214 <math>\pm</math> 10 ind mL<sup>-1</sup>, d6). The treatment where black net was used as tank cover was the best that gave the highest <i>P. similis</i> production at 549 ind/ml. Meanwhile, a 2-point aeration in tanks gave the highest <i>P. similis</i> production (554 ind/ml).</p>	2021-2022	To be continued in 2023
<p>Study Title: Development of a protocol for large-scale culture of harpacticoid copepods for marine fish larviculture</p> <p>This study aims to mass produce harpacticoid copepods in large tanks using the culture technique developed in a previous study. It also hopes to determine the suitability of <i>Tigriopus</i> sp. copepod as first food for marine fish larvae (e.g. rabbitfish, snapper, grouper and milkfish) and ensure a steady supply of the harpacticoid copepod. For the study, copepods have been produced for the larval rearing experiments. When rabbitfish larvae were reared, the run was unsuccessful when these were fed harpacticoid copepod and cyclopoid while those fed rotifers survived (0.56%) and grew at 2.87 mm for 9 days after hatching. As for grouper larval rearing, grouper larvae at 4 days after hatching survived best, although survival percentage is still low, at 2.13% followed by the combination of copepod and cyclopoid (0.87%) and those that were fed solely with harpacticoid copepod (0.63%). Finally, to ensure the identity of the copepod that was used in study, samples shall be brought to and taxonomically identified in Japan.</p>	2021-2022	
<p><b>Promotion of technically and economically-viable breeding and seed production schemes</b></p>		
<p>Study Title: Mass production of all-male and mixed sex tilapia fingerlings and promotion of saline tolerant tilapia</p> <p>To study aims to produce (a) improved strains of Nile tilapia fingerlings (GET Excel and Molobicus/iBEST) and AQD's Binangonan Freshwater Station-produced (BFS) red tilapia fingerlings; (b) mixed-sex and all-male tilapia fingerlings for use by fish farmers in brackishwater and/or seawater culture areas; and (c) 50,000 to 70,000 pieces of tilapia fingerlings monthly. A total of 231,000 fry have been produced in the tilapia hatchery from March to September. The total number sold is 229,850 pcs for a total amount of Php 86,550 (approx. USD 1,400). To successfully achieve the other study objectives, an additional outdoor fry production facility needs to be set up.</p>	2022	To be continued in 2023
<p>Study Title: Seed production of donkey's ear abalone <i>Haliotis asinina</i> juveniles</p> <p>This production study aims to (a) demonstrate the successful hatchery production of 25,000 pieces abalone juveniles per cropping, (b) verify the efficacy of different types of broodstock diets on the reproductive performance of the abalone and to (c) assess the efficacy of artificial</p>	2022	To be continued in 2023



Project/Activity Title	Duration	Remarks
<p>diet on the growth and survival in the early weaning of abalone juveniles. From January to August, about 56,367 abalone juveniles have been produced. The experiment comparing sexually mature abalones fed fresh seaweeds against those fed maturation diet at 2-3% of the total biomass is still on-going. A feeding experiment where abalone juveniles are fed six types of diets (refined pellets, refined flakes, unrefined pellets, unrefined flakes, seaweeds (<i>Gracilaria balinae</i>, diatoms+Spirulina powder) showed that those fed seaweeds had higher shell length compared to those fed refined pellets, refined flakes, unrefined pellets, unrefined flakes and the least were those fed the diatoms plus Spirulina powder.</p>		
<p>Study Title: Mass production of mangrove crab (<i>Scylla serrata</i>) seedstock</p> <p>The study is being conducted to produce crab instars to support the requirements of in-house research projects and nursery and grow-out pond operators. To date there have been a total of 293,142 crab instars that were produced apart from 7,800 crab megalopae. The total sales for these crab seedstock amounted to Php 508,080.00 (approx. USD 8,600).</p>	<p>2021-2022</p>	<p>To be continued in 2023</p>
<p>Study Title: Seed production of freshwater prawn, <i>Macrobrachium rosenbergii</i></p> <p>This study which is based in the Tigbauan Main Station in Iloilo, aims to (a) demonstrate and refine further, the existing hatchery protocols developed at the AQD's Binangonan Freshwater Station to improve giant freshwater prawn larval rearing, (b) produce a sustainable supply of <i>M. rosenbergii</i> post larvae for use in in-house research in Iloilo and for fish farmers based in Visayas and Mindanao, and (c) to determine the cost analysis of prawn hatchery operations in Iloilo. A total of 129,444 giant freshwater prawn post larvae has been produced from January to August and of the lot, 62,250 pieces were sold to fish farmers and other stakeholders.</p>	<p>2021-2023</p>	<p>To be continued in 2023</p>
<p>Study Title: Production of farmed eucheumatoids by micropropagation in the land-based nursery</p> <p>This production study aims to (a) increase the production of seaweed propagules from 4,000 to 8,000 pieces per month in the land-based nursery, (b) produce micropropagules to support the needs of the sea-based nursery of AQD and (c) determine the cost and return analysis of micropropagule production in the land-based nursery. The total number of propagules produced were 47,298 pieces at an average survival of 87.58% and these are stocked in the sea-based nursery. The cost and return analysis for micropropagule production has already been done. To further increase production, the tissue culture laboratory facility is currently being expanded.</p>	<p>2020-2022</p>	

#### 4. PROPOSED FUTURE ACTIVITIES FOR THE YEAR 2023

##### 4.1 Planning of the Project Activities

Project/Activity Title	Duration	Remarks
<p>The program aims to continue the following research until conclusion in 2023:</p> <ul style="list-style-type: none"> <li>- Nursery and grow-out culture of snubnose pompano <i>Trachinotus blochii</i> in pond-based net cages</li> <li>- Use of biofloc system on mangrove crab larval rearing and indoor nursery culture</li> <li>- Nursery culture of mangrove crab <i>Scylla serrata</i> megalopae in pond-based net cage</li> <li>- Verification of adequate feeding rations and use of algal paste for single seed spat production of slipper-shaped oyster <i>Crassostrea iredalei</i></li> <li>- Optimizing the survival of micropropagated seaweed <i>Kappaphycus alvarezii</i> through acclimation in tank-based nursery systems</li> <li>- Sea-based nursery cage production of farmed eucheumatoids</li> <li>- Hatchery production of early juveniles sandfish <i>Holothuria scabra</i></li> <li>- Mass production of mud polychaete <i>Marphysa iloiloensis</i> in indoor tanks</li> <li>- Development of a modified continuous culture system for the mass production of <i>Nanochlorum</i> sp. and <i>Brachionus rotundiformis</i></li> <li>- Use of microalgal paste-fed <i>Proales similis</i> in marine fish larviculture: I. Refinement of <i>P. similis</i> mass production schemes II. Assessment of <i>P. similis</i> as first food for marine fish larvae</li> <li>- Development of a protocol for large-scale culture of harpacticoid copepods for marine fish larviculture</li> <li>- Mass production of all-male and mixed sex tilapia fingerlings and promotion of saline tolerant tilapia</li> <li>- Seed production of donkey's ear abalone <i>Haliotis asinina</i> juveniles</li> <li>- Mass production of mangrove crab (<i>Scylla serrata</i>) seedstock</li> <li>- Seed production of freshwater prawn, <i>Macrobrachium rosenbergii</i></li> <li>- Production of farmed eucheumatoids by micropropagation in the land-based nursery</li> </ul>		

##### 4.2 Expected Outcomes/Outputs

All of the studies shall hopefully completely achieve their objectives as indicated in their original proposals. Several continuing studies are verification studies which when completed shall also enable the demonstration of these working technologies for adoption by the target stakeholders. More downstream research proposals are encouraged for submission to allow more technologies to be developed. Moreover, it is hoped that more senior research staff are hired for this purpose.

#### 5. PROJECT IN RELEVANCE TO THE PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR FOOD SECURITY FOR THE ASEAN REGION TOWARDS 2030





## PROJECT DOCUMENT

**Program Categories:** Departmental Programs  
**Project Title:** Healthy and Wholesome Aquaculture  
**Responsible Department:** Aquaculture Department  
**Total Duration:** 2022–2023  
**Funding Sources:** AQD  
**Estimated Budget for 2023:**

### 1. INTRODUCTION

The concept of healthy and wholesome aquaculture is integral in improving and sustaining aquaculture production to provide the protein needs of an escalating human population. Research and development efforts in aquaculture have resulted in the phenomenal growth of the sector in the last four decades. However, more problems need to be studied and solved to attain significant improvements and assure sustainability for future generations in the face of many challenges posed by ecological, economic, and climatic changes, among others, happening in our world today.

This program has two main components: fish health and nutrition and feed. Fish health concentrates on disease diagnosis, control, monitoring and surveillance of aquatic animals, and environmental integrity, certification, and food safety. While nutrition and feed component conduct studies to address some problems and need areas to sustain the production of aquaculture products in the region.

### 2. PROJECT

#### 2.1 Goal /Overall Objectives

*Fish health component* aims to improve aquaculture production through innovations in nutrition and feeding and fish health management in aquaculture and in maintaining the environmental integrity of aquaculture systems.

*Nutrition and feed component* aim to (a) find effective alternative protein sources to fish meal in dietary formulations; (b) to determine specific nutrients that enhances growth performances; and (c) to promote practices and strategies to improve production.

#### 2.2 Outcomes and Expected Outputs

*Fish health component.* Improved aquaculture production due to less disease outbreak because of the availability of vaccines and treatment protocols against certain pathogens, early disease detection, and identification of disease risk factors.

*Nutrition and feed component.* Find different sources of fish meal substitutes and develop effective feed management schemes that have the least impact to the aquatic environment.

#### 2.3 Project Description/Framework

##### *Fish health component*

- Activity 1: Vaccination of marine fishes at the Igang Marine Station of AQD.
- Activity 2: Investigation of different treatment methods against caligids in caged cultured pompano and identify risk factors for caligid infestation in pompano by correlating water parameters with the prevalence of caligids.
- Activity 3: Verification of probiotic supplementation to enhance growth, survival, and immune response of juvenile abalone.
- Activity 4: Investigation on the epidemiology of the skin ulcerative disease in sandfish.
- Activity 5: Development of a treatment regimen against epiphytic filamentous algae and *ice-ice* disease in seaweeds.

**Nutrition and feed component**

- Activity 1: Culture of pompano (*Trachinotus blochii*) in floating net cages
- Activity 2: Cost effective ingredients blend of soybean meal, corn protein concentrate, poultry by-product meal, hemoglobin meal and protein enhanced copra meal in the diets of pompano, *Trachinotus blochii*
- Activity 3: Development and evaluation of fungi-fermented feed ingredients as alternative protein sources for milkfish or tilapia
- Activity 4: Production techniques for culture of silver therapon (*Leiopotherapon plumbeus*) in tanks and cages
- Activity 5: Efficiency and profitability of Nile tilapia (*Oreochromis niloticus*) and giant freshwater prawn (*Macrobrachium rosenbergii*) polyculture in pond-based biofloc system
- Activity 6: Test of refined formulated feed for the grow-out culture of mangrove crab, *Scylla serrata* (Forsskal) in land-based tanks
- Activity 7: Refinement of *Scylla serrata* maturation diet
- Activity 8: Efficiency of polychaete phospholipid in promoting *Penaeus monodon* maturation

**3. PROGRESS/ACHIEVEMENTS OF ACTIVITIES IN THE YEAR 2022**

Project/Activity Title	Duration	Remarks
<b>Fish Health Component</b>		
<p>Study title: Field verification of the vaccination regimen in cage-cultured marine fish species (pompano, snapper, grouper) broodfish in AQD's Igang Marine Station as a practical strategy to prevent the vertical transmission of nervous necrosis virus during seed production</p> <p>The study showed that in vaccinated fish, antibody titer (the type of blood that determines the presence of antibodies) increased two months after vaccination; gradually decreased until the 12<sup>th</sup> month. Booster is given on the 12<sup>th</sup>-month post-vaccination. The efficiency of the vaccination protocol cannot be verified since there was no incidence of VNN infection during the conduct of the study.</p>	36 months	To be completed in December 2022
<p>Study title: Pilot field trials to evaluate emamectin benzoate, hydrogen peroxide and freshwater bath to reduce a natural infestation of sea lice on snub-nose pompano <i>Trachionotus blochii</i></p> <p>Emamectin benzoate (EMB) is an oral treatment for sea lice (<i>Caligus</i>) infestation. The study found that the prevalence of <i>Caligus</i> is decreased to 80, 65, and 45% three (3) days after treatment with freshwater (1,500 ppm H<sub>2</sub>O<sub>2</sub> and 2,000 ppm H<sub>2</sub>O<sub>2</sub>, respectively); prevalence gradually increased seven (7) days after treatment. In <i>Caligus</i>-infested pompano fed with 1.67 ppm emamectin benzoate, prevalence decreased to 95% after 14 days from cessation of feeding with medicated diet; prevalence increased to 100% after 42 days.</p>	16 months	Completed in August 2022
<p>Study title: Verification of probiotic supplementation in enhancing growth, survival, and immune response of juvenile abalone <i>Haliotis asinina</i></p> <p>This new study aims to evaluate the effect of the different concentrations of probiotic (<i>Bacillus amyloliquefaciens</i>) supplementation on the growth, survival, and immune response of juvenile abalone. Gains in total length and weight are better in abalone fed with <i>Gracilaria</i> immersed in 10<sup>5</sup> cfu/ml <i>B. amyloliquefaciens</i> than those fed with <i>Gracilaria</i> immersed in 10<sup>7</sup> cfu/ml <i>B. amyloliquefaciens</i>. Meanwhile, the total gain in length and weight are comparable for abalone fed with <i>Gracilaria</i> immersed in 10<sup>5</sup> cfu/ml <i>B. amyloliquefaciens</i> and the control.</p>	14 months	To be completed in December 2022
<p>Study title: Epidemiology of skin ulceration disease (SKUD) in juvenile and adult sea cucumber (<i>Holothuria scabra</i>)</p> <p>This new study aims to investigate the epidemiology of SKUD that has erratically affected the hatchery-reared and sea pen-cultured sea</p>	Year 1 (24 months)	To be continued until December 2023

Project/Activity Title	Duration	Remarks
<p>cucumber. In addition, the study will document the occurrence of SKUD in some of the sea cucumber broodstock samples collected from the wild.</p> <p>In previous studies on this particular disease, the occurrence usually happened due to sudden drop of temperature and high stocking densities. The infection could also rapidly spread from infected fish to healthy ones, making it difficult to control.</p> <p>This year, the study conducted a census of the occurrence of the diseases both at the hatchery and the grow-out phases.</p> <p>In the hatchery, heterotrophic bacteria, presumptive <i>Aeromonas</i> and presumptive <i>Vibrio</i> counts in the larvae are more significant than in the rearing water. In broodstock tanks, lower heterotrophic bacteria, presumptive <i>Aeromonas</i> and presumptive <i>Vibrio</i> counts were observed in the coelomic fluid of sea cucumber compared with that of the tank water. In grow-out pens, no bacteria were recovered from the coelomic fluid of healthy cucumber. Only heterotrophic bacteria (<math>10^{2.2} - 10^{2.6}</math> cfu/ml) were recovered from those with mild symptoms of SKUD. High heterotrophic bacteria (<math>10^{4.35} - 10^{7.17}</math> cfu/ml), presumptive <i>Aeromonas</i> (<math>10^{2.43} - 10^{6.92}</math> cfu/ml) and presumptive <i>Vibrio</i> (<math>10^{2.44} - 10^{7.01}</math> cfu/ml) counts were detected from the coelomic fluid of sea cucumber with moderate to severe symptoms of SKUD.</p>		
<p>Study title: Treatment regimen on tissue culture seaweed plantlets affected by disease and epiphytic pest using commercially available chemicals</p> <p>This new study aims to test commercially-available chemicals to treat seaweeds plantlets infected with ice-ice disease (IID) and epiphytic filamentous algae (EFA) and prophylactic agents on seaweeds before and after translocation.</p> <p>This year, the collection of IID- and EFA-infected tissue-cultured plantlets from the while commenced. Subsequently, the preservation and maintaining of artificially infected stocks was also done.</p> <p>Sodium hypochlorite bath at 100-400 ppm (5 min.; 3-day treatment) resulted in 50-100% EFA mortality. Treatment with calcium hypochlorite at 200-400 ppm (5 min.; single treatment) resulted in 58.3-100% EFA mortality. Hydrogen peroxide bath of up to 400 ppm is not effective against EFA. The effectivity of Povidone iodine treatment against IID depends on the severity of the IID infection; more experiments will be done.</p>	12 months	To be completed in December 2022
<b>Nutrition and feed component</b>		
<p>Study title: Culture of pompano <i>Trachinotus blochii</i> in floating net cages</p> <p>This study aims to optimize the feeding rate, stocking density, and culture period of pompano. This year, the high and low feed rate were tested for comparison in a 5 x 5 x 3 m cage with 2,500 ind/cage (33 fish per m<sup>3</sup>) and 133 days of culture. Between the high and low feed rate, the % survival has no significant difference. The average body weight was high in fish at the high feeding rate group; however, fish in the low feeding rate group has lower feed conversion rate (FCR). At the end, based on the cost-and-return analysis, the group with lower FCR (low feed rate) indicated efficient feed utilization and higher revenue.</p>	2022	

Project/Activity Title	Duration	Remarks
<p>For the stocking density study, a demonstration run in a 5 x 5 x 3 m cage and 126 days of culture for grow-out was conducted in 2022. The results show that final body weight and survival was numerically similar in all treatments. However, high density treatment shows a lower FCR compared to fish stocked at a lower density. A nursery experiment on stocking density was also conducted.</p>		
<p>Study title: Cost effective ingredients blend of soybean meal, corn protein concentrate, poultry by-product meal, hemoglobin meal and protein enhanced copra meal in the diets of pompano, <i>Trachinotus blochii</i></p> <p>The continuing study aims to come up with cost-effective formulation for pompano grow-out in sea cages by replacing fish meal protein formulations.</p> <p>The formulation developed includes ingredients sourced from plants (soybean, corn protein concentrate, and PECM) and animal by-products (poultry by-product and hemoglobin meal). The initial data suggests that the blend of “alternative protein ingredients” has a lower performance parameter compared to the control diet. The current combination was reformulated this year.</p> <p>A dietary formulation for pompano containing various percentages of corn protein concentrate to replace fish meal was developed. This experiment suggests that corn protein concentrate can only replace fish meal up to 20% inclusion level.</p> <p>This year, another experiment was conducted to determine the effect of enzyme inclusion level in the dietary treatments containing more than 20% corn protein concentrate. The diets were top-coated with Ronozyme Hi-Phos L as a source of phytase and Ronozyme Multi-grain L as a source of xylanase and gluconase enzymes. However, results show that the addition of enzymes in the dietary treatments did not improve the body weight gain of the fish. The digestibility of the diets and ingredients of all the dietary treatments is ongoing.</p>	2022	
<p>Study title: Development and evaluation of fungi-fermented feed ingredients as alternative protein sources for milkfish or tilapia</p> <p>Grains, seed meals, and leaf meals are potential protein sources for aquafeeds to substitute for the expensive and unsustainable fishmeal. The continuing study aims to improve the nutritional quality of selected alternative protein sources by solid-state fermentation using filamentous fungi (<i>i.e. Aspergillus oryzae</i>). It also seeks to evaluate the effect of fermented ingredients on the growth performance, survival, blood chemistry, biological indices, and nutrient composition of milkfish or tilapia.</p> <p>Three plant meals, namely fermented ipil-ipil leaf meal (FIILM), madre de cacao leaf meal (MDCLM), and Azolla meal (AzM), were prepared for solid-state fermentation, yielding sufficient fermented materials (5kg dry weight) for feeding trials. Each plant meals were formulated and prepped with varying levels of inclusion.</p> <p>The first feeding trial revealed that FIILM included in tilapia fry diets up to 35% with a 20% inclusion rate provided the most benefits. Results also showed that in both feeding trials, the body weight range of fish fed with fermented leaf meals was smaller compared fish fed with control diet. The higher intensity of feeding activity observed in the treatment groups may have contributed to the small size variations.</p>	2022	

Project/Activity Title	Duration	Remarks
<p>This suggests that including fermented leaf meals in tilapia diets may increase fish appetite, increasing the likelihood of feed consumption and nutrient utilization.</p>		
<p>Study title: Production techniques for culture of silver therapon (<i>Leiopotherapon plumbeus</i>) in tanks and cages</p> <p>AQD has successfully reared larvae up to the juvenile stage in outdoor concrete tanks using semi-intensive method. Because of this development, there is now a need to establish a reliable nursery and grow-out technique for silver therapon in cages.</p> <p>Under this program, this study aims to develop grow-out diets for silver therapon. In the beginning of the year, a modified formulation of the best performing diet from the previous experiment was used to prepare six experimental diets containing different levels of dietary lipid with Danish fish pol as lipid source.</p> <p>After 12 weeks, final body weight, percentage weight gain, and specific growth rate increased with increasing dietary lipid levels, with the best growth response noted at 12% lipids. Better feed utilization was also observed in groups fed diets with 12% lipids with lower feed conversion ratio compared to the other groups. High survival rates were recorded in all dietary groups, ranging from 98.75 to 100%.</p>	2022	
<p>Study title: Efficiency and profitability of Nile tilapia (<i>Oreochromis niloticus</i>) and giant freshwater prawn (<i>Macrobrachium rosenbergii</i>) polyculture in pond-based biofloc system</p> <p>This continuing study aims to verify efficiency of Nile tilapia-giant freshwater prawn co-culture under biofloc system at different feeding rates (50% and 100% consumption in relation to apparent satiety of Nile tilapia). Also, it seeks to determine and compare profitability between Nile tilapia-giant freshwater prawn co-culture in biofloc system and traditional polyculture system.</p> <p>This year, a first trial run was conducted to determine the growth performance, survival, and biochemical composition of Nile tilapia and giant freshwater prawn co-cultured in biofloc systems. Results of the experiment showed that, among the treatment combinations, the tilapia reared in biofloc technology (100% estimated satiation) and giant freshwater prawn in traditional polyculture (50-70% estimated satiation) has the highest gain in weight. For this run, the use of the traditional co-culture system fed at 100% estimated satiation for tilapia yields the best feed conversion ratio.</p> <p>In the second run, the use of biofloc for tilapia-giant freshwater prawn co-culture fed at 100% estimated satiation yields to higher weight gain for both species after 30 days.</p>	2022	
<p>Study title: Test of Refined Formulated Feed for the Grow-out Culture of Mangrove Crab, <i>Scylla serrata</i> (Forsskal) in Land-Based Tanks</p> <p>In order to support the sustainability of the mangrove crab industry in Southeast Asia, there's a need to produce an efficient and viable aquaculture feed containing the necessary nutritional requirements and refine the usual feeding practices suitable to the feeding characteristics of mangrove crabs. This continuing study aims to refine feed formulation for mangrove crabs based on the published nutritional requirements and physical properties.</p>	2022	

Project/Activity Title	Duration	Remarks
<p>The refined feed formulation, containing 50.87% protein and 8.87% fat, which was accomplished in 2021, was evaluated in comparison to commercial crustacean feed. This year, the biological evaluations were tested, including water stability, digestibility, and attractability.</p> <p>In terms of water stability, both feeds were tested in water for 3, 6, 12, and 24 hours. There's no significant difference between the refined AQD-formulated feeds and the commercial ones.</p> <p>Meanwhile, the refined AQD-formulated feeds performed better in terms of nutrient digestibility, with a 93.70% apparent digestibility coefficient (ACD) of crude protein compared to 88.56% for commercial feed. In terms of pellet digestibility, there's only a small difference between the two feeds, as the dry matter digestibility of commercial feeds was 81.60% and the refined feed was 83.20%.</p> <p>The Y-Maze Test was conducted to determine the attractability of both feeds. In this experiment, the refined AQD-formulated feed tested better compared the commercial one. It took 1.07 mins for the crab to come in contact with the refined feeds; meanwhile, it took 18.88 mins for the commercial feeds. The crab subject also took 90 mins to finish the refined feeds, while the commercial feeds were not totally consumed even after five hours. This means that the refined feed was more palatable for the crabs.</p> <p>As for the growth performance, the refined feed and the commercial feed were tested alongside the traditional trash fish feed. The results showed that the crabs fed with 100% refined feed performed best in terms of body weight gain, carapace weight gain, carapace length gain, specific growth rate, percent survival, and feed conversion ratio.</p>		
<p>Study title: Refinement of <i>Scylla serrata</i> maturation diet</p> <p>This new study aims to improve the mangrove crab reproductive performance through the refinement of broodstock maturation diet. The study started by formulating the crab maturation diet. Diets with varying combinations of protein and lipid levels were formulated and submitted for proximate composition analysis. The water stability of feeds was also tested and based on the initial results, the feeds were revised to achieve a much more stable diet.</p> <p>Feed palatability and attractability tests were conducted. Experiments were conducted to test the palatability of formulated diet. Initial results showed that adult crabs readily feed on crab the diet and continuous to feed until 15 min. For the feed attractability test, newly acquired crabs were used. This we believe affected its reaction towards the diet. Therefore, it is recommended to have at least one-month conditioning period in the experiment proper. Currently, preparation for culture trays and tanks were made for maturation experiments.</p>	2022	
<p>Study title: Efficiency of polychaete phospholipid in promoting <i>Penaeus monodon</i> maturation</p> <p>This study aims to verify the efficiency of polychaetes phospholipid in improving the reproductive performance of <i>Penaeus monodon</i>. The first part of the research was the extraction of polychaete polar lipid fraction (PLF). The polychaetes (<i>Marphysa</i> sp.) used was sourced from the wild. A series of procedures, such Bligh and Dyer lipid extraction, trichloroacetic acid (TCA) precipitation, concentration, chilled acetone treatments, were carried out to produce the three extracts.</p>	2022	

Project/Activity Title	Duration	Remarks
<p>Two sources of phospholipid will be tested in this study (polychaete- and krill-sourced). A “Material Transfer Agreement” was made between SEAFDEC/AQD and Qrill, Aker Biomarine since this material cannot be bought in retail. The process of PLF extraction from freeze drying to final extracted PLF of approximately 4 g takes one month. Approximately <math>\geq 25</math> g of polychaete and krill PLF is already available. To keep the quality, dietary treatments will only be formulated right after determining that broodstock are ready for use.</p> <p>Tiger shrimp broodstock preparation also commenced with <i>P. monodon</i> in different sizes were provided by the previous AQD study. The study aims to begin stocking within the last quarter of the year.</p>		

#### 4. PROPOSED FUTURE ACTIVITIES FOR THE YEAR 2023

##### 4.1 Planning of the Project Activities

Project/Activity Title	Duration	Remarks
<p><b><i>Fish health component</i></b></p> <p><i>Vaccination for cage-cultured marine fish species.</i> In 2023, the vaccination of high-value marine finfishes to prevent the occurrence of VNN will be part of the activity of the diagnostic services of the Fish Health Section in AQD’s Tigbauan Main Station.</p> <p><i>Reduction of sea lice in pompano.</i> Treatment determined to be effective against <i>Caligus</i> will be part of the activities in the culture of pompano in cages to prevent the infestation of the parasite. The team is also planning to develop a vaccine against <i>Caligus</i> as a possible prevention method.</p> <p><i>Probiotic supplementation for juvenile abalone.</i> In 2023, probiotic supplementation will be done in formulated diet for abalone in collaboration with another study leader.</p> <p><i>SKUD in juvenile and adult sea cucumber.</i> Pathogenicity test will be done on isolated bacteria to establish their role in the occurrence of SKUD in sea cucumber. The researcher will also look into the possible role of parasites in the epidemiology of SKUD. Prophylactic methods, prevention/control of SKUD will be investigated.</p> <p><i>Treatment regimen on tissue culture seaweeds.</i> Treatment regimen will be incorporated to the protocols for seaweed plantlet production at AQD’s Igang Marine Station in Guimaras.</p> <p><i>Identification and treatment of risk factors affecting diseases of different aquaculture species.</i> Regular monitoring of environmental parameters and disease occurrence in species cultured at the AQD’s Tigbauan Main Station and in other places, if needed.</p>	2023	
<p><b><i>Nutrition and feed component</i></b></p> <p>Under this program, the following studies will continue:</p> <ul style="list-style-type: none"> <li>- Pompano grow-out in cages</li> <li>- Production technique of ayungin in tanks and cages</li> <li>- Biofloc technology for polyculture of tilapia and giant freshwater prawn will be continued for one run to firm up conclusion</li> <li>- Efficiency of polychaete phospholipid in improving reproductive performance of <i>Penaeus monodon</i></li> <li>- Refinement of <i>Scylla serrata</i> maturation diet</li> </ul>	2023	

Project/Activity Title	Duration	Remarks
- Verification of the refined grow-out formulation for <i>S. serrata</i>  All completed studies for 2022 will be submitted for publication by study leaders.		

#### 4.2 Expected Outcomes/Outputs

**Fish health component.** Monitoring of a species production including farming systems, environmental parameters and disease occurrence will identify pathogen(s) causing their mortality and determine factors that affect disease occurrence thereby enabling the formulation of an effective disease prevention and control method and the proper timing for their implementation. Vaccination is an efficient strategy to prevent disease outbreaks.

**Nutrition and feed component.** The optimum parameters in rearing of pompano in sea cages and adequate feed formulate with blends of plant protein sources will be identified. For silver therapon study, the best production techniques in tanks and cages will be determined. Efficiency of polyculture in ponds of tilapia and giant freshwater prawn with biofloc at the different feeding rates will be verified. Modified maturation diet for *S. serrata* will be identified and efficacy of polychaete phospholipid in promoting maturation in *P. monodon* will be verified. Refined formulation for mangrove crab will be verified. Finally, all results of completed studies will be published by 2023.

#### 5. PROJECT IN RELEVANCE TO THE PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR FOOD SECURITY FOR THE ASEAN REGION TOWARDS 2030





## PROJECT DOCUMENT

**Program Categories:** Departmental Programs  
**Project Title:** Maintaining Environmental Integrity through Responsible Aquaculture  
**Responsible Department:** Aquaculture Department  
**Total Duration:** 2022  
**Funding Sources:** AQD, JIRCAS, JAIF  
**Estimated Budget for 2023:**

### 1. INTRODUCTION

In recent decades, aquaculture has significantly contributed to more than fifty percent of the total fish-food volume globally. However, there are concerns about the adverse effects of aquaculture on the environment. Some of these impacts involve modifying and destroying coastal habitats, unregulated collection of wild broodstock and seeds, translocation or introduction of exotic species, changes in biodiversity, aquaculture wastewater, salinization of soil and water, and others. The MEITRA program was developed for SEAFDEC's Aquaculture Department to explore and address these issues and establish environment-friendly aquaculture technologies to mitigate such adverse effects. AQD has been developing aquaculture technologies for various finfish species, crustaceans, mollusks, seaweeds, and other emerging aquaculture species to boost production in the Philippines and other countries in Southeast Asia while taking the lead in the development and promotion of eco-friendly aquaculture strategies.

### 2. PROJECT

#### 2.1 Goal /Overall Objectives

To develop environment-based aquaculture technology by integrating environmental factors in SEAFDEC/AQD research activities and to maintain environmental integrity by promoting responsible aquaculture practices

#### 2.2 Outcomes and Expected Outputs

- a. Assess impacts of aquaculture on biodiversity, water and sediment qualities in the culture areas and adjacent ecosystems both in marine and freshwater systems
- b. Identify appropriate extractive species that may be used in Integrated Multi-Trophic Aquaculture (IMTA)
- c. Develop and promote efficient and suitable environment-friendly culture systems
- d. Conduct biological and ecological studies on species with potentials for resource enhancement

#### 2.3 Project Description/Framework

*Activity 1. Increasing technical skills supporting community-based sea cucumber production in Viet Nam and the Philippines*

This study aims to optimize the hatchery production strategy for sandfish using microalgae concentrates and optimize productivity of juvenile culture systems. This was funded by ACIAR.

*Activity 2. Development of optimal fish-prawn co-culture culture schemes in tanks and lake-based cages for increased farm production*

This aims to improve the freshwater aquaculture production and increase the income of tilapia farmers through (a) the rearing of a genetically-improved Nile tilapia strains and/or red tilapia hybrids together with giant freshwater prawns (GFP) in tank-based co-culture systems, (b) the adoption of optimal tilapia-prawn co-culture schemes in lake-based cages.

*Activity 3. Field verification of mixed-diet in deep water grow-out culture of abalone using PVC tubes and recycled drums*

This study aims scale up abalone culture using recycled containers and compare the growth and survival with those cultured in PVC pipes

Activity 4. *Identification of tropical Anguillid eels from selected natural habitats in the Philippines using Environmental DNA (e-DNA) assay*

Funded by JAIF, this study aims to evaluate the effectiveness of the e-DNA method in accurately identifying local tropical Anguillid eel species for an eel resource management and enhancement.

Activity 5. *Assessment and development of an intermediate culture system for tropical aquaculture species, i.e. sea cucumber*

Funded by JIRCAS, this study aims to establish a methodology to culture sea cucumber from 2 g to 50 g as an intermediate culture.

Activity 6. *Improvement of larval settlement and post-larval production for abalone and sandfish*

Funded by JIRCAS, this study aims to develop new larval settlement methods using artificial mucus and develop a method for larval rearing abalone and sandfish using a new diatom.

### 3. PROGRESS/ACHIEVEMENTS OF ACTIVITIES IN THE YEAR 2022

Project/Activity Title	Duration	Remarks
<p><b>Community-based production of sea cucumber</b></p> <p>This study is a continuation activity funded by ACIAR (Australia) on the production of sea cucumber <i>Holothuria scabra</i> from optimizing hatchery and nursery production to resource enhancement and grow-out in the sea ranch. With a duration of five years, the first year was focused on optimizing hatchery production by utilizing algal concentrates in order to minimize dependency on live micro-algae cultures.</p> <p>Experiments results in 2019 showed that live <i>Chaetoceros calcitrans</i> (Cc) is still best in promoting the fastest larval development to doliolaria stage, but <i>Isochrysis</i> sp. (Isochrysis 1800®) paste &amp; Shellfish diet® 1800 can be possible alternatives. The ocean-based nursery culture of sandfish in floating hapas suggests that algal biofilm (<i>i.e.</i> chl-a) positively affects sandfish growth in <i>hapa</i>, while wind and rain were negative factors.</p> <p>In 2020 and 2021, predation problems were studied. A comparative experiment between two pen designs (high and low wall) was conducted. Results suggested that rearing sandfish in pens with high net walls can improve growth and survival rates in areas where predation potential is high.</p> <p>In 2022, three sub-studies were conducted: (A) optimizing locally-produced micro-algae concentrate (or paste) as sandfish larval feed; (B) re-establishing sandfish nursery systems at the islands of Guimaras and Sagay, and; (C) bio-physical profiling and assessments at field-based grow-out sites. The sub-study on using micro-algae concentrate as larval food for sandfish continued to focus only on locally-available products. Although it was tested that imported micro-algae concentrate products can be potential alternatives to live algal cultures, they tend to be more expensive, and procurement can be problematic because of long shipment durations. Using the same protocols as in previous experiments, results showed that the PrimoAlga, an algal paste produced by AQD, concentrates can be an excellent replacement for live microalgae. Currently, experiments are ongoing to optimize the feeding protocols for this product, especially in terms of feeding rates, frequency, and larval densities.</p> <p>As field travels resumed in 2022 when the COVID-19 pandemic became manageable, re-establishment of nursery rearing systems were done, both the the Igang Marine Station in Guimaras and the</p>	<p>2019-2023</p>	

Project/Activity Title	Duration	Remarks
<p>Molocaboc Island in Sagay, Negros Occidental sites. Nursery production runs were then implemented, especially from the second quarter of the year.</p> <p>In addition, detailed biophysical monitoring of the culture sites and sea ranch areas in Guimaras and Sagay were successfully conducted, and monitoring of stocks was regularly conducted monthly.</p>		
<p><b>Co-culture of tilapia and giant freshwater prawn in tanks and lake-based cages</b></p> <p>This study aims to jointly produce two commercially valuable low-input species in a sustainable, cost-efficient, and responsible culture system that would provide profitable returns for the small-scale fish farmer. Specifically, the study will look into the rearing of genetically-improved Nile tilapia strains (<i>e.g.</i>, i-Excel) and red tilapia hybrids, together with giant freshwater prawns (GFP) in tank-based co-culture systems and assess optimal tilapia-prawn co-culture schemes in lake-based cages.</p> <p>In 2021, the tank experiments on (1) monoculture of i-EXCEL; (2) monoculture of Red Tilapia; (3) co-culture of i-EXCEL + GFP; and (4) co-culture of Red Tilapia + GFP had shown that regardless of scheme, the Nile tilapia (i-EXCEL) had better growth performance than the Red Tilapia. Also, tilapia survival was high and not significantly different across schemes (75%-95%), while GFP survival had an increased range between the two trials (10-72%) but was not significantly different across schemes. These results suggest that both monoculture and co-culture can be recommended to farmers. However, deciding which scheme to use will depend on which specific species are targeted for production. In the lake, experiments on (A) mono-feeding tilapia, (B) mono-feeding prawns, and (C) feeding both tilapias and prawns were conducted. Tilapias grew comparably well between the fed treatments as compared to the un-fed treatment, while GFP grew much better when fed. Overall, the survival of tilapias in the lake was lower than in the tanks, even though the water quality was well within tolerable levels. However, water parameters were observed to be fluctuating more in the lake than in tanks.</p> <p>In 2022, experiments in lake-based culture continued to assess suitable culture set-up, (1) communal culture whereby both tilapia and GFP were reared in the same cage, or (2) separate culture whereby tilapias were reared in separate cages from GFP. Results showed that growth and survival for both species were comparatively higher during the wet season than during the dry season. Overall, separately rearing the two species favored higher survival.</p>	<p>2020-2022</p>	
<p><b>Mixed diet for abalone grow-out culture</b></p> <p>Among the main challenges for developing aquaculture technologies for the tropical abalone include the availability of good feeds and practical but efficient grow-out culture methods. New in 2022, this study on abalone grow-out culture aims to verify the use of alternate feeding (seaweed/flake feed) on the growth and survival of abalone and compare culture performance using recycled drums &amp; PVC pipe.</p> <p>The initial culture run was started only in June 2022, after the completion of the construction of the experimental floating raft that held the culture containers. Results showed feeding with live seaweed and alternating with formulated flake feeds can support abalone</p>	<p>2022-2023</p>	

Project/Activity Title	Duration	Remarks
<p>growth in a grow-out culture system. Preliminary monitoring suggested that abalone growth was significantly better in PVC pipes than drums after the initial four months. Meanwhile, abalone survival (&gt;98%) was not significantly different between PVC and drums. The grow-out culture experiment is still ongoing and will continue until 2023 for a couple more culture trial runs.</p>		
<p><b>Managing tropical Anguillid eel resources for sustainable use</b></p> <p>The commercial importance of tropical Anguillid eels in Southeast Asia can be gleaned from the thriving trading industry (especially during the pre-pandemic period) between eel-consuming countries such as China, South Korea, Taiwan, Japan and eel-producing countries such as Indonesia, Philippines, and Viet Nam. Conducted under the Japan ASEAN Integrated Fund (JAIF) as part of the project entitled "Enhancing Sustainable Utilization and Management Scheme of Tropical Anguillid Eel Resources in Southeast Asia" from 2017-2019," AQD conducted genetics-based resource management for Anguillid eels in the Philippines.</p> <p>Specifically, the study aims to define spatial-temporal variations in eel (<i>A. bicolor</i>) populations in areas where the eels have been reported to occur and determine the usefulness of e-DNA as a method for assessing natural eel populations.</p> <p>In its first year in 2022, the study focused on optimizing the e-DNA method in the laboratory using water samples of up to 500 ml, adapting published techniques in environmental DNA sampling and analysis. Detecting anguillid DNA was successful in the tank-based experiment, where eels were kept to confirm the methods.</p> <p>Eel samples from the field were also collected this year, where areas of the Cagayan river in northern Luzon, Philippines, were initially surveyed. E-DNA analyses were done using water samples from the river employing the same optimized protocol. However, results showed very minimal detectable DNA content from the samples (500 ml). This indicates a high dilution of DNA materials in the vast water volume in the rivers. Further activities will include modifications in the methods whereby larger volumes of water samples will be taken, but will need a more extensive capacity laboratory for the analyses.</p>	2022-2023	
<p><b>Assess and develop an intermediate culture system for tropical aquaculture species</b></p> <p>This is a new study for 2022, funded by Japan International Research Center for Agricultural Sciences (JIRCAS). This study aims to assess and develop an Intermediate Culture System (ICS) for tropical aquaculture species. As a pilot commodity, the tropical sandfish <i>Holothuria scabra</i> will be the target species, employing the sea-based nursery system as the culture medium to grow the juveniles from 2 g onwards. Specifically, the study targets to establish significant environmental parameters that influence culture performance of sandfish during intermediate culture and to determine the optimal culture duration and optimal final size of sandfish juveniles.</p> <p>Preliminary experiments were carried out in 2022 to assess the conditions of juvenile sandfish when reared in either floating or bottom-set hapa nets. Results showed that the survival rate of sandfish juveniles and biomass are higher in floating hapa than in sea bottom hapa. However, sea bottom culture was shown to be not suitable for sandfish less than 5 g. In another experiment to assess the</p>	2022-2026	

Project/Activity Title	Duration	Remarks
density of sandfish in a nursery hapa net, initial results showed that low density had the highest growth and survival, but high density had the highest potential biomass gain.		
<p><b>Improved production of abalone and sandfish</b></p> <p>This is another AQD study funded by JIRCAS, which also started in 2022. It aims to develop new larval settlement methods for abalone and sandfish larvae using artificially prepared mucus. The study also seeks to test the viability of using alternative diatom species (<i>e.g.</i>, <i>Cylindrotheca</i> sp.) to improve juvenile growth and survival for abalone and sandfish in the hatchery.</p> <p>For 2022, the main focus of the study was on abalone. Initial preparations for the artificial mucus were conducted using different treatments, including the inclusion of dietary gamma-aminobutyric acid (GABA). Preliminary results showed that the attachment rate of abalone larvae was high on the prepared mucus, especially with GABA, but metamorphosis rates were still low. On the other hand, a successful collection of samples of <i>Cylindrotheca</i> sp. diatoms were conducted along the coast of SEAFDEC/AQD Tigbauan Main Station (TMS), as well as from the Igang Marine Station. Pure isolation of this particular diatom species was also successful, and initial propagation attempts are being made in the laboratory.</p>	2022-2026	

#### 4. PROPOSED FUTURE ACTIVITIES FOR THE YEAR 2023

##### 4.1 Planning of the Project Activities

Project/Activity Title	Duration	Remarks
All studies mentioned above will continue in 2023 except for the Anguillid eel e-DNA study which will end in 2022.		

##### 4.2 Expected Outcomes/Outputs

At the end of 2023, a manual on the knowledge collected in the study “Identification of Tropical Anguillid Eels from Selected Natural Habitats in the Philippines using Environmental DNA Assay” will be published.

#### 5. PROJECT IN RELEVANCE TO THE PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR FOOD SECURITY FOR THE ASEAN REGION TOWARDS 2030



## PROJECT DOCUMENT

**Program Categories:** Departmental Programs

**Project Title:** Meeting Social and Economic Challenges in Aquaculture

**Responsible Department:** Aquaculture Department

**Total Duration:** 2011–present

**Funding Sources:** AQD, ACIAR

**Estimated Budget for 2023:**

### 1. INTRODUCTION

The growth of aquaculture in the Southeast Asian region is driven by scientific and technological breakthroughs developed and adopted by receptive entrepreneurs and investors. However, the development of aquaculture in the region has brought and caused a number of unintended problematic scenarios, such as: 1) inequitable distribution of opportunities and benefits across adopters of aquaculture; 2) technology and production cost dualism among aquaculturists; 3) social conflicts and economic losses due to competing uses of resources for aquaculture and other purposes; and 4) high cost of rehabilitation of habitats affected by misuse of natural resources for aquaculture.

This *Meeting the Social and Economic Challenges in Aquaculture Program (MSECAP)* aims to develop and implement social and economic strategies in aquaculture and resource management to secure food and income through stakeholder collaboration. The main objective is to respond to the specific recommendations for this Program as identified and adopted during the *ASEAN-SEAFDEC Fish for All Conference* in June 2011. These include: a) prioritizing collaborative R&D in aquaculture in the region to have a clear regional assessment and understanding of the role of aquaculture in poverty alleviation and provide basis for policy formulation; b) allocating R&D resources to address emerging issues on the impacts of climate change and global trade on aquaculture with emphasis on small-holder fish farmers; and c) enhancing multi-agency collaboration, sharing of information and resources between and among SEAFDEC and its Member Countries and other organizations in addressing the common problems of alleviating the socioeconomic conditions of the poor sector of Region.

### 2. PROJECT

#### 2.1 Goal/Overall Objectives

The program aims to implement socioeconomics research and development studies to promote the inclusive engagement of fisherfolk communities and small-holder fish farmers in aquaculture and resource enhancement. These studies cut across the role of aquaculture in food and income generation through seed production for grow-out culture and stock enhancement. The two research studies under MSECAP in 2022 continue to aim at improving food and income security among small-scale fisherfolks through the introduction of aquaculture technologies, either in seed production or grow-out culture in rural coastal areas, island communities and freshwater lake environment.

#### 2.2 Outcomes and Expected Outputs

Since its inception in 2011, the MSECAP program conducted studies aim to develop sustainable livelihoods that will contribute to food availability and income security of marginalized households in fishing communities. These expected outcomes are designed to be sustained through bottom-up development of enabling local regulations that are implemented jointly by local government institutions and the capacitated fisherfolk organization. These studies include the following: 1) introduction of tilapia (*Tilapia nilotica*) farming in cages in inundated rice fields due to the construction of riverine irrigation project in upland area of Dumarao, Capiz; 2) promotion of co-culture of giant freshwater prawn (GFP, *Macrobrachium rosenbergii*) with tilapia in cages in Laguna Lake using juveniles produced by the fisherfolks during hands-on training in Binangonan, Rizal; 3) participatory farming of seaweeds (*Kappaphycus alvarezii*) in Nueva Valencia, Guimaras to improve understanding of benefits and losses due to climate change; 4) community participatory application of integrated multi-trophic aquaculture in milkfish (*Chanos chanos*) farming also in Guimaras; 5) initiative towards a bioeconomic analysis of mangrove crab (*Sylla serrata*) hatchery operation; 6) area capacity development for enhancement of tiger shrimp (*Penaeus monodon*) in Batan Estuary in Aklan province; and 7) community-based enhancement of abalone (*Haliotis asinina*) and sandfish (*Holothuria scabra*) in Sagay Marine Reserve in Negros Occidental. These projects were all completed

successfully, either before or by end of 2019 as scheduled, except for the bioeconomic analysis of mangrove crab hatchery operations. The study was pre-terminated due to unsuccessful hatchery runs, resulting in inadequate generation of time-series hatchery parameter required in bioeconomic analysis.

For 2022, the MSECAP continue to implement two studies that both started in 2020 and expected to be completed by end of 2024. The first study is titled, “*Assessment and development of community-based sandfish (*Holothuria scabra*) farming livelihood for fishing communities*”, co-funded with ACIAR. The other study on “*Developing community-based sustainable aquaculture livelihood strategies in Laguna Lake and tributaries*” is co-funded with GOJTF.

These two studies promote inclusive growth through community-based strategies in introducing sustainable aquaculture technologies. Both studies resorted to online activities in 2020 and 2021 due to travel restrictions and community quarantine. These activities include: 1) project orientation with collaborators and stakeholders, 2) baseline socioeconomic survey and data analysis, and 3) social preparation activities limited to online focus group discussions and formation of fisherfolk organization. Face to face community-based activities were finally implemented starting March 2022 onwards. The following highlights of accomplishments in 2022 indicate that the two studies under MSECAP were able to catch-up with its plans and expected outputs.

### 2.3 Project Description/Framework

**Activity 1:** Assessment and development of community-based sandfish (*Holothuria scabra*) farming livelihood for fishing communities (Jan 2020-Dec 2022, ACIAR and AQD funds)

The main objective of this study that is being conducted in Barangay Molocaboc in Sagay City, Negros Occidental is to examine the interplay and linkages of a fishing community in implementing a sustainable sea cucumber farming livelihood. The specific objectives are to: 1) assess the capacity of island-based fishing communities towards sandfish farming livelihood, and 2) develop strategies to increase and sustain the participation of fishing community members in sea cucumber farming.

The study applied a multi-method approach that combines qualitative and quantitative ways to collect data. A structured questionnaire was developed and used to obtain data from randomly selected participants among different fishing actor groups. Focus group discussions (FGDs), oral history interviews, key informant interviews (KII), and gender-sensitive resource mapping workshops, and education, information and communication (EIC) activities involving various stakeholders (e.g., women, men, children, local stockers, and local officials) using the infographic material were conducted. Rich, detailed and contextually grounded participatory qualitative data from various actors (e.g., the local barangay officials, the local traders, the members of the people’s organization or collaborators, and community members) were collected and analyzed.

**Activity 2:** Developing community-based sustainable aquaculture livelihood strategies in Laguna Lake and tributaries (Jan 2020-Dec2024, GOJTF Phase II and AQD funds)

The specific objectives and its corresponding activities for 2022 are: 1) construct the small-scale GFP hatchery/nursery in Barangay Pipindan in Binangonan, Rizal; 2) conduct in-situ hands-on training on GFP seed production, organizational enhancement, and financial management for Pipindan Aquaculture Producers Association (PAPA) organized under this study in 2021; 3) sustain social enhancement activities (meetings, periodic training needs assessment and workshops on integrating community resiliency-building measures in community-based aquaculture livelihoods); 4) initiate network with other fisherfolk households, local government units (LGU), non-government organizations (NGO), regulatory institutions and research and development institutions; and 5) continue hatchery/nursery production runs to enable engagement in livelihoods through sustained selling of post-larvae (PL) and initiation of grow-out runs.

These objectives are designed to be achieved by implementing a tri-party collaboration framework among: 1) fisherfolks, 2) local government, and 3) research institutions, traders and other stakeholders in order to create income-generating livelihood through aquaculture.

At the end of 2022, this Study is expected to have: 1) established collaboration between fisherfolks, local government, relevant national government agencies, seafood traders and SEAFDEC/AQD in sustainable GFP production in Laguna Lake and tributaries; 2) capacitated PAPA members who are engaged in community-based hatchery and nursery operations with income from sale of GFP post-larvae.

3. PROGRESS/ACHIEVEMENTS OF ACTIVITIES IN THE YEAR 2022

Project/Activity Title	Duration	Remarks
<p>Study title: Assessment and development of community-based sandfish (<i>Holothuria scabra</i>) farming livelihood for fishing communities</p> <p>The major accomplishments of the Study 1 on sandfish farming in Barangay Molocaboc in Sagay include the following: 1) improved awareness through the promotion of local policies and regulations, in particular the promulgation of Barangay Resolution on the trading of dried sandfish in Molocaboc Island; 2) held sandfish harvesting and processing demonstration, inspection and dialogue with local traders to refrain them from buying fresh undersized (&lt;320g) sandfish juveniles; 3) developed sandfish sea ranch site selection index encompassing: a) list of criteria for ease of implementation, b) site suitability parameters, and c) resource area use risks; 4) conducted demonstration on sandfish floating <i>hapa</i> nursery and hatchery operations; 5) drafted another Barangay Resolution for the delineation of sites using outcomes from identification of protected areas system using both biophysical and social methods, such as focus group discussions and resource mapping participated by the multi-sector community residents; 6) selection of a 400m<sup>2</sup> area locally called as <i>Kang-atong</i> to be the pilot expansion site initially for at least 2 family-based sandfish farming units; and 7) sustained regular activities such guarding of sites, monthly coastal clean-up, and recruitment of new MOSRA members, particularly women.</p>		
<p>Study title: Developing community-based sustainable aquaculture livelihood strategies in Laguna Lake and tributaries</p> <p>CBSAL in Barangay Pipindan in Binangonan in Rizal province, the achievements in 2022 in chronological order are: First is the signing of the MOA among the tri-party collaborators, namely: a) Pipindan Aquaculture Producers Association (PAPA); b) the local government of Barangay Pipindan (B-LGU); and c) AQD-GOJTF for the aquaculture technology and logistics. Also signed was the Usufruct Agreement with the owner of the land area that hosts the hatchery. The second major achievement is the eventual capacity-building through daily engagement of fisherfolks in breeding and production of GFP postlarvae (PLs) which started also in March 2022 in a temporary hatchery setup in BFS. Lectures on the hatchery of GFP were conducted for PAPA members. Breeders were stocked in <i>hapa</i> net cages in the shore area of Laguna Lake; gravid breeders were stocked in incubation tanks; and collected larvae were stocked and reared to postlarvae in drums with formulated brackishwater. Artificial brackishwater (12 ppt) has to be formulated because Barangay Pipindan in Laguna Lake has no access to brackishwater due to the closure of Napindan Channel that supposedly connects the Lake to Manila Bay through Pasig River.</p> <p>The third achievement is the initial selling of postlarvae produced by PAPA members. At least 4 buyers of GFP postlarvae have been supplied by PAPA, in spite of the many interested buyers. Similar with the case of many start-up hatcheries, mortality is a challenge. Only about 2,600 postlarvae (PLs), valued at PHP 4,610 (1 USD = PHP 58), were sold during the 6-month period since start-up. The mortalities were attributed to: 1) limited skills as beginners; 2) limited availability of formulated brackish water; 3) quality of formulated water needs improvement; 4) feeding protocol using artemia and egg</p>		



Project/Activity Title	Duration	Remarks
<p>custard needs diligence; and 5) occasional water temperature fluctuation during inclement weather.</p> <p>Fourth accomplishment was the final construction of the hatchery in September 2022, but the application for electricity and water supply are yet to be made and safety inspections conducted. The fifth achievement is the conduct of market linking field trip done with the municipality of Calauan in Laguna province, particularly in Barangay San Isidro with its constituents who are tilapia breeders. The field trip aims to connect the PAPA members to the potential growers of GFP.</p>		

#### 4. PROPOSED FUTURE ACTIVITIES FOR THE YEAR 2023

##### 4.1 Planning of the Project Activities

Project/Activity Title	Duration	Remarks
<p>For the study conducted in Barangay Molocaboc in Sagay, the plans for 2023 include:</p> <ul style="list-style-type: none"> <li>- Implementation of family-based managed floating hapa nursery;</li> <li>- In-person presentation of educational video material to Molocaboc primary and secondary students; and</li> <li>- Exploration of sandfish market product/s and market linkages.</li> </ul>	2023	
<p>For the study conducted in Barangay Pipindan in Binangonan aims to achieve the following in 2023:</p> <ul style="list-style-type: none"> <li>- Sustained production and selling of PL to generate income for fisherfolks organization, operations, and supplemental income for participating members;</li> <li>- Enhanced training in broodstock management;</li> <li>- Sustain community-based hatchery operations, and family-based grow-out; and</li> <li>- Explore trial ranching opportunities in Laguna Lake and tributaries.</li> </ul>	2023	

##### 4.2 Expected Outcomes/Outputs

By end of 2023, Study 1 in Barangay Molocaboc is expected to have trained the significant number of individuals and households with aquaculture skills that will form family-based and managed floating hapa nurseries. Markets and linkages for sandfish products should have been explored to sustain economic benefits for participating families. The educational video materials on sandfish resources and its culture should have been completed and have created awareness among primary and secondary students in Molocaboc.

Meanwhile, Study 2 in Barangay Pipindan is expected to have capacitated PAPA members through the CBSAL and have economically benefitted from the production of GFP juveniles and have sold improved volumes of these juveniles for grow-out by fish farmers in Laguna Lake and other freshwater areas, either in tanks or in cages in other waterbodies around the area. Consequently, significant number of fish farmers and their families should have benefited from supplemental income due to seed production and grow-out of GFP.

#### 5. PROJECT IN RELEVANCE TO THE PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR FOOD SECURITY FOR THE ASEAN REGION TOWARDS 2030



## PROJECT DOCUMENT

**Program Categories:** Departmental Programs  
**Project Title:** Collaborative Projects with the Philippine Government  
**Responsible Department:** Aquaculture Department  
**Total Duration:** 2018–2023  
**Funding Sources:** Aquaculture Department  
**Estimated Budget for 2023:**

### 1. INTRODUCTION

Over the years, AQD has developed technologies in broodstock development, seed production, and grow-out as well as feeds and nutrition of economically-important finfishes, crustaceans, mollusks, and seaweeds in various stages of development. Several of these technologies have been field-tested successfully in ponds, pens, and cages in fresh, brackish, and marine waters in collaboration with fish pond operators, local government units, non-government organizations, and other international organizations. With this, several projects were conducted by AQD to support the thrusts of its host government.

### 2. PROJECT

#### 2.1 Goal/Overall Objectives

In order to accelerate fish production and export revenues from the aquaculture sector, AQD is committed to intensifying the techno-transfer of matured aquaculture technologies to stakeholders, which will provide additional and alternative livelihood to fisherfolks through sustainable aquaculture technologies that are economically viable, environment-friendly, and socially equitable.

#### 2.2 Outcomes and Expected Outputs

The projects are expected to contribute to the aquaculture development of its host country, which includes:

- a) Providing assistance in the development and enhancement of the country's milkfish fry production;
- b) Development of cost-efficient aquaculture feeds;
- c) Revive the local production of tiger shrimp;
- d) Strengthen the linkage between the scientific development of aquaculture technologies and the fish farmers; and
- e) Train a pool of aquaculture technicians for better management of hatcheries in the country.

#### 2.3 Project Description/Framework

##### *Activity 1: Fry sufficiency program*

This project to find a solution to the problem of seed insufficiency in the Philippines by constructing and operating more hatcheries, rehabilitating unproductive hatcheries, and enhancing the performance of milkfish breeders.

##### *Activity 2: Development of cost-efficient feeds*

The project aims to find cheaper alternatives to substitute for fish-based feed ingredients, come up with effective feed formulations using cheaper alternative ingredients, and promote locally-sourced alternative ingredients to bring down the cost.

##### *Activity 3: Oplan Balik Sugpo (Operation Black Tiger Prawn Revival)*

The projects seek a solution to the declining production of tiger shrimp, a million-dollar export industry of the Philippines in the nineties. It aims to promote eco-friendly strategies and effective biosecurity and the production of high-quality shrimp larvae.

##### *Activity 4: Accelerated Techno-Transfer*

There had been a weak linkage between the scientific development of aquaculture technologies and the fish farmers. This project aims to accelerate technologies through techno-caravans and field demonstrations.

*Activity 5: Manpower Development*

This project aims to find a solution to the lack of technical manpower to operate new government hatcheries. These solutions include intensive hands-on training of fisheries graduates in SEAFDEC/AQD facilities, deployment of training graduates to operate government facilities and train a pool of aquaculture technicians that may be tapped by the private sectors.

**3. PROGRESS/ACHIEVEMENTS OF ACTIVITIES IN THE YEAR 2022**

Project/Activity Title	Duration	Remarks
<p><b><i>Fry sufficiency program</i></b></p> <p>For 2022, the research team focused on two main components: the creation of feasibility studies for legislated hatcheries and the revival of abandoned hatcheries across the country.</p> <p>For legislated hatcheries, about 48 hatcheries are needed to realize this program, and each hatchery would need to produce 25 million fry per annum. These proposed hatcheries would need about 3,750 milkfish breeders: 2,500 females and 1,250 males, following the ratio of 2 females to 1 male. Apart from solving the scarce fry supply, the program would also try to break the stigma that captive-bred fry are inferior to wild-caught fry in terms of growth, morphology, and survival, as DA-BFAR would ensure that the fry produced would be of the highest quality. Aside from milkfish, these proposed hatcheries are versatile enough to accommodate the culture of other economically important aquaculture species such as the black tiger shrimp (<i>Penaeus monodon</i>), mangrove crab (<i>Scylla serrata</i>), and other commodities that are quickly gaining in popularity, e.g. pompano (<i>Trachinotus blochii</i>).</p> <p>This year, eight (8) feasibility studies were completed by AQD for legislated hatcheries. The process includes assessing the suitability of pre-identified project sites, identifying the most suitable site, and creating the feasibility study report and other relevant documents.</p> <p>Out of the eight hatcheries, the following have progressed from feasibility studies to actual construction. Below are some of the construction progress:</p> <ul style="list-style-type: none"> <li>- Lingig, Surigao del Sur (RA 10787) – 96% completion</li> <li>- Sultan Naga Dimaporo, Lanao del Norte (RA 10860) – 95% completion</li> <li>- Jabonga, Agusan del Norte (RA 10813) – 79% completion</li> <li>- Del Carmen, Surigao del Norte (RA 10825) – 31% completion</li> <li>- Hinatuan, Surigao del Sur (RA 10944) – 26% completion</li> <li>- Jose Dalman, Zamboanga del Norte (RA 10859) – 26% completion</li> </ul> <p>In addition, feasibility studies are being conducted for hatcheries supported by house bills in Western Visayas. Four (4) feasibility studies were completed located in Iloilo Province (Batad, Carles, and Concepcion) and Negros Occidental (Talisay City). Outside Iloilo Province, another feasibility study was completed for Basilisa, Dinagat Islands.</p> <p>For reviving abandoned hatcheries, improvements were made in two hatcheries: Batad, Aklan and Concepcion, Iloilo.</p> <p>Improvements for Batad, Aklan includes repairs of tanks and training of hatchery personnel in culturing algae and natural food. AQD also donated larvae onsite to jumpstart the rearing process. For</p>	<p>2022</p>	

Project/Activity Title	Duration	Remarks
the one in Concepcion, Iloilo, there are ongoing repairs of tanks and maintenance of natural food cultures.		
<b><i>Development of cost-efficient feeds</i></b>		
<p><b><i>Oplan Balik Sugpo (Operation Black Tiger Shrimp Revival)</i></b></p> <p>The program highlighted two efforts to successfully revive the prawn industry in the Philippines: the production of high-quality <i>Penaeus monodon</i> postlarvae and improved grow-out culture.</p> <p>In the hatchery phase, the Shrimp Hatchery Complex (SHC) located at the Tigbauan Main Station of AQD was built and utilized to produce black tiger shrimp fry. It is composed of a spawner/broodstock facility used as a quarantine area for the pathogen detection of newly-arrived spawners. The shrimp hatchery often utilizes spawners from the wild, which are processed and analyzed after spawning to determine the presence of pathogens. Wild spawners are acclimatized and disinfected prior to stocking and spawning. Newly-spawned eggs are washed with UV-sterilized seawater and disinfected to lessen pathogens that stick to the capsules of the eggs, thereby limiting pathogen ingestion by the nauplii when their mouths begin to open. Harvesting of the nauplii is based on the PCR test results of the spent spawners. Pathogen-negative postlarva are separated from pathogen-positive nauplii and stocked on two different larval-rearing modules in the shrimp hatchery.</p> <p>All nauplii are reared, fed, sampled, and monitored until they reach the postlarvae (PL) stage. Influent water undergoes a series of filtration systems to ensure good water quality for the stocks. Seawater from the source first passes through the sand filter before it reaches the reservoir. From the reservoir, the water passes through the rapid sand filter, then through the UV sterilizer before it reaches the larval rearing or natural food tanks. Filter bags with five (5) µm mesh size are also installed at every seawater outlet.</p> <p>Strict biosecurity measures are being implemented at the spawner/broodstock facility and shrimp hatchery as part of the standard operating procedures. The staff are required to shower and change into scrub suits and hatchery slippers or boots upon entering the facility to avoid disease occurrence. Footbaths, hand sanitizers such as alcohol, and disinfectants are also provided at every entrance point. PCR tests are conducted at the PL 5, 10, and 15 stages to monitor the health condition of the shrimp fry before harvest.</p> <p>Fry harvesting was done when they reached PL 15- PL 20. In 2022, the SHC produced 600,000 disease-free and good-quality <i>Penaeus monodon</i> fry. Some of these were stocked on the Dumangas Brackishwater Station (DBS) ponds and at the HDPE-lined ponds at NFRDI Butong, Taal, Batangas, for the verification purposes of the Oplan Balik Sugpo Program. Remaining fry were sold to local buyers who wished to purchase the fry at Php 0.2-0.25 per piece.</p> <p>As for the grow-out phase, AQD collaborated with the Department of Agriculture-National Fisheries Research and Development Institute (DA-NFRDI) to conduct demonstration runs of the environment-friendly culture protocols aside from the verification runs conducted at its Dumangas Brackishwater Station.</p>		

Project/Activity Title	Duration	Remarks
<p>Four (4) 500 m<sup>2</sup> HDPE-lined rectangular grow-out ponds and one (1) 2,000 m<sup>2</sup> HDPE-lined reservoir pond located at DA-NFRDI's Freshwater Fisheries Research and Development Center in Brgy. Butong, Taal, Batangas were utilized for the grow-out culture of black tiger shrimp. The operation adopts environment-friendly schemes in shrimp farming through proper biosecurity measures and the use of biomanipulators.</p> <p>Over 600 pieces of tilapia and milkfish fingerlings were stocked at the reservoir pond. The fingerlings serve as biomanipulators for the greenwater technology and limit the accumulation of luminous bacteria in the grow-out ponds. The culture areas are secured from predators by a perimeter fence and bird scare and stocked with high-quality, and disease-free PL produced at AQD's SHC in Tigbauan, Iloilo. The verification run is ongoing and is expected to end by the fourth quarter of 2022.</p> <p>Meanwhile, another verification run is also being implemented at DBS using soil-based ponds: 1) 8,139 m<sup>2</sup> and 2) 5,401 m<sup>2</sup>. Approximately 125,000 fry were stocked in Pond 1 and 81,000 fry in Pond 3, with a stocking density of 15 fry/m<sup>2</sup>. After 80 days of culture (DOC), fry in Pond 1 gained an average body weight (ABW) of 13 g and an 85% survival rate. For Pond 3, the fry reached an ABW of 30g and a 94.11% survival rate after 125 DOC.</p>		
<p><b><i>In-situ (onsite) training courses and accelerated technology transfer</i></b></p> <p>From 2019-2021, a total of seven (7) training courses were already conducted all over the Philippines. Two of these were conducted online due to the travel restrictions amidst the pandemic through <i>via</i> hybrid set-up. Topics discussed include the biology and ecology of the cultured species, hatchery to grow-out operations of freshwater and marine species, diseases, nutrition, biosecurity measures, and others. Practical sessions were also conducted for onsite training, such as the proper water quality monitoring in ponds and cages, feed preparation, and others.</p> <p>Before this year ends, another training course will be conducted as requested by NFRDI as an offshoot activity under <i>Oplan Balik Sugpo</i> program. The training will focus on how the Department operates the project – from producing disease-free and high-health <i>P. monodon</i> fry in the hatchery to the biosecure grow-out phase. A practical session will also be conducted onsite, including sampling shrimps in ponds, computations of average body weight, survival, feeding rate, and others based on the sampling data.</p> <p>Aside from <i>in-situ</i> training courses, AQD will demonstrate matured aquaculture technologies with farm owners and technicians for adoption and implementation in their farms.</p> <p>Part of this program is conducting consultation and extension services for Filipino fish farmers. This year, staff from AQD conducted a site assessment in the four provinces of Western Visayas (Negros Occidental, Capiz, Aklan, and Antique). The areas were assessed based on its suitability for the brackishwater pond grow-out culture of mangrove crab and pompano. In order to confirm its suitability, the site should have a manageable pond with an area of not more than 1 hectare, has good water quality and good water exchange, be accessible for the delivery of feeds, fry, and</p>		

Project/Activity Title	Duration	Remarks
<p>other fertilizers, and most importantly, should have an available electrical power supply for the life support systems such as pumps and paddlewheels.</p> <p>Among the assessed sites in the different provinces, a location in New Washington, Aklan was found suitable for the grow-out culture of pompano in brackishwater ponds. It has an area of 1 hectare, has an available electrical supply, is accessible, and has good water quality. The same farm characteristics were found in a site in Hamtic, Antique, and were suitable for the grow-out culture of mangrove crab. One advantage of this site is its manageable pond measuring 0.3 hectares, the double gate system for water exchange, and the presence of earthen mounds with mangroves that benefit the crabs. Currently, these farms are undergoing repairs, and the field demonstrations will start in the first quarter of 2023.</p>		
<p><b><i>Manpower Development</i></b></p> <p>In 2018, sixteen (16) graduates from different fisheries schools in Western Visayas were trained during the Training Course on Manpower Development for Shrimp, Marine Fish, and Tilapia Aquaculture to enhance their capabilities and broaden their perspectives and experiences in terms of aquaculture. They were trained on shrimp and multi-species marine fish hatchery operations and cage and brackishwater pond culture operations. After three months of intensive training, they were employed by AQD and were assigned to the different areas and hatcheries at Tigbauan Main Station in Iloilo.</p> <p>In 2021, another batch of trainees underwent intensive training courses related to fisheries and aquaculture. The four (4) graduates from different fisheries schools in Mindanao and Bicol area were previously screened and interviewed by AQD. They were exposed and trained rigorously on shrimp, marine fish, mangrove crab, giant freshwater prawn, oyster, and seaweed culture, as well as on the operations on brackishwater ponds and cages. Currently, they were assigned to AQD's Multi-Species Marine Fish Hatchery, Oyster Hatchery, and Mangrove Crab Hatchery.</p> <p>As part of their duty to provide technical assistance in hatchery operations, Manpower Development personnel from the first batch were deployed to train the staff on natural food production in a rehabilitated milkfish hatchery in Songculan, Batan, Aklan last March-April 2022. Also, one of the Manpower Development graduates helped in the natural food production and hatchery operations of a privately-owned milkfish hatchery in Dumangas, Iloilo last February 2022.</p> <p>To fully equip the graduates with sufficient technical knowledge, they were allowed to undergo hands-on training on feed mill operations and management at the Department's Feed Mill Facility in Iloilo. The one-month training involved familiarizing the equipment, feed formulation, feed production, and others. All Manpower Development graduates are currently undergoing the said training from March to October 2022. This training will guide them when assigned to a new feed mill facility in the future.</p>		

#### 4. PROPOSED FUTURE ACTIVITIES FOR THE YEAR 2023

##### 4.1 Planning of the Project Activities

Project/Activity Title	Duration	Remarks
<p><b><i>Fry Sufficiency Program</i></b></p> <p>Regarding the assessment of the suitability of the pre-identified project sites by the concerned DA-BFAR Regional Office, the following will be done in 2023.</p> <ul style="list-style-type: none"> <li>- The ocular inspection would resume for the San Dionisio, Iloilo and Batad, Iloilo sites</li> <li>- Another ocular inspection will be conducted at the proposed site of Barotac Viejo, Iloilo, in case the local government unit fails to secure adequate land area in the previously selected site</li> </ul> <p>Following this, AQD will once again create a feasibility report for submission to the local government unit and regional offices of BFAR.</p> <p>As for the revival of abandoned hatcheries, monitoring the rehabilitation activities will continue the following year to ensure sustainable operation.</p>	2023	
<p><b><i>Development of cost-efficient feeds</i></b></p>		
<p><b><i>Oplan Balik Sugpo (Operation Black Tiger Shrimp Revival)</i></b></p> <p>AQD will continue the production of high-quality <i>Penaeus monodon</i> postlarvae using enhanced biosecurity measures in the hatchery, which will be improved through testing the best health practices in the hatchery. As for the grow-out, the demonstration and verification run of the <i>P. monodon</i> culture in ponds using enhanced biosecurity measures. In 2023, the field testing will expand to collaborators from the government (BFAR) and private farms.</p>		
<p><b><i>In-situ (onsite) training courses and accelerated technology transfer</i></b></p> <p>In 2023, AQD is planning to collaborate with government agencies such as BFAR and NFRDI to conduct training courses (techno-caravan) around the country, particularly in areas where the aquaculture industry has potential.</p>		
<p><b><i>Manpower Development</i></b></p> <p>AQD will be extending its search for potential technical experts around the country to operate various aquaculture systems nationwide. In 2023, another search for a new set of Manpower Development batch for training will be conducted.</p>		

##### 4.2 Expected Outcomes/Outputs

The collaborative projects with Philippine Government agencies aim to address the pressing concerns brought forward by AQD's host government, the Philippines. It is crucial for the Department to address the needs of the country's fish farmers and industry players. These technologies will then be extended to its partners in Southeast Asia. This program is expected to become the medium that would bridge the gap between the sciences and the stakeholders. Through these collaborations, DA-BFAR, NFRDI, and other government agencies will assist AQD in transferring adoptable and sustainable technologies to the industry and stakeholders. Fish farmers are expected to benefit from the projects as they will immediately reap the benefits of the research done by the Department.

**5. PROJECT IN RELEVANCE TO THE PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR FOOD SECURITY FOR THE ASEAN REGION TOWARDS 2030**





## PROJECT DOCUMENT

**Program Categories:** Departmental Programs

**Project Title:** Promotion on Strengthening of SEAFDEC Visibility and Enhancing Human Capacity Building

**Responsible Department:** Training Department

**Total Duration:** 2022

**Funding Sources:** Training Department

**Estimated Budget for 2023:** USD 70,000

### 1. INTRODUCTION

The Information Strategies for Enhancing SEAFDEC Visibility and Communication which was endorsed by the SEAFDEC Council in 2006 are used as a common policy framework for information-related activities of the organization. In 2009, the strategies were revised and simplified. However, they still emphasize raising SEAFDEC image at international, regional, national levels, and enhancing communication and information sharing both within SEAFDEC and with Member and non-Member Countries, other international/regional organizations, and the public.

In addition, the Plan of Action on Sustainable Fisheries for Food Security Towards 2030 which was adopted in ASEAN-SEAFDEC Regional Meeting on the Resolution and Plan of Action for ASEAN Region Toward 2030 which hold in September 2019, Bangkok, Thailand emphasize the enhancement of regional fishery information systems and mechanisms to facilitate sharing, exchange, and compilation of information.

Following the information strategy of SEAFDEC and the Plan of Action on Sustainable Fisheries for Food Security Towards 2030 through promotion of SEAFDEC role, implementation activities, visibility and image to Member Countries, other international institutions and the public including enhancing capacity building on fishery field for relevant agencies and stakeholder, SEAFDEC/TD propose and implement the project of “Promotion on strengthening of SEAFDEC visibility and enhancing human capacity building” under Departmental program.

### 2. PROJECT

#### 2.1 Goal/Overall Objectives

SEAFDEC’s role, responsibility, visibility, and image are promoted and enhanced among Member Countries, other international institutions, and the public.

#### 2.2 Outcomes and Expected Outputs

##### Outcomes

- Strengthening of SEAFDEC and Department’s visibility and image
- Increasing of understanding, knowledge, and experience for relevant agencies and stakeholder in fisheries-related issues

##### Expected Outputs

- Understanding of the role and SEAFDEC/Department’s activities
- Delivery of fisheries information to stakeholders and the public
- Hub of fishery information and capacity building on the fisheries-related issues in the region
- Building up human capacity on the fisheries-related issues

#### 2.3 Project Description/Framework for Activities with SEAFDEC

##### *Activity 1: Promotion and Enhancement of SEAFDEC Visibility and Image*

SEAFDEC’s role and implementing activities as knowledge on fisheries information in collaboration with other SEAFDEC Departments will be promoted and enhanced among other international institutions and the public via national and international exhibitions as required and other suitable channels.

*Activity 2: Production of Information Materials*

Hard and soft copies, electronic multimedia, fisheries information packages, etc. on fisheries information knowledge and also implementation activities will be produced. These information materials will be promoted and delivered to the public to enhance SEAFDEC visibility and image through fisheries information knowledge.

*Activity 3: Management Information System*

The Training Department will cooperate with other departments and other relevant agencies in sharing information on fisheries issues via TD media channel. Moreover, strengthening of TD information and network such as TD website and social media will be updated and developed.

*Activity 4: Human capacity building*

For SEAFDEC staff

The knowledge, skill, and experience of SEAFDEC staff will be enhanced and developed by relevant ICT training programs and others with outside institutions.

For fishery stakeholder and public

The tailor-made training courses will be conducted based on the need and requirements of the partners and donors. The programs will be designed and planned out by the consultation and agreement of TD and training partners. This includes the choice of subjects, duration, location, and the target participant. Courses/programs can be conducted by combining existing training programs or new topics and programs.

**3. PROGRESS/ACHIEVEMENTS OF ACTIVITIES IN THE YEAR 2022**

Project Activity Title	Duration	Remarks
1) <i>Promotion and Enhancement of SEAFDEC Visibility and Image</i> - National Fishery Exhibition (Pramong Nomkloa) - The 7 <sup>th</sup> Marine Science Conference	1–10 July 22 5–7 September 22	
2) <i>Production of Information Materials</i> - Thirty-one (31) articles of fisheries knowledge including Fishery Management, Fishing Technology, Combating IUU Fishing, Fisheries Resources, and relevant fishing activities were presented to publish at SEAFDEC Training Department Facebook page via <a href="https://www.facebook.com/SEAFDECTrainingDepartment">https://www.facebook.com/SEAFDECTrainingDepartment</a> and TD website at <a href="http://www.seafdec.org">www.seafdec.org</a>	Jan–Dec 22	
- Four (4) VDO clips related to fisheries field were produced and published on TD Youtube channel at <a href="https://www.youtube.com/channel/UC-LMmTRM-mLV3FZScO1gUQg">https://www.youtube.com/channel/UC-LMmTRM-mLV3FZScO1gUQg</a>	Jan–Dec 22	
3) <i>Management Information System</i> - Updating of TD website ( <a href="http://www.seafdec.or.th">www.seafdec.or.th</a> )	Jan–Dec 22	
- Development and uploaded information of TD repository ( <a href="http://repository.seafdec.or.th">http://repository.seafdec.or.th</a> )	Jan–Dec 22	
4) <i>Human capacity building</i>		
4.1) Human capacity building for national		
- Write shop on Fisheries Management Tools for EAFM	14–18 June 22	
- Environmental Justice Foundation (EJF)	25 July 22	
- Internship Student of Prince of Songkla University	27 Apr. – 21 June 22	
- Internship Student of Burapha University	15 Nov. 22–15 Mar. 23	
4.2) Tailor made training		
- Online Training on Fish Handling Techniques Onboard Fishing Vessels schedule	10–12 May 2022	
- Lead EAFM for Directors of Inland Fisheries Research and Development Center	25 May 22	
- EAFM for Mekong River Fisheries Community	31 Oct.– 4 Nov. 22	
- Hand Drawing Inland Fishing Gears	14–18 Nov. 22	

Project Activity Title	Duration	Remarks
4.3) SEAFDEC Staff		
- In-house Training on the Introduction of Policies and Human Resources Management	7 April 22	
- In-house Training on Basic Fire Fighting	10 Jun. 22	
- In-house Training on First Aid and CPR (Cardiopulmonary Resuscitation)	27 Jul. 22	

#### 4. PROPOSED FUTURE ACTIVITIES FOR THE YEAR 2023

##### 4.1 Planning of the Project Activities

Project/Activity Title	Duration	Remarks
<p><i>Activity 1: Promotion and Enhancement of SEAFDEC Visibility and Image</i></p> <p>National and international exhibitions as required will be organized to promote and enhance SEAFDEC's role, visibility, and image through present knowledge on fisheries information in collaboration with other SEAFDEC Departments.</p>	Jan–Dec	
<p><i>Activity 2: Production of Information Materials</i></p> <p>Fisheries information package promote awareness understanding for fishermen, stakeholders, and public will be produced. The package will include books, brochures, VDO, and new media, etc.</p>	Jan–Dec	
<p><i>Activity 3: Management Information System</i></p> <p>The management of information system will be conducted and updated such as database, TD website and social media through cooperation with other Departments and partners to share information on fisheries issues and relevant issues.</p>	Jan–Dec	
<p><i>Activity 4: Enhancing on human capacity building</i></p>		
- The knowledge, skill, and experience of SEAFDEC staff will be enhanced and developed by the relevant ICT training program and so on with outside institutions.	Jan–Dec	
- The tailor-made training courses will be conducted based on the need and requirements from the partners and donors. The programs will be designed and planned out by the consultation and agreement of TD and training partners. This includes the choice of subjects, duration, location, and the target participant. Courses/programs can be conducted by combining existing training programs or new topics and programs.	Jan–Dec	

##### 4.2 Expected Outcomes/Outputs

- Strengthening of SEAFDEC and Departments visibility and image
- Understanding on role and SEAFDEC/Departments activities on public
- Delivery and enhance knowledge through capacity building of fisheries issues to stakeholders and the public

## PROJECT DOCUMENT

**Program Categories:** Departmental Program

**Project Title:** Improving of Fisheries Technology and Reduction of the Impact from Fishing

**Responsible Department:** Training Department

**Total Duration:** 2023–2024

**Funding Sources:** Training Department

**Estimated Budget for 2023:**

### 1. INTRODUCTION

Over the years, TD has initiated Departmental Programs aims to enhance capacity of technical staff SEAFDEC Member Countries and the Departments on the enhancing of sustainable fisheries resources and reduction on the negative impact of marine environment through the promotion of responsible fishing technologies and practices, improvement deck machineries and catch handling onboard fishing vessels, and strengthen fisheries governance. This program applies the holistic approach, and implements in collaboration with the Department of Fisheries Thailand and other government agencies such as Department of Coastal Marine and Resources, Fish Marketing Organization of Thailand, Fisheries Academies, Institutes and Universities of Thailand, local fisheries association and private sectors. The activities are included with technical assistance, research and development, sea trials, and demonstrations and human resources development.

### 2. PROJECT

#### 2.1 Goal /Overall Objectives

Enhance capacity for technical staff of SEAFDEC Member Countries and the Training Department on fishing technology, marine engineering and fisheries management to support project implementation of SEAFDEC Training Department

#### 2.2 Outcomes and Expected Outputs

1. Appropriate fishing technologies and marine engineering to support sustainable fisheries by mitigating impacts of fisheries resources and marine ecosystem
2. Baseline information of the fisheries resources, marine environmental, social well-being and livelihood to support sustainable fisheries
3. Fisheries information and database support sustainable fisheries

#### 2.3 Project Description/Framework

*Activity 1: Research and promotion of appropriate technologies and practices of fishing and marine engineering*

The activities are emphasized on the improvement of appropriate fishing and marine engineering technology and practices including the energy saving, safety to enhance sustainable marine fisheries resource utilization. Introducing fishing deck machineries to reduce manpower, improve fishing gear according to fishing method modification and study on economic impact by improvement of fishing and marine engineering technology and practices is multidisciplinary research applied for these activities. Human resource development by improvement of training material of fishing technology subject for junior researcher and extension officers of Department of Fisheries, and undergraduate student of Thailand. This is included with the technical support on monitoring and survey on fishing gear, fishing boats to support Fisheries Management of Thailand and other specific purposes are also major sub activities.

*Activity 2: Study on the impact of fisheries resources, marine environmental, social well-being and livelihood from fishing activities*

The activities are emphasized on multidisciplinary research to investigate impact of habitat and ecosystem focus on fisheries resources, oceanography and marine environment from fishing operations. The study of the environmental impact of marine debris and microplastic is one of the topics conducted under this activity.

*Activity 3: Database for fisheries management*

SEAFDEC Training Department in collaboration with the Department of Fisheries, Thailand has developed a database system for managing data from the cruise resource surveys. The activities aimed to harmonize data collection for the research cruise survey on fisheries resources between the Department of Fisheries, Thailand and SEAFDEC/TD. In addition, SEAFDEC has a series of data collected from coastal fisheries projects. This data has never been developed as a database system for socioeconomic data management.

**3. PROGRESS/ACHIEVEMENTS OF ACTIVITIES IN THE YEAR 2022**

Project/Activity Title	Duration	Remarks
<b>Activity 1</b> Research and promotion of appropriate technologies and practices of fishing and marine engineering		
<p>1.1 Advanced technology to support fisheries research survey</p> <p>The process of content extraction for developing the handbook of the Scientific Echo Sounder EK 80 for M.V.SEAFFDEC 2 is ongoing. It intends to provide guidance on how to simply use and operate the Scientific Echo Sounder EK 80 for the officers in charge or operators. Due to an ongoing process to obtain updated information and lesson learned by the researchers from the SEAFDEC fisheries resource survey activities, the handbook is expected to complete in the end of 2023.</p>	2022–2023	
<p>1.2 Improve fishing technology reference and monitoring on fishing technology to support fisheries management of Thailand and other specific purpose</p> <p>a. <i>Reference documents to be used for the Inland Fisheries Training Course for the Department of Fisheries, Thailand</i> is on-going.</p> <p>b. <i>Basic Knowledge of Fishing Gear: Gillnet (in Thai)</i></p> <p>The document expected to complete and online dissemination through SEAFDEC website in December 2022</p> <p>c. <i>Catalog of the bottom trawl net designs of Thailand</i></p> <p>The document expected to complete and online dissemination through SEAFDEC website in December 2022</p>	2021–2022	
<b>Activity 2</b> Study on the impact on fisheries resources, marine environmental, social well-being and livelihood from fishing activities.		
<p>2.1. Research and study on the status and impact of fisheries oceanography and marine environment from fishing operations</p> <p>a. <i>Study the type and amount of debris in the surface layer of Chao Phraya River that flows into the Gulf of Thailand</i></p> <p>Data on the floating marine debris at the mouth of Chao Phraya has been recorded twice a week. The period for collection is one year.</p> <p>Recently, data were collected completely for 12 months and the model to assess the amount of floating debris runoff from Chao Phraya river was determined in collaboration with Dr. Toshihede Kitakado, lecturer from Tokyo University of Marine Science &amp; Technology. However, the analysis of data and publish research paper have been postponed to 2026 because researcher, who took responsibility for this research, received a scholarship to study in Japan for three years during October 2022–September 2025. The expected date to complete research is extended to end of 2024</p>	2022–2024	

Project/Activity Title	Duration	Remarks
<b>Activity 3: Database for fisheries management.</b>		
3.1 Development of database system to support fisheries socio-economic and small-scale fisheries  The activities complete with the proposal document (with timeframe) The meeting on development of database system for small-scale fisheries were organized on 27 April and 10 May 2022 attended by fisheries officers from Department of Fisheries and SEAFDEC/TD staff to acknowledge the existing database and apply to small-scale fisheries data with appropriate statistics/indicators. The database of small-scale fisheries focuses on socio-economic data using a set of data collected from Krabi Province as a pilot case which is in the process of designing a database system. The activity is on developing of database system.	2022–2023	

#### 4. PROPOSED FUTURE ACTIVITIES FOR THE YEAR 2023

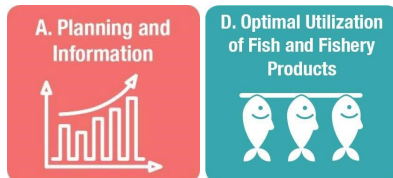
##### 4.1 Planning of the Project Activities

Project/Activity Title	Duration	Remarks
Activity 1 Research and promotion of appropriate technologies and practices of fishing and marine engineering		
1.1 Advanced technology to support fisheries research survey a. <i>the draft of Handbook of the Scientific Echo Sounder EK 80 will be finished in third quarter and final version will be completed in fourth quarter</i>	2022–2023	
1.2 Improve fishing technology reference and monitoring on fishing technology to support fisheries management of Thailand and other specific purpose a. <i>Reference documents to be used for the Inland Fisheries Training Course for the Department of Fisheries, Thailand</i>	2022–2023	
Activity 2 Study on the impact on fisheries resources, marine environmental, social well-being and livelihood from fishing activities.		
2.1. Research and study on the status and impact of fisheries oceanography and marine environment from fishing operations a. <i>Study the type and amount of debris in the surface layer of Chao Phraya River that flows into the Gulf of Thailand</i> b. <i>Preliminary study on the End of Life Fishing Gear (EOLFG) The desk study will be reviewed as the secondary data as well as interviewing the stakeholders to obtain information on the EOLFG in Thailand</i>	2022–2026	a. Request to postpone the completion of publication to 2026 because the researcher in-charge is taking a study leave in Japan for three years during October 2022 to September 2025.
Activity 3: Database for fisheries management.		
3.1 Development of database system to support fisheries socio-economic and small-scale fisheries a. <i>The database system of small-scale fisheries: a pilot case of Krabi Province, will be developed and trial by users, checking some errors and improving as well as implementing the database system. The database system of small-scale fisheries could be promoted to the Department of Fisheries.</i>	2022–2023	

#### 4.2 Expected Outcomes/Outputs

1. Handbook of the Scientific Echo Sounder EK 80 for M.V. SEAFDEC 2
2. Documents for the Inland Fisheries Training Course for the Department of Fisheries, Thailand
3. The study report on the type and amount of debris in the surface layer of the Chao Phraya River that flows into the Gulf of Thailand by visual observation method
4. Database for fisheries management of SEAFDEC Training Department
5. Preliminary Study on the End of Life Fishing Gear (EOLFG)

#### 5. PROJECT IN RELEVANCE TO THE PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR FOOD SECURITY FOR THE ASEAN REGION TOWARDS 2030



## PROJECT DOCUMENT

**Program Categories:** Departmental Programs

**Project Title:** USAID Sustainable Fish Asia Local Capacity Development Activity

**Responsible Department:** RTI International in collaboration with Training Department

**Total Duration:** 2020–2022

**Funding Sources:** USAID Regional Development Mission for Asia

### 1. INTRODUCTION

The USAID Regional Development Mission for Asia (RDMA) supported regional organizations working to protect biodiversity from illegal, unreported, and unregulated (IUU) fishing and implemented sustainable fisheries management and practices including the Asia-Pacific region, *i.e.* the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF) and the Southeast Asian Fisheries Development Center (SEAFDEC). Sustainable Fish Asia (SUFIA) Local Capacity Development (LCD) Activity was a two-year USAID-funded project conducted by RTI International. This project aimed to strengthen their institutional capacity to become leaders in driving the anti-IUU fishing agenda, improve the management of marine biodiversity and fisheries resources in the Indo-Pacific region by reducing unsustainable and IUU fishing, as well as understand and effectively engage the private sector – to reduce IUU fishing and build networks of government, private sector, and civil society entities working to preserve marine biodiversity in the Asia-Pacific region. This report focuses mainly on the activities supported to SEAFDEC

USAID supports SEAFDEC’s institutional development, through the existing Memorandum of Understanding (MOU) signed between SEAFDEC and USAID/RDMA on 16 June 2014, as this would enhance SEAFDEC’s specific regional mandates and roles on sustainable fisheries management and marine biodiversity conservation in Southeast Asia region.

### 2. PROJECT

#### 2.1 Goal/Overall Objectives

The USAID SUFIA Local Capacity Development Activity’s main goal was to successfully provide services to ensure organizational support, institutional capacity building, co-creation, and private sector engagement activities to regional fisheries organizations, namely SEAFDEC/Training Department (TD) and CTI-CFF. The main objectives of the SUFIA LCD Activity were to: (1) conduct organizational capacity assessments and provide capacity development services for SEAFDEC/TD and CTI-CFF (Task 1), and (2) lead a private sector landscape assessment and brokering investment opportunities for the fishing industry businesses to invest in our partner organizations and sustainable fishing in the Asia-Pacific region (Task 2).

#### 2.2 Outcomes and Outputs

The SUFIA LCD Activity expected outcomes were to strengthen SEAFDEC’s leadership and capacity as a key regional institution for improved fisheries management, improve/strengthen regional collaboration and multi-stakeholder platforms for improved management, and increase the private sector’s engagements in sustainable fishing practices, including fair labor.

#### 2.3 Project Description/Framework for Activities with SEAFDEC (covering the total duration of the project)

The project included the following activities during its implementation period:

##### Task 1:

Activity 1: In partnership with SEAFDEC and other stakeholders, conducted an initial organizational capacity assessment of SEAFDEC/TD to understand their institutional capacity development needs based on various Organizational Capacity Assessment (OCA) tools available, as well as any other areas of strengths and weaknesses identified by SEAFDEC/TD

Activity 2: The development of SEAFDEC/TD’s Capacity Development Action Plan (C-DAP)



- Activity 3: The evaluation of SEAFDEC/TD's capacity to fully develop activities with milestones. The identification of support needed, and gaps identified in the Capacity Development Action Plan (C-DAP), with notes on improvements and continued gaps.
- Activity 4: Re-assessment of support, and the final report of SEAFDEC/TD's Organizational Capacity Development Plan
- Activity 5: Implementation of capacity development activities inclusive of gender equality and social inclusion (GESI) considerations
- Activity 6: Facilitation of the Co-Creation process for Public International Organization (PIO) Grant Proposal Development

**Task 2:**

- Activity 1: Conduct a Private Sector Landscape Assessment (PSLA) Survey and develop a PSLA Report
- Activity 2: Guide SEAFDEC to develop concept notes for private sector engagement

**Cross-cutting:**

Development of Communication and Outreach Products generated from the above-mentioned tasks.

**3. PROGRESS/ACHIEVEMENTS OF ACTIVITIES IN 2021-2022**

Project/Activity Title	Duration	Remarks
<b>Task 1 Activities: Organizational Capacity Assessment and Development Services</b>		
Administered and facilitated the implementation of the Capacity Strengthening Initiative subaward to SEAFDEC to fund their self-defined capacity development needs (as per C-DAP priorities).	September 2021– June 2022	Completed
Supported and provided services for the implementation of the SEAFDEC C-DAP inclusive of GESI (GIDAP), to meet their organizational capacity improvement targets. This included the participation of SEAFDEC Technical Departments and Member Countries.	September 2021– June 2022	Completed
Conducted endpoint Organizational Capacity Assessments for SEAFDEC using various OCA tools including NUPAS to measure progress along the three areas of capacity development: (1) compliance, (2) performance, and (3) viability.	June-July 2022	Completed
Facilitated a co-creation process with SEAFDEC to develop a Public International Organization (PIO) grant proposal for submission to USAID RDMA.	June 2021-Jan 2022	Completed
In collaboration with SEAFDEC, organized regional events on major technical topics and/or emerging issues inclusive of GESI, and/or develop a multi-stakeholder platform for cooperative action plans to increase adoption of sustainable fisheries practices or improve regional collaboration. This will include the participation of SEAFDEC Technical Departments and member countries.	September 2021– June 2022	Completed
Conducted Partner Understanding, Learning, and Satisfaction Evaluation (PULSE) surveys among SEAFDEC staff to determine the satisfaction level of SEAFDEC with RTI services and other needs.	December 2021– June 2022	Completed
<b>Task 2 Activities: Development of Private Sector Engagement Activities</b>		
Developed formal private sector partnerships, including securing financial investments, for the private sector engagement activities (from the development concept notes) for SEAFDEC.	September 2021 – June 2022	
In collaboration with SEAFDEC, developed communication or learning products for the private sector (based on the partnership or activities in the first bullet).	October 2021 – June 2022	completed
Provided SEAFDEC with advisory and capacity-building services specifically for how to engage the private sector for the design and implementation of the PIO grant.	October 2021 – June 2022	Completed
Organized discussion and coaching sessions, coupled with a PSE Resource Package and knowledge transfer session to SEAFDEC before the end of SUFIA.	June 2022	Completed

Project/Activity Title	Duration	Remarks
<b><i>Project Management Activities</i></b>		
In collaboration with SEAFDEC, developed project communications and legacy products to document processes, success stories, and lessons learned which could be used by SEAFDEC and Member Countries.	October 2021–July 2022	Completed
SUFIA LCD Activity Close Out Event	July 2022	



**PROJECT DOCUMENT  
ACHIEVEMENTS FOR THE YEAR 2022**

Project id: 201801010			
<b>Program Categories:</b>	Other Programs		
<b>Project Title:</b>	Implementing the Lower Mekong Fish Passage Initiative in Cambodia, Thailand, and Viet Nam		
<b>Program Strategy No.:</b>	I	<b>Total Duration:</b>	2018–2022
<b>Lead Department:</b>	Training Department	<b>Lead Country:</b>	Thailand
<b>Donor/Sponsor:</b>	USAID - DOI	<b>Total Donor Budget:</b>	USD 743,500
<b>Project Partner:</b>	None	<b>Budget for 2023:</b>	-
<b>Project leader:</b>	Mr. Suthipong Thanasansakorn (TD)	<b>Involved Country</b>	Cambodia, Thailand, Viet Nam, Lao PDR

## 1. INTRODUCTION/BACKGROUND

Freshwater fish provide the primary source of protein for more than 60 million residents of the Lower Mekong. Much of this resource derives not from the main stem of the Mekong River, but from the thousands of far smaller water bodies that traverse the region. Smaller water bodies are essential for fisheries production, providing breeding and nursery habitat for a large proportion of artisanal and commercial fisheries. These water bodies are becoming increasingly fragmented by weirs, dikes, dams, road prisms, and associated water management structures, mostly associated with agricultural development and local flood control activities. These development activities are providing productivity boosts for rice farmers, but are impacting fisheries production, and adversely impacting the communities reliant upon them for income and nutrition. Based on the strategy I) Securing the sustainability of fisheries to contribute to food security, poverty alleviation, and livelihood of people in the region; referred to the Strategy II) Supporting the sustainable growth of aquaculture to complement fisheries and contribute to food security, poverty alleviation, and livelihood of people in the region; Strategy III) Ensuring the food safety and quality of fish and fishery products for the Southeast Asian region, and VI) Empowering SEAFDEC to strengthen its roles in the region and to improve its services to Member Countries.

The November 2016 SIM-sponsored Lower Mekong Fish Passage Conference in Vientiane, Lao PDR focused on the challenges of addressing fish passage at planned Mekong River and major tributary hydropower facilities across the region (Myanmar, Viet Nam, and Cambodia). However, a consistent theme voiced by the more than 160 conference participants from 15 nations was the need to expand the inventory, restoration prioritization, and restoration of the thousands of existing barriers that fragment fish populations and, by extension, threaten local food security, across the Region. There was also a demonstrated need to establish fish passage demonstration sites in other countries to build regional momentum that can help to recover fisheries productivity on a broader catchment scale.

Established techniques already exist to restore passage at many of these barriers, which were largely developed in Lao PDR. However, government agencies throughout the region have the very limited technical capacity to conduct many of these activities. This Project supports the broader SIM effort to transfer knowledge to five Lower Mekong nations (Burma, Cambodia, Lao PDR, Viet Nam, and Thailand) regarding fish passage barrier inventory and prioritization processes, low head fish passage design and construction, and post-construction fish passage facility monitoring.

On August 15, 2013, DOI-International Technical Assistance Program (ITAP) entered into an Interagency Agreement (IAA) with USAID/RDMA, the stated purpose of which is for DOI-ITAP to “implement technical assistance activities that support Presidential Initiatives in global climate change (adaptation, clean energy, sustainable landscapes, and low emission development strategy), food security, and global health. DOI may also work in priority program areas of biodiversity, science and technology exchange, public-private partnerships, disaster assistance and risk reduction, economic growth, and good governance.”

DOI is a world leader in the management of natural resources. With its depth of applied knowledge, through the ITAP program, DOI provides technical assistance to countries around the globe in the areas of protected area management and conservation, fisheries, and water resource management. At the request of USAID/RDMA, DOI's technical assistance enables the government-to-government capacity building to SEAFDEC (an intergovernmental organization) and the ASEAN Member States (AMS).

The Southeast Asian Fisheries Development Center (SEAFDEC) is a non-profit intergovernmental organization established in 1967 to promote sustainable fisheries development in the Southeast Asian region. SEAFDEC currently comprises 11 Member Countries, namely: Brunei Darussalam, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam. For almost 50 years SEAFDEC has been implementing activities to support its Member Countries in Southeast Asia as follows; 1) exploration of marine fishery resources and their utilization, 2) conservation and management of aquatic species under international concern, 3) sustainable aquaculture development, 4) fisheries post-harvest and safety of fish and fishery products, 5) promoting management for sustainable fisheries and addressing emerging international fisheries-related issues.

## **2. PROJECT**

### **2.1 Goal/Overall Objectives**

The objectives of the project are to build capacity within SEAFDEC and Lower Mekong nations to construct and maintain low-head fish passes to restore fisheries connectivity at irrigation facilities, weirs, and road prisms.

The four (4) specific objectives are the following:

- Objective 1: Provide technical and administrative oversight of Field Fish Passage Barrier Inventories conducted by Ministry personnel in Cambodia, Thailand, and Viet Nam.
- Objective 2: Design and Construct One (1) Demonstration Fish Pass in Cambodia, One (1) Demonstration Fish Pass in Thailand, and One (1) Demonstration Fish Pass in Viet Nam.
- Objective 3: Project Administration and Coordination, including providing a single point of contact ("project officer") to DOI, and documenting project activities in SEAFDEC publications and other media.
- Objective 4: Design and Construct Three (3) Additional Demonstration Fish Pass in Cambodia.

### **2.2 Expected Outcomes and Outputs:**

The ultimate outcomes of the project are:

1. Appropriate construction site selection for demonstration fish passage in Cambodia, Thailand, and Viet Nam
2. Demonstration of fish passage construction in Cambodia, Thailand, and Viet Nam
3. Distribution of demonstration fish passage technical information

The major project outputs include:

1. Report of fish passage barrier inventories in Cambodia, Thailand, and Viet Nam.
2. Enhance the capacity of participants on GIS approaches to fish passage barrier inventory and Engineering design and construction procedures for Low-head fish passage.
3. Dissemination of project activities document in SEAFDEC publications and other media

### **2.3 Project Description/Framework**

#### **Activity 1: Coordinate Field Fish Passage Barrier Inventories in Cambodia, Thailand, and Viet Nam.**

##### **Sub-activity:**

- 1.1 Support Cambodia Inland Fisheries Research and Development Institute (IFRDI) and Viet Nam Directorate of Fisheries (VDOF) vehicle maintenance or rental/fuel/lodging/ DSA/field equipment, as needed.
- 1.2 Participate in training workshops.
- 1.3 Participate in on-ground inventories in each country.

**Activity 2: Construct One (1) Demonstration fish pass in Cambodia, One (1) Demonstration Fish Pass in Thailand, and One (1) Demonstration Fish Pass in Viet Nam.**

**Sub-activity:**

- 2.1 In collaboration with DOI and Charles Stuart University (CSU), develop appropriate technical specifications that suit the swimming ability of local species and hydrology of the selected sites.
- 2.2 Host and provide space for a workshop between DOI, CSU, and all partner ministries on Engineering Design and Construction Procedures for Low-Head Fish Passes.
- 2.3 Host and provide space for a workshop between DOI, CSU, and all partner ministries on GIS Approaches to Fish Passage Barrier Inventory.
- 2.4 Using final technical specifications, site locations, and funding levels provided by DOI, identify and contract with a qualified contractor in each nation to conduct all site surveys and construction activities.
- 2.5 Respond to requests from all relevant government agencies with environmental or other permitting responsibilities and meet all relevant regulatory requirements.
- 2.6 Provide periodic oversight of all phases of construction and report progress back to DOI and CSU.
- 2.7 In collaboration with DOI, CSU and the fishway construction contractor, ensure compliance with technical specifications during fishway construction.
- 2.8 Complete the three fish passes per the timelines and budget identified in Articles 5 and 6 of this Project.
- 2.9 In collaboration with DOI and CSU, perform a hydraulic and ecological commissioning to ensure the fishway performs to desired standards.
- 2.10 Coordinate with relevant Ministries to document the final ownership and operations and maintenance plans for the fish passes.

**Activity 3: Administration and Coordination**

**Sub-activity:**

- 3.1 Engage a Project Officer to work with points of contact in all partner Ministries and any selected contractors in each nation.
- 3.2 Document project activities in SEAFDEC publications and other media.
- 3.3 Provide computing equipment and consumables as needed to Project Officer.
- 3.4 Provide financial support to the appropriate contractor to construct a model fishway for educational use.

**Activity 4: Design and Construct Three (3) Additional Demonstration Fish Pass in Cambodia**

**Sub-activity:**

- 4.1 Using final technical specifications, site locations, and funding levels provided by DOI, contract with a qualified contractor based on recommendations of IFReDI to conduct all site surveys and construction activities.
- 4.2 In collaboration with DOI and IFReDI respond to requests from all relevant government agencies with environmental or other permitting responsibilities and meet all relevant regulatory requirements.
- 4.3 Provide periodic oversight of all phases of construction, in-person if permissible under COVID-19 rules, otherwise through photographs, video, document review, other methods and inspection report from local fish passage construction committee, and report progress back to DOI.
- 4.4 In collaboration with DOI and the fishway construction contractor, ensure compliance with technical specifications during fishway construction, in-person if permissible under COVID-19 rules, otherwise through photographs, video, document review, other methods and inspection report from local fish passage construction committee, and report progress back to DOI.
- 4.5 Complete the three fish passes per the timelines and budget identified.
- 4.6 In collaboration with DOI, perform a hydraulic and ecological commissioning to ensure the fishway performs to desired standards, if permissible under COVID-19 rules.
- 4.7 Coordinate through IFReDI, with relevant Ministries to document the final ownership and operations and maintenance plans for the fish passes.

### 3. PROGRESS/ACHIEVEMENTS OF ACTIVITIES IN THE YEAR 2022

#### 3.1 Activities Achievements in the Year 2022

Project/Activity Title	Year	Activity
<p><b>Activity 1:</b> Coordinate Field Fish Passage Barrier Inventories assessment on the Lower Mekong Basin, Low-Head Fish passage Initiative for the participating countries and all Ministry:</p> <ul style="list-style-type: none"> <li>- The Inland Fisheries Research and Development Institute (IFeDI) of Cambodia</li> <li>- Department of Fisheries of Thailand and Sangkom Subdistrict Municipality Udon Thani Province, Thailand</li> <li>- Departments of Agriculture and Rural Development of Dak Lak and Kon Tum Provinces, Viet Nam</li> <li>- A fish passage expert from the U.S. Department of the Interior</li> <li>- Using final technical specifications, site locations, and funding levels provided by USAID/DOI, to identify and contract with a qualified contractor in each nation to conduct all site surveys and construction activities.</li> </ul>	2018–2019	Completed
<p><b>Activity 2:</b> Construct two (2) Demonstration fish pass in I fishway in Cambodia namely Stung Phasat Watershed, and One (1) Demonstration fish pass at Hauy Wang Chang Weir in Udon Thani, Thailand</p> <ul style="list-style-type: none"> <li>- Corporates with Inland fishery IFeDI of Cambodia, Department of Fisheries of Thailand, and Sangkom Subdistrict Municipality Udon Thani Province, Departments of Agriculture, and Rural Development of Dak Lak and Kon Tum Provinces, Viet Nam to provide the appropriate contractor to construct the demonstration of fishways based on design.</li> <li>- Responsible for providing the funding support for the installation cost of a fishway by mobilizing the budget from the SEAFDEC-USAID/DOI Project.</li> <li>- Implementing the Lower Mekong Fish Passage Initiative in Cambodia, Thailand, and Viet Nam, and Corporation for fishway installation based on the drawing design approved by USAID/DOI.</li> <li>- Demonstration of fishway construction inspection by SEAFDEC inspector, under the COVID-19 pandemic, harming the plan of construction, the Contract duration site was adjusted and extended to 30 September 2022 other methods such as photographs, video, document review, or other methods and inspection report from local fishway construction committee.</li> </ul>	<p>2020</p> <p>2021</p>	<p>Completed Two (2) demonstration fish passage, namely, Stung Pursat Watershed and Wang Chang Weir</p> <p>Completed one (1) fishways construction at Ea Tul weir Dac Lac Province, Viet Nam</p>

Project/Activity Title	Year	Activity
<p><b>Activity 3:</b> Administration and Coordination Sub-activity 3.2 Document project activities in SEAFDEC publications and other media:</p> <ul style="list-style-type: none"> <li>- The special report on Promoting the Installation of Fish Passage in Potential Barriers in the Lower Mekong River Basin was public on the SEAFDEC Fish for the People Volume 19, Number 2:2021 pages 38-43.</li> <li>- Disseminated the project activities in SEAFDEC publications and other media of 13 Technical Products of SIM Program as following the link: <a href="http://www.seafdec.or.th/SIM-closeout-event/index.html">http://www.seafdec.or.th/SIM-closeout-event/index.html</a></li> </ul>	2021	Completed
<p><b>Activity 4:</b> Design and Construct Three (3) Additional Demonstration Fish Pass in Cambodia:</p> <ul style="list-style-type: none"> <li>- Using final technical specifications, site locations, and funding levels provided by DOI, contract with a qualified contractor based on recommendations of IFRoDI to conduct all site surveys and construction activities.</li> <li>- Coordinate the field fish passage in Cambodia. The main activities implemented in 2022 with technical indications from the Australian Fish Passage Service to conduct the photographic survey activities for barriers assessment and selection for 3 fishways construction in Cambodia. The survey covered the area of Phnom Penh, Kampong Thom, Siem Reap, Banteay Meanchey, Battambang, and Pursat Province.</li> </ul>	2022	Completed the demonstration of three (3) Demonstration fish pass in Cambodia, namely Srei Snom, in Siem Reap Province. Romlech 1, and Romlech 2. Were constructed on each side of the Svay Don Keo spillway watershed, Pursat river, Pursat province, Cambodia
<p>Launching activities for the initiative of demonstration fishways in Cambodia:</p> <ul style="list-style-type: none"> <li>- The ceremony was attended by the Director General of the Fisheries Administration, Ministry of Agriculture, Forestry and Fisheries of Cambodia, the Secretary of State, Ministry of Agriculture, Forestry and Fisheries of Cambodia, Chief Executive Officer of ACIAR, Australia, Ambassador to Cambodia, Local authorities from Kampong Thom province and the Participants from Lao PDR and SEAFDEC Team.</li> </ul>	2022	Completed
<p>SEAFDEC and USAID/DOI organized the closed-out event on 18 October 2022 at the SEAFDEC/Training Department, Thailand by inviting the representatives from the participating countries related to Implementing the Lower Mekong Fish Passage Initiative to present the achievements in Cambodia, Thailand, and Viet Nam, LAO PDR, and the panel discussion composed:</p> <ul style="list-style-type: none"> <li>- Dr. Aaron Brownell, USAID/RDMA Regional Environment Office Director,</li> <li>- DOI-ITAP Team Lead</li> <li>- Asia, Pacific Islands &amp; the Arctic.</li> <li>- WWF, MRC, AIT</li> <li>- IFRoDI of Cambodia</li> </ul>	2022	Completed
Completed and End of The Project		Completed





#### **4. KEYS ACHIEVEMENTS OF THE PROJECT**

Built capacity within SEAFDEC and Lower Mekong nations to construct and maintain low-head fish passes to restore fisheries connectivity at irrigation facilities, weirs to facilitate the migration of fish to journey up and down in the lower Mekong basin in the initiative area of more than 100 species.

**PROJECT DOCUMENT  
ACHIEVEMENTS FOR YEAR 2022**

			Project id: 202001013
<b>Program Categories:</b>	Other Program		
<b>Project Title:</b>	Gender Dimension in the Value Chain of Small-scale Fisheries and Aquaculture in Southeast Asia		
<b>Program Strategy No:</b>	V	<b>Total Duration:</b>	2020–2022
<b>Lead Department:</b>	Training Department	<b>Lead Country:</b>	Thailand
<b>Donor/Sponsor:</b>	FAO/HQ	<b>Total Donor Budget:</b>	USD 98,000
<b>Project Partner:</b>	None	<b>Budget for 2023:</b>	-
<b>Project Leader:</b>	Ms. Jariya Sornkliang (TD)	<b>Project Participating Country</b>	Lao PDR, Myanmar, Philippines, and Thailand

## 1. INTRODUCTION/BACKGROUND

Gender issues are widely recognized in many workplaces including in fisheries. Especially in small-scale fisheries that were found that it can support livelihoods for women and men work together. Thus, the SSF Guidelines recommend that gender mainstreaming should be an integral part of all small-scale fisheries development strategies, considering different cultural contexts. Therefore, the Food and Agriculture Organization of the United Nations (FAO) and Southeast Asian Fisheries Development Center (SEAFDEC) have agreed to conduct the Gender Dimension in the Value Chain of Small-scale Fisheries and Aquaculture in Southeast Asia. This project aims to improve and strengthen gender dimension in selected small-scale fisheries and aquaculture values chain in Southeast Asia. The project is composed of four (4) main activities; 1. Site training for enumerators on gender concept and analysis and development of a data collection protocol, 2. Data collections, and analysis to collect the data on Gender Dimension in the Value Chain of Small-scale Fisheries, 3. Data validation workshops, preparation of a report on gender analysis and communication products and 4. Regional Workshop. The project sites compose of four (4) countries, as following: Lao PDR, Myanmar, Philippines, and Thailand. To initiate the data collecting, it needs to strengthen the capacities of gender concept and gender analysis to staff who work for fisheries management and development project, therefore the first activity aims to preparing for data collection training workshop for the staff to understand clearly of the gender concept and know how to collect data including the gender context in fishing communities.

This project will be conducted in small-scale fishing communities in the Southeast Asian countries where comprehensive gender studies are needed, specifically in Myanmar, Laos PDR, the Philippines, and Thailand. Therefore, this project will include the marine and inland waters where the project sites are categorized as A) marine capture fisheries in Philippines, B) mariculture in Thailand, C) inland aquaculture in Lao PDR, and D) inland capture fisheries in Myanmar.

## 2. PROJECT

### 2.1 Goal/Overall Objectives

The objectives of the project are to build capacity within SEAFDEC and Lower Mekong nations. The main goal of this project is to carry out the gender dimension in the value chain of small-scale fisheries and aquaculture in the Southeast Asian region in support of the SEAFDEC Gender Strategy and SSF Guidelines. The specific objectives are:

1. To identify gender issues and appropriate interventions in the fisheries value chain
2. To promote gender equality and equity in decision-making processes and organizations, fisheries technologies, and policies
3. To empower men and women in small-scale fishing communities in sustaining their livelihoods.

## 2.2 Expected Outcomes and Outputs

The outcome of the project is capacities of Fisheries officer of SEAFDEC Member Countries in Gender integration in Fisheries were strengthened

The major project outputs include:

1. Report on the gender dimension in the small-scale fisheries value chain that can be used as a basis for field interventions.
2. Communication product conveying good practices to promote gender in fisheries

## 2.3 Project activities

The four (4) mains activities under the project are:

1. Site training for enumerators on gender concept and analysis and development of a data collection protocol
2. Data collections and analysis to collect the data on Gender Dimension in the Value Chain of Small-scale Fisheries and Aquaculture
3. Data validation workshops to recheck and return data to all stakeholders
4. Preparation of report on gender analysis and communication product and Regional Workshop to a shared lesson learned to all SEAFDEC Member Countries

## 3. PROGRESS/ACHIEVEMENTS OF ACTIVITIES IN THE YEAR 2022

### 3.1 Activities Achievements in the Year 2022

Project/Activity Title	Duration	Remarks
<b>Activity 1:</b> Site training for enumerators on gender concept and analysis and development of a data collection protocol		completed in 2021
<b>Activity 2:</b> Data collection and analysis to collect the data on the gender dimension in the value chain of small-scale fisheries and aquaculture		completed in 2021
<b>Activity 3:</b> Data validation workshops to recheck and return the data to all stakeholders  <b>Philippines:</b> Data Validation Workshop on Gender Dimension in the Value Chain of Small-scale Marine Fisheries Quezon Province, Philippines The participants of the workshop are composed of 47 participants (21 females and 26 males)	15-17 March 2022	completed
<b>Activity 4:</b> Preparation of report communication product and regional workshop - Communication product on the daily life of Women and men in Fisheries and aquaculture - Develop Training Module on Gender Misting in Small-scale Fisheries - Report of Gender Dimension in the Value Chain of Small-scale Fisheries and Aquaculture in Southeast Asia - Regional Workshop on Gender Dimension in the Value Chain of Small-scale Fisheries and Aquaculture in Southeast Asia - Disseminate the result of the study on Gender Dimension in the Value Chain of Small-scale Fisheries and Aquaculture in Southeast Asia the 4 <sup>th</sup> World Small-Scale Fisheries Congress (4WSFC) in Japan - Disseminate the result of the study on Gender Dimension in the Value Chain of Small-scale Fisheries and Aquaculture in Southeast Asia in the workshop on toward implementing small-scale fisheries guideline for gender equitable and climate resilient food systems and livelihoods in Accra, Ghana	30 May 2022  9-14 May 2022  on 6 to 9 June 2022	completed

**4. PROJECT IN RELEVANCE TO THE PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR FOOD SECURITY FOR THE ASEAN REGION TOWARDS 2030**





**PROJECT DOCUMENT  
ACHIEVEMENTS FOR YEAR 2022  
AND  
PROPOSED ACTIVITY FOR YEAR 2023**

			Project id: 202001017
<b>Program Category:</b>	Other Program		
<b>Project Title:</b>	Implementing the Strategic Action Programme for the South China Sea and Gulf of Thailand		
<b>Program Strategy No.</b>	I	<b>Total Duration:</b>	2018–2023
<b>Lead Department:</b>	TD	<b>Lead Country:</b>	-
<b>Donor/Sponsor:</b>	UNEP/GEF	<b>Total Donor Budget:</b>	USD 15 million (with approximately USD 8 million co-financing)
<b>Project Partner (s):</b>	Environment ministries of participating countries	<b>Budget for 2023:</b>	USD 3.710 million (USD 1.286 million, SEAFDEC)
<b>Project Leader:</b>		<b>Project Participating Countries:</b>	Cambodia, China, Indonesia, Philippines, Thailand and Viet Nam

## 1. INTRODUCTION/BACKGROUND

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 richness and productivity of the South China Sea and associated environments are, however, seriously threatened by high population growth, pollution, overharvest and habitat modification, resulting in high rates of habitat loss and impairment of the regenerative capacities of living resources. The socio-economic impacts of environmental deterioration are significant for the economies of this region.

Recognising that actions were urgently needed to halt degradation of the environment of this marine basin, the countries of the region sought the assistance of UNEP and the Global Environment Facility (GEF) in preparing a Transboundary Diagnostic Analysis of the issues and problems and their societal root causes as the basis for development of a Strategic Action Programme (SAP) which was inter-governmentally adopted in 2008. The SAP established a series of objectives and priority cost actions for coastal habitats, land-based pollution management, and the over-exploitation of fish stocks in the South China Sea.

## 2. PROJECT

### 2.1 Goal/Overall Objectives

The overall goals of this project are:

- to maintain an environment at the regional level, in which collaboration and partnership in addressing environmental problems of the South China Sea, between all stakeholders, and at all levels is fostered and encouraged;
- to enhance the capacity of the participating governments to integrate environmental considerations into national development planning;
- to strengthen and expand the network of scientists, government officials and civil society established under the UNEP/GEF SCS Project.

The medium term objective of the project is to assist the governments of the participating countries in meeting the targets of the approved Strategic Action Programme through the provision of technical assistance as required in implementing national activities in support of the SAP; and the provision of strong regional co-ordination of the process of SAP implementation.

## 2.2 Expected Outcomes and Outputs:

### **Component 1. Reducing habitat degradation and loss *via* national and local reforms to achieve Strategic Action Programme targets for coastal habitat management in the South China Sea and Gulf of Thailand**

- Outcome 1.1 Appropriate forms of sustainable management established for 860,000 ha of mangrove
- Outcome 1.2 153,000 ha of coral reef at 82 priority sites managed sustainably, including a reduction in the decadal rate of degradation in live coral cover from 16 to 5%
- Outcome 1.3 Conservation, management and sustainable use of 25,900 ha of known seagrass area in the South China Sea and Gulf of Thailand
- Outcome 1.4 Integrated management of 783,900 ha of coastal wetland at 19 sites, including habitat restoration and protection strengthened at priority locations
- Outcome 1.5 National and regional level cooperation in tracking results of SAP actions for coastal habitat management

### **Component 2. Strengthening knowledge-based action planning for the management of coastal habitats and land-based pollution to reduce environmental degradation of the South China Sea and Gulf of Thailand**

- Outcome 2.1 Enhanced information-base for coastal habitat management, monitoring and action planning
- Outcome 2.2 Effective integration of regional science in the management of land-based pollution
- Outcome 2.3 Strengthened and harmonized national policies and laws, and supporting financial mechanism, for the management of habitats and land-based sources of pollution
- Outcome 2.4 Updated Total Economic Values of coastal habitats for use in development planning and decision-making and blue economy
- Outcome 2.5 Regionally appropriate tools and mechanisms to guide the development of sustainable management systems for coastal habitats and land-based pollution
- Outcome 2.6 Updated and Ministerially adopted Transboundary Diagnostic Analysis and Strategic Action Programme, including prioritization of national management actions to address climate variability and change

### **Component 3. Facilitating regional and national level integration and cooperation for implementation of the South China Sea and Gulf of Thailand Strategic Action Programme**

- Outcome 3.1 Regional and sub-regional co-operation in the integration of scientific knowledge and research outputs with management and policy making
- Outcome 3.2 Capacity for civil society and community organization participation in SAP implementation strengthened *via* operational partnership with GEF SGP
- Outcome 3.3 Relationships between central and local governments and the private sector strengthened and formalized
- Outcome 3.4 Revitalization of regional mechanisms for communications, knowledge exchange, and information and data management and sharing
- Outcome 3.5 Agreed arrangements for strengthened regional cooperation in the management of the marine and coastal environment of the South China Sea and Gulf of Thailand

The SCS SAP Project is executed by Southeast Asian Fisheries Development Center (SEAFDEC) and the United Nations Office of Project Services (UNOPS). SEAFDEC supports the execution of all regional activities and contracts, local staff, consultants and meeting participants travel, organization of all meetings, training and workshops and be responsible for the general operation and communication activities. UNOPS supports the recruitment of the regional project personnel and the engagement of implementing partners to execute activities at the national level.

## 2.3 Project Description/Framework

Project objective and Outcomes	Indicator	Baseline level	End-of-project target
<p><b>Objective</b> To assist countries in meeting the targets of the approved Strategic Action Programme (SAP) for the marine and coastal environment of the South China Sea (SCS) through implementation of the National Action Plans in support of the SAP, and strengthening regional co-ordination for SCS SAP implementation</p>			
<p><b>Component 1. Reducing habitat degradation and loss via national and local reforms to achieve Strategic Action Programme targets for coastal habitat management in the South China Sea</b></p>			
<p>Outcome 1.1 Appropriate forms of sustainable management established for 860,000 ha of mangrove</p>	Total area (ha) of mangrove designated as national park or protected area	<p>14 percent (246,122 ha) of mangrove area in SCS presently managed as national park or protected area</p> <p>13 percent (225,512 ha) of mangrove area in SCS presently managed as non-conversion, extractive resource use areas (fish, crabs etc.)</p>	1.1.1 Declaration of 57,400 ha of mangrove as National Parks and Protected Areas
	Status of endorsement of management plans	Legal frameworks to enable sustainable management of 56 percent of mangrove area in the SCS.	1.1.2 Designation and plans for the management of 166,600 ha of mangrove as non-conversion, sustainable use areas
	Total area (ha) of mangrove under management plan for sustainable use		
	Total area (ha) of presently unmanaged mangrove for which regulations/ordinances are adopted to enable sustainable management	Decadal rate of loss of total mangrove area from SCS is estimated at 16 percent	1.1.3 Reform of laws and regulations for the sustainable use of 602,800 ha of mangrove forest
	Total area (ha) of deforested mangrove land rehabilitated	Predominantly single-species mangrove reforestation initiatives over recent decades have compromised biodiversity and hazard risk reduction potential of rehabilitated mangrove areas	1.1.4 Replanting of 21,000 ha of deforested mangrove land
Measures of ecological & environmental indicators at	14 percent (246,122 ha) of mangrove area in SCS presently managed as	1.1.5 Biodiversity increased for 11,200 ha of mangrove forest via enrichment planting	



Project objective and Outcomes	Indicator	Baseline level	End-of-project target
	enrichment planting sites: forest cover; number and diversity of true mangrove species; and size and abundance of <i>Scylla</i> spp and <i>Sesarma</i> spp	national park or protected area	
	Status of mechanism established for monitoring mangrove management effectiveness and stress reduction	Management, ecological and environmental, and socio-economic indicator frameworks developed but not yet applied at priority sites	1.1.6 Established mechanism for monitoring management, ecological and socio-economic indicators [based on SAP results framework]
Outcome 1.2 110,430 ha of coral reef at 46 priority sites managed sustainably, including a reduction in the decadal rate of degradation in live coral cover from 16 to 5%	Status of management capacity, including: - Human resource capacity; - Facilities and equipment; and Sustainable financing	Priority coral reef sites in the SCS characterised as being sustainably management due to management capacity constraints	1.2.1 Management capacity built for 46 coral reef sites
	Status of institutional reform for multi-sectorial, community-based and multiple use coral reef management	Predominantly single sector (environment) and centralised approach to coral reef management	1.2.2 Management approaches and policy, legal & institutional reforms (integrated, community-based, multiple use) improved at 46 coral reef sites
	Number of management tools developed, adopted and applied at priority coral reef sites	Coral reef management largely focused on awareness raising with limited use of management tools to address threats to coral reef sites	1.2.3 Management tools (licensing and permit systems, seasonal closures, zoning) developed and utilized to address key threats at priority sites
	Status of mechanism established for monitoring coral reef management effectiveness and stress reduction	Management, ecological and environmental, and socio-economic indicator frameworks developed but not yet applied at priority sites	1.2.4 Established mechanism for the monitoring of management, ecological and socio-economic indicators at 46 sites
Outcome 1.3 Conservation, management and sustainable use of 15,848 ha of known seagrass area in the South China Sea	Number of sites under sustainable management	Majority of seagrass areas in the SCS are unmanaged, or managed ineffectively, due to lack of enabling environment for zoning/regulation	1.3.1 Twenty-one seagrass areas totaling 15,848 ha under sustainable management with supporting laws and regulations
	Number of seagrass sites for which management regulations exist		
	Number of MPA management plans containing seagrass-related management actions	Sustainable use and management of seagrass and related resources is rarely addressed in management plans for MPAs in the SCS	1.3.2 Amended management plans for 7 existing MPAs with significant seagrass areas, to include specific seagrass-related management actions and

Project objective and Outcomes	Indicator	Baseline level	End-of-project target
			policy, legal & institutional reforms
	Number of newly established MPAs focused on seagrass management	MPA management in SCS predominantly focuses on strict protection of coral reef areas	1.3.3 Designation of 7 new Marine Protected Areas focusing on seagrass areas
	Status of mechanism established for monitoring seagrass management effectiveness and stress reduction	Management, ecological and environmental, and socio-economic indicator frameworks developed but not yet applied at priority sites	1.3.4 Established mechanism for monitoring management, ecological and socio-economic indicators at 20 sites
Outcome 1.4 Integrated management of 783,900 ha of coastal wetland at 19 sites, including habitat restoration and protection strengthened at priority locations	Number of integrated management plans developed	Population growth, and urbanisation of the coastal fringe, combined with rapid economic growth in the SCS region places tremendous pressure on coastal wetland ecosystems	1.4.1 Integrated management plans developed and under implementation for at least 3 lagoons (26,818 ha), 9 estuaries (614,680 ha), 5 tidal flats (96,903 ha), 1 peat swamp (45,700 ha) and 1 non-peat swamp (9,808 ha)
	Total area (ha) of wetland under management plan for sustainable use		
	Number of wetlands sites assigned protection status	The riparian states of SCS face significant pressure to convert wetlands for economic development with little focus on conservation or sustainable use	1.4.2 Declaration of at least 7 wetland areas with protection status ( <i>i.e.</i> non-hunting area, nature reserves, protected areas, Ramsar Sites).
	Status of mechanism established for monitoring wetland management effectiveness and stress reduction	Management, ecological and environmental, and socio-economic indicator frameworks developed but not yet applied at priority sites	1.4.3 Adoption of a regional estuary monitoring scheme and its national implementation
Outcome 1.5 National and regional level cooperation in tracking results of SAP actions for coastal habitat management	Extent and continuity of participation in regional fora for coastal habitat management	No existing fora at national and regional level in the SCS to network coastal habitat scientists and management specialists	1.5.1 National committees and regional networks of habitat specialists established under the SCS project revitalized and functioning
	Scope and uptake of joint management and planning decisions		
	Status and extent of uptake by national Inter-Ministry committees of SAP implementation results reporting	Results frameworks for the management of mangroves, coral reefs, seagrass and wetlands of the SCS developed through national and regional consultative process but has not yet been applied	1.5.2 Mechanism to monitor and evaluate the impacts of SAP implementation and achievement of habitat targets operational [including agreement on standardized methods and guidelines for inventory and assessment]
	Level of congruence of national and regional indicator sets with the proposed targets and outcomes of the SAP		
	Extent and continuity of local leader and	Limited engagement of community-based	1.5.3 Community leaders and local government

Project objective and Outcomes	Indicator	Baseline level	End-of-project target
	local government participation in community round-table meetings	governance mechanisms in planning coastal habitat management	from priority habitat sites networked <i>via</i> national and regional round-table meetings to foster cooperation and knowledge sharing on achievements and best practices
	Improved local relevance of SAP implementation initiatives	Low level mobilization of civil society, community groups and the private sector in habitat management	
	Demonstrable use of state of coastal habitat reports in national and regional planning	Baseline national habitat reports developed and require periodic uptake	1.5.4 Progress and status report of regional and national SAP implementation
<b>Component 2. Strengthening knowledge-based action planning for the management of coastal habitats and land-based pollution to reduce environmental degradation of the South China Sea</b>			
Outcome 2.1 Enhanced information-base for coastal habitat management, monitoring and action planning	Volume of remotely sensed information interpreted and made available for planning	Rapid advancements in aerial visual survey techniques and remote sensing of inter-tidal and shallow water biomes have potential to greatly enhance coastal habitat management planning in the SCS marine basin	2.1.1. Validation of existing or improved algorithms with on-site data
	Extent of uptake of remotely sensed coastal habitat information and data in management planning and action		
	Number and completeness of regionally comparable coastal habitat site characterizations for 134 sites	Regional GIS and meta-database of SCS coastal habitat information developed but not updated since 2008 due to lack of a regional mechanism for collation and exchange of data	2.1.2 Mechanism for collection and exchange of regional coastal habitat and pollution information and data established
	Number of datasets for 134 coastal habitat sites accessible online in centralized repository		
	Volume of CO <sub>2</sub> captured and stored by SCS habitats defined	Lack of SCS specific information on carbon sequestration by coastal habitats constrains resource managers in making political case for better resourcing	2.1.3 Role of coastal habitats of the South China Sea in climate change adaptation and the sequestration and storage of carbon
	Extent of uptake of information on carbon sequestration and storage used in mgmt. planning		
	Independent peer acceptance of review	Sea level rise, climate variability and change, and episodic natural disasters in SC identified as threats to sustainable management of coastal habitats	2.1.4 Review of the potential impacts of sea level rise, climate change, ocean acidification and episodic events on coastal habitats of the South China Sea
	Extent of uptake of review and its recommendations in updating national action plans and diagnostic analyses		
	Countries (6) contribute to compiled		2.1.5. Review of current status of habitat and

Project objective and Outcomes	Indicator	Baseline level	End-of-project target
	<p>meta-database on existing data</p> <p>No of recommendations and innovative approaches to support monitoring and assessments</p>	<p>No overall comparable habitat and pollution database available in the SCS</p>	<p>pollution data available in the SCS, gaps and challenges and innovative technology and approaches to monitoring and assessments that can support SCS monitoring programme</p> <p>2.1.6 A regional system for periodic monitoring of the state of coastal habitats of the South China Sea</p>
<p>Outcome 2.2 Effective integration of regional science in the management of land-based pollution</p>	<p>Extent of decision-maker awareness of localized v. transboundary impacts of land-based pollution in the SCS</p> <p>Extent of use of model outputs in revising the Strategic Action Programme for the SCS</p>	<p>Carrying capacity of the SCS open shelf system based on its natural capacity to assimilate contaminants, in particular nutrient inputs from land, has been modelled although findings not well known by decision-makers</p>	<p>2.2.1 Nutrient assessment for key sites of the SCS marine basin and integration into SCS GIS</p>
	<p>Extent of decision-maker awareness of SCS open shelf carrying capacity for heavy metal contaminants</p> <p>Extent of use of model outputs in revising the Strategic Action Programme for the SCS</p> <p>Status of initiative to quantify heavy metal contaminant impacts on: (a) water quality; (b) reproductive capacity of living resources; (c) contamination of human food sources; and (d) bio-accumulation.</p> <p>Number of heavy metal pollution hotspots characterized</p>	<p>Need for simple model of pollution impacts under different development scenarios, specifically as they relate to heavy metal contaminant loadings</p> <p>Framework procedures for estimating the impacts of heavy metal contamination in SCS have been developed although not yet applied</p> <p>Lack of regionally comparable information and data on heavy metal contaminated hotspots</p>	<p>2.2.2. Regional level assessment of impacts of key contaminants (nutrients, heavy metals, oil, litter) and national or local assessments based on NAP and hotspots</p>
	<p>Number of aquaculture sites for which effluent and contaminant loadings estimated</p>	<p>Effluent from aquaculture and mariculture operations identified as key threat to dominant coastal biomes</p>	<p>2.2.3. Quantification of effluent volumes and contaminant loadings from coastal aquaculture to the SCS marine basin</p>

Project objective and Outcomes	Indicator	Baseline level	End-of-project target
<p>Outcome 2.3 Strengthened and harmonized national policies and laws, and supporting financial mechanism, for the management of habitats and land-based sources of pollution</p>	<p>Number of best practice technologies and measures tested, documented and shared</p>	<p>Lesson learned in community-based wastewater mgmt. in Batam, Indonesia documented and shared regionally although other examples from East Asian seas region largely focus on broad scale ICM planning</p>	<p>2.3.1. National best practices in waste water management, law enforcement, and community and industry participation in managing land-based sources of pollution and habitat management documented and shared</p>
	<p>Number of countries with demonstrable harmonization of sectoral governance frameworks achieved as a result of review findings</p>	<p>Effectiveness of existing legal and institutional frameworks limited by predominantly single sector approaches</p>	<p>2.3.2 Review of legislative and institutional frameworks for land-based pollution and habitat management in participating countries</p>
	<p>Number of countries with demonstrable adoption of harmonized, regionally comparable SOPs</p>	<p>Lack of Standard Operating Procedures for land-based pollution management</p>	<p>2.3.3 Identify gaps and develop national Standard Operating Procedures for land-based pollution control and management [including agreed sediment, biota, &amp; water quality criteria] if appropriate to support harmonized monitoring</p>
	<p>Number of countries with endorsed national policies and enacted laws and regulations for land-based pollution control</p>	<p>Absence of clear and effective policies, laws, and regulations relating to control of land-based pollution</p>	<p>2.3.4. Revised national/provincial policies and supporting regulations for land-based pollution and habitats developed, enacted and implemented</p>
<p>Outcome 2.4 Improved national and regional values for the Total Economic Values of coastal habitats for use in development planning and decision-making</p>	<p>Status of initiative to develop national and regional estimates economic linkages between habitats and coastal fish production</p> <p>Status of initiative to value economic costs of coastal shipping accidents and pollution damage</p> <p>Status of initiative to update estimates of total economic values of coastal biomes</p>	<p>Values determined for SCS are incomplete as not all known goods and services from individual biomes have been valued</p> <p>Comparatively few existing values for the services provided by habitats as nursery areas for coastal living resources</p> <p>No existing information linking shipping accidents to loss of economic benefits associated coastal biomes in the SCS</p> <p>Economic valuation of coastal habitats used in cost benefit analysis of endorsed Strategic Action Programme actions in 2008</p>	<p>2.4.1 Expanded datasets and estimates of economic valuation information on the goods and services of SCS coastal habitats</p>

Project objective and Outcomes	Indicator	Baseline level	End-of-project target
	No of case studies/best practices in the SCS on blue and circular economy approaches	Blue and circular economy emerging priority since SAP adoption in 2008, and needs to be consider as an important aspect for future SAP implementation	2.4.2. Compilation of good examples, and identify recommendations to strengthen a blue economy (and circular economy) approach and innovative financing for pollution and habitat management
Outcome 2.5 Regionally appropriate tools and mechanisms to guide the development of sustainable management systems for coastal habitats and land-based pollution	Status of initiative to develop and apply standards and criteria, including TWAP methodology, for determining the sustainability of coastal management systems	Sustainable management indicator matrices developed for dominant coastal habitats but not yet applied and tested in framework of SAP implementation	2.5.1 Regionally applicable standards and criteria for defining the sustainability of coastal habitat management systems, including documented models of sustainable use
	Number of best practice management measures and technologies documented, codified, and accessible <i>via</i> online catalogue	Lessons learned and best practices in coastal habitat management from 23 demonstration sites documented and published in peer reviewed article	2.5.2. Online catalogue of best practice management measures and technologies for sustainable use of SCS coastal habitats and land-based pollution management
	Extent and continuity of local leader and local government participation in study tour and exchange initiatives  Level of improved local relevance of national policy and planning efforts for reducing environmental degradation in the SCS	Limited engagement of community-based governance mechanisms in national policy and planning  Low level mobilization of civil society, community organization and the private sector in environmental investment planning	2.5.3 Government officials, community leaders, and habitat and pollution managers exposed to on-going practices in rehabilitation, management, and pollution control and treatment <i>via</i> programme of training, study tours and exchange
Outcome 2.6 Updated and Ministerially adopted Transboundary Diagnostic Analysis and Strategic Action Programme, including prioritization of national management actions to address climate variability and change	Status of national and regional level consensus on contemporary issues of transboundary significance with respect to coastal habitat and land-based pollution management	TDA for SCS published in 2000  Special Issue of Ocean and Coastal Management on South China Sea published in 2013	2.6.1 National and regional level consensus on contemporary issues and problems, including the quantification of environmental compromises and the prioritization of problems and updated TDA
	Demonstrable use of state of coastal habitat reports in national and regional planning	Baseline national habitat reports developed and require periodic uptake	2.6.2. SCS State of Coastal Habitats report in line with global commitments (SDGs, CBD)
	Status of adoption by appropriate Ministers of an updated Strategic	Strategic Action Programme for the South China Sea endorsed inter-governmentally in 2008	2.6.3 National and regional consultative process to develop updated Strategic Action

Project objective and Outcomes	Indicator	Baseline level	End-of-project target
	Action Programme for the South China Sea		Programme SAP for adoption at the Project Steering Committee, COBSEA IGM, and for consideration at the Ministerial level including agreed monitoring and reporting mechanisms
	Level of demonstrable use of the regional review on sea level rise, climate change, and episodic events in SAP formulation	Evolving understanding of sea level rise, climate change, and episodic events in East Asia but not applied in context of transboundary planning in the South China Sea	2.6.4 Prioritization of national management actions for incorporation into national policies and plans, in particular for climate variability and change and blue economy
	Number of updated National Action Plans, including institutional reform and sustainable financing strategies, adopted  Number of policies, laws and regulations adopted to enable action plan implementation	National Action Plans for mangroves, coral reefs, seagrass and wetlands developed and implemented during period 2002-2008	2.6.5 Updated and adopted National Action Plans for mangroves, coral reefs, seagrass and wetlands, and land-based pollution including enactment of supporting legislation where required
<b>Component 3. Facilitating regional and national level integration and cooperation for implementation of the South China Sea Strategic Action Programme</b>			
Outcome 3.1 Regional and sub-regional co-operation in the integration of scientific knowledge and research outputs with management and policy making	Status of the RSTC and the uptake of the scientific and technical advice it provides  Continuity of participation of RSTC members in annual meetings	Lack of a formal mechanism for the sharing of science and technical knowledge relating to the South China Sea SAP implementation	3.1.1 Regional Scientific and Technical Committee of the SCS project functioning as a bridge between the scientific community and decision-makers [annual meetings]
	Number of central and provincial government agencies demonstrating use of scientific knowledge exchanged during biennial conferences	Limited application of evidence-based approaches by central and provincial government agencies	3.1.2 Knowledge exchanges between government and scientific community through biennial Regional Scientific Conferences
	Number of Mayor's Round-Table meetings convened  Number, scope & reach of communications to raise local official awareness of best practices	Four Mayors Round-Table meetings convened during period 2005-2008 and documented as a key innovation for improving local relevance of action planning and M&E	3.1.3 Best practice exchanges between local government officials and coastal managers on science-based management <i>via</i> annual Mayor's Round-Table meetings
	Status of bilateral cooperation for	Bilateral cooperation between Cambodia and Viet	3.1.4 Memoranda of Agreement for joint

Project objective and Outcomes	Indicator	Baseline level	End-of-project target
	transboundary resource management between (a) Cambodia and Viet Nam and (b) Cambodia and Thailand Status of signature of Memoranda of Agreement	Nam initiated during the period 2007-2008 although this has stagnated as a result of a lack of regional coordination support	management of 2 priority transboundary water areas agreed & implemented
	Extent of joint planning by both projects  Number of best practices and lessons learned captured from the fisheries <i>refugia</i> project	Execution of the UNEP/GEF Fisheries <i>Refugia</i> project to commence in Q3 of 2016 through SEAFEDC and national fisheries agencies	3.1.5 Cooperation with the GEF fisheries <i>refugia</i> project and other relevant regional initiatives
	Number of best practices identified  Number of community organizations, local governments and industry receiving awards	Lack of mechanism to formally recognize and award communities, local governments and industry for innovation and generation of best practices for environmental management of the South China Sea	3.1.6 Operational award program on best practices in coastal habitat and land-based pollution management for communities, local governments and industry [annual]
Outcome 3.2 Capacity for civil society and community organization participation in SAP implementation strengthened <i>via</i> operational partnership with GEF SGP	Number of GEF Small Grants Programme projects commissioned and implemented in support of SAP implementation	Need for strengthened mobilization of civil society and community organizations in SAP implementation	3.2.1 Cooperation with GEF SGP in the commissioning and implementation of an additional 12 community-based projects for SAP implementation
	Extent and scope of inputs from CSOs and Cos  Number of NGO forums convened	Need for CSO and CO inputs to planning of an SCS-SGP partnership	3.2.2 CSO & CO inputs elicited for planning and M&E of the SCS-SGP partnership <i>via</i> annual NGO forums
	Number of SGP proponents trained to implement local actions in support of the achievement of SAP targets	Limited civil society and community organization experience and capacity for coastal habitat and land-based pollution management	3.2.3 Training program on science and management of SCS coastal habitats and resources for SGP proponents
Outcome 3.3 Relationships between central and local governments and the private sector strengthened and formalized	Number of public-private partnerships identified and documented	Many private sector organizations operate corporate social and environmental responsibility programmes but they are not aligned with SAP implementation	3.3.1 Review of past and ongoing public-private partnerships for coastal management in SCS region and case studies for effective private sector engagement
	Number of opportunities for private sector investment in SAP implementation identified	Significant commercial enterprise is conducted in waters of the South China Sea, particularly in the areas of oil and gas, fisheries and tourism	3.3.2 Identification of opportunities for private sector investment ( <i>e.g.</i> oil and gas, fisheries, tourism) in



Project objective and Outcomes	Indicator	Baseline level	End-of-project target
			implementation of the updated SAP
	Status of agreement on financial arrangements for private sector and donor investment in the implementation of the revised Strategic Action Programme	Low-level mobilization of the private sector in environmental investment planning in the South China Sea	3.3.3 Two partnership forums to facilitate cooperation with private sector on implementation of the updated SAP
	Number of countries with endorsed National Action Plans, including institutional reform and sustainable financing strategies	Guidelines for assessing the economic impacts of land-based pollution developed but not yet applied as part of benefit-cost analysis of pollution mgmt. in the SCS	3.3.4. Updated and adopted National Investment Plans for land-based pollution and habitat management in the SCS [Yr 5]
	Status of agreement among participating countries on a sustainable financing approach for regional actions	Lack of sustainable mechanism to finance regional support actions including M&E	3.3.5. Regional financial mechanism for land-based pollution and habitat management [Yr 5]
Outcome 3.4 Revitalization of regional mechanisms for communications, knowledge exchange, and information and data management and sharing	Number of multi-media and knowledge products produced	The SCS project produced an extensive range of knowledge products, technical guides, and training and awareness materials	3.4.1 A variety of multi-media information and knowledge products based on SCS SAP implementation communications strategy
	Status of knowledge tool development to support evidence-based coastal and marine management and spatial planning	Transboundary coastal and marine mgmt. spatial planning constrained by lack of a regionally coordinated approach to harnessing sectorial expertise and knowledge	3.4.2 Regionally appropriate knowledge tools developed to support decision-making and planning
	Number of users, volume of content accessed, and online visibility of the SCS website and associated databases	Need for media platforms and targeted communications in support of efforts to harness support for inter-ministerial coordination and policy and planning elements of SAP implementation and revision	3.4.3 The SCS project web portal and clearing house mechanism and associated regional databases online, updated and linked to IW-Learn and other GEF Knowledge management systems
	Number of IW:LEARN experience notes published	Limited regional and global sharing of information on best practices and lessons learned from investments in the SCS despite for example publication of a complete Special Issue of an academic journal on the progress to date	3.4.4 Active engagement with GEF IW:LEARN [1% of project resources] including participation in IW conferences and 3 experience notes
Outcome 3.5 Agreed arrangements for strengthened regional cooperation in the management of the	Number of Regional Task Force meetings  Continuity of participation of	Regional Task Force on Legal Matters established through SCS project but presently not functioning	3.5.1 Biannual meetings of the Regional Task Force on Legal Matters

Project objective and Outcomes	Indicator	Baseline level	End-of-project target
marine and coastal environment of the South China Sea	nationally nominated members		
	Number of National Working Group meetings  Continuity of participation of nationally nominated members	National Working Groups established through SCS project but presently not functioning	3.5.2 National Working Groups on established and functional
	Status of agreement on identified process	Framework process developed but requires national and regional consultation	3.5.3 Process for development of a proposed arrangement for regional cooperation defined and planned
	Extent of national stakeholder input to drafting phase of instrument for cooperation	SAP formulation benefited from an emphasis on consensual planning and decision making	3.5.4 National stakeholder inputs to drafting of instrument for strengthened regional cooperation facilitated <i>via</i> national consultations
	Status of adoption of the instrument	Participating countries agreed in the SAP, and in endorsing the PIF for this project, to explore the development of an instrument for strengthened regional cooperation	3.5.5 Adopted instrument for strengthened regional cooperation

### 3. PROGRESS/ACHIEVEMENTS OF ACTIVITIES IN THE YEAR 2022

#### 3.1 Activities Achievements in the Year 2022

Project/Activity Title	Implementation status as of end of September 2022 period expressed in %	Progress/Achievements
<b>Component 1. Reducing habitat degradation and loss <i>via</i> national and local reforms to achieve Strategic Action Programme targets for coastal habitat management in the South China Sea</b>		
<b>Outcome 1.1 Appropriate forms of sustainable management established for 860,000 ha of mangrove</b>		
1.1.1 Declaration of 57,400 ha of mangrove as National Parks and Protected Areas	60 %	<ul style="list-style-type: none"> <li>- Six National Implementation Reports containing the mangrove component sites and targets, activities and budgets for each outputs/activities are being completed and finalized;</li> <li>- Mangrove specialized executing agency and national focal point designated;</li> <li>- Mangrove national committee/working group and members are being established and finalized;</li> <li>- First Meeting of the Regional Working Group on Mangroves organized (1 December 2021) participated in by the mangrove national focal points/representatives, national project teams and experts;</li> <li>- Assessment of SAP mangrove targets and sites implementation from 2008-2020 initiated and partially completed as part of the NIR process.</li> </ul>
1.1.2 Designation and plans for the management of 166,600 ha of mangrove as non-conversion, sustainable use areas	50%	
1.1.3 Reform of laws and regulations for the sustainable use of 602,800 ha of mangrove forest	30%	
1.1.4 Replanting of 21,000 ha of deforested mangrove land	80%	
1.1.5 Biodiversity increased for 11,200 ha of mangrove forest <i>via</i> enrichment planting	50%	

Project/Activity Title	Implementation status as of end of September 2022 period expressed in %	Progress/Achievements
1.1.6 Established mechanism for monitoring management, ecological and socio-economic indicators at 26 sites [based on SAP results framework]	30%	Template to further evaluate targets implementation prepared and shared with countries for inputs and completion; <ul style="list-style-type: none"> <li>- Review and revision of SAP mangrove targets for project implementation initiated and partially completed. Template to further assess SAP targets and sites for implementation prepared and shared with countries for inputs and completion;</li> <li>- Best practices on mangrove management compiled and shared with countries for review and updating;</li> <li>- Three Project Cooperation Agreements signed to start execution of mangrove activities.</li> </ul>
<b>Outcome 1.2 110,430 ha of coral reef at 46 priority sites managed sustainably</b>		
1.2.1 Management capacity (number/levels human resources, facilities and equipment, and sustainable financing mechanisms) built for 46 coral reef sites	50%	<ul style="list-style-type: none"> <li>- Six National Implementation Reports containing the coral reef component sites and targets, activities and budgets for each outputs/activities are being completed and finalized;</li> <li>- Coral reef specialized executing agency and national focal point designated;</li> </ul>
1.2.2 Management approaches and policy, legal & institutional reforms (integrated, community-based, multiple use) improved at 46 coral reef sites	50 %	<ul style="list-style-type: none"> <li>- Coral reef national committee/working group and members are being established and finalized;</li> <li>- First Meeting of the Regional Working Group on Coral Reefs organized (2 December 2021) participated in by the coral reef national focal points/representatives, national project teams and experts;</li> </ul>
1.2.3 Management tools (licensing and permit systems, seasonal closures, zoning) developed and utilized to address key threats at priority sites	50%	<ul style="list-style-type: none"> <li>- Assessment of SAP coral reef targets and sites implementation from 2008–2020 initiated and partially completed as part of the NIR process. Template to further evaluate targets implementation prepared and shared with countries for inputs and completion;</li> </ul>
1.2.4 Established mechanism for monitoring management, ecological and socio-economic indicators at 46 sites [based on SAP results framework]	50%	<ul style="list-style-type: none"> <li>- Review and revision of SAP coral reef targets for project implementation initiated and partially completed. Template to further assess SAP targets and sites for implementation prepared and shared with countries for inputs and completion;</li> <li>- Best practices on coral reef management compiled and shared with countries for review and updating;</li> <li>- Three Project Cooperation Agreements signed to start execution of coral reef activities.</li> </ul>
<b>Outcome 1.3 Conservation, management and sustainable use of 15,848 ha of known seagrass area in the South China Sea</b>		
1.3.1 Twenty-one seagrass areas totaling 15,848 ha under sustainable management with supporting laws and regulations	60%	<ul style="list-style-type: none"> <li>- Six National Implementation Reports containing the seagrass component sites and targets, activities and budgets for each outputs/activities are being completed and finalized;</li> </ul>
1.3.2 Amended management plans for 7 existing MPAs with significant seagrass areas, to include specific seagrass-related management actions and policy, legal & institutional reforms	70%	<ul style="list-style-type: none"> <li>- Seagrass specialized executing agency and national focal point designated;</li> <li>- Seagrass national committee/working group and members are being established and finalized;</li> <li>- First Meeting of the Regional Working Group on</li> </ul>

Project/Activity Title	Implementation status as of end of September 2022 period expressed in %	Progress/Achievements
1.3.3 Designation of 7 new Marine Protected Areas focusing on seagrass areas identified in the prioritized listings of the SCS Project	80	Seagrass organized (3 December 2021) participated in by the seagrass national focal points/representatives, national project teams and experts;
1.3.4 Established mechanism for monitoring management, ecological and socio-economic indicators at 20 sites [based on SAP results framework]	30%	<ul style="list-style-type: none"> <li>- Assessment of SAP seagrass targets and sites implementation from 2008–2020 initiated and partially completed as part of the NIR process. Template to further evaluate targets implementation prepared and shared with countries for inputs and completion;</li> <li>- Review and revision of SAP seagrass targets for project implementation initiated and partially completed. Template to further assess SAP targets and sites for implementation prepared and shared with countries for inputs and completion;</li> <li>- Best practices on seagrass management compiled and shared with countries for review and updating;</li> <li>- Three Project Cooperation Agreements signed to start execution of seagrass activities.</li> </ul>
<b>Outcome 1.4 Integrated management of 783,900 ha of coastal wetland at 19 sites, including habitat restoration and protection strengthened at priority locations</b>		
1.4.1 Integrated management plans developed and under implementation for at least 3 lagoons 9 estuaries, 5 tidal flats, 1 peat swamp and 1 non-peat swamp and associated policy, legal & institutional reforms	40%	<ul style="list-style-type: none"> <li>- Six National Implementation Reports containing the wetland component sites and targets, activities and budgets for each outputs/activities are being completed and finalized;</li> <li>- Wetland specialized executing agency and national focal point designated;</li> <li>- Wetland national committee/working group and members are being established and finalized;</li> </ul>
1.4.2 Declaration of at least 7 wetland areas with protection status ( <i>i.e.</i> non-hunting area, nature reserves, protected areas, Ramsar Sites).	30%	<ul style="list-style-type: none"> <li>- First Meeting of the Regional Working Group on Wetlands organized (7 December 2021) participated in by the wetland national focal points/representatives, national project teams and experts;</li> </ul>
1.4.3 Adoption of a regional estuary monitoring scheme and its national implementation [based on SAP results framework]	25%	<ul style="list-style-type: none"> <li>- Assessment of SAP wetland targets and sites implementation from 2008-2020 initiated and partially completed as part of the NIR process. Template to further evaluate targets implementation prepared and shared with countries for inputs and completion;</li> <li>- Review and revision of SAP wetland targets for project implementation initiated and partially completed. Template to further assess SAP targets and sites for implementation prepared and shared with countries for inputs and completion;</li> <li>- Best practices on wetland management compiled and shared with countries for review and updating.</li> <li>- Three Project Cooperation Agreements signed to start execution of wetland activities.</li> </ul>

Project/Activity Title	Implementation status as of end of September 2022 period expressed in %	Progress/Achievements
<b>Outcome 1.5 National and regional level cooperation in tracking results of SAP actions for coastal habitat management</b>		
1.5.1 National committees and regional networks of habitat specialists established under the SCS project revitalized and functioning	30%	Ongoing. Countries are establishing national committees/working groups which would contribute to the establishment of regional working groups of habitats, specialists and experts. Progressing with some challenges due to COVID.
1.5.2 Mechanism to monitor and evaluate the impacts of SAP implementation and achievement of habitat targets operational [including agreement on standardized methods and guidelines for inventory and assessment]	20%	Initiated. Countries are assessing SAP implementation progress as part of the NIR process. Template to further evaluate implementation achievement prepared and shared with countries for inputs and completion.
1.5.3 Community leaders and local government from priority habitat sites networked <i>via</i> national and regional round-table meetings to foster cooperation and knowledge sharing on achievements and best practices	15%	Initiated. Countries are coordinating with local government and communities in site visits and consultations.
1.5.4 Progress and status report of regional and national SAP implementation	30%	Initiated. Countries are assessing SAP implementation progress as part of the NIR process. Template to further evaluate implementation achievement prepared and shared with countries for inputs and completion.
<b>Component 2. Strengthening knowledge-based action planning for the management of coastal habitats and land-based pollution to reduce environmental degradation of the South China Sea</b>		
<b>Outcome 2.1 Strengthened and harmonized national policies and laws, and supporting financial mechanism, for the management of habitats and land-based sources of pollution</b>		
2.1.1. Validation of existing or improved algorithms with on-site data	5%	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee (RSTC) meeting in October 2022 and the Project Steering Committee (PSC) meeting in December 2022 or January 2023. The PSC will consider the recommendations of the RSTC.
2.1.2 Mechanism for collection and exchange of regional coastal habitat and pollution information and data established	5%	
2.1.3 Role of coastal habitats of the South China Sea in climate change adaptation and the sequestration and storage of carbon	5%	
2.1.4 Review of the potential impacts of sea level rise, climate change, ocean acidification and episodic events on coastal habitats of the South China Sea	5%	

Project/Activity Title	Implementation status as of end of September 2022 period expressed in %	Progress/Achievements
2.1.5. Review of current status of habitat and pollution data available in the SCS, gaps and challenges and innovative technology and approaches to monitoring and assessments that can support SCS monitoring programme	15%	
2.1.6 A regional system for periodic monitoring of the state of coastal habitats of the South China Sea	5%	
<b>Outcome 2.2 Effective integration of regional science in the management of land-based pollution</b>		
2.2.1 Updating the nutrient carrying capacity model for the SCS marine basin and integration into SCS GIS	10%	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee (RSTC) meeting in October 2022 and the Project Steering Committee (PSC) meeting in December 2022 or January 2023. The PSC will consider the recommendations of the RSTC.
2.2.2. Regional level assessment of impacts of key contaminants (nutrients, heavy metals, oil, litter) and national or local assessments based on NAP and hotspots	10%	
2.2.3. Quantification of effluent volumes and contaminant loadings from coastal aquaculture to the SCS marine basin	10%	
<b>Outcome 2.3 Strengthened and harmonized national policies and laws, and supporting financial mechanism, for the management of habitats and land-based sources of pollution</b>		
2.3.1. National best practices in waste water management, law enforcement, and community and industry participation in managing land-based sources of pollution and habitat management documented and shared	10%	Initiated. Best practices on habitat management compiled and shared with countries for review and updating.
2.3.2 Review of legislative and institutional frameworks for land-based pollution and habitat management in participating countries	25%	Initiated. Review of legislative and institutional frameworks for habitat management is part of the NIR process and SAP implementation assessment.
2.3.3 Harmonized national Standard Operating Procedures for land-based pollution control and management [including agreed sediment, biota, & water quality criteria]	5%	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee (RSTC) meeting in October 2022 and the Project Steering Committee (PSC) meeting in December 2022 or January 2023. The PSC will consider the recommendations of the RSTC.
2.3.4. Revised national/provincial policies and supporting regulations for land-based pollution and habitats developed, enacted and implemented	5%	Initiated. Review of policies and regulations for habitats is part of the NIR process and SAP implementation assessment.

Project/Activity Title	Implementation status as of end of September 2022 period expressed in %	Progress/Achievements
<b>Outcome 2.5 Regionally appropriate tools and mechanisms to guide the development of sustainable management systems for coastal habitats and land-based pollution</b>		
2.5.1. Online catalogue of best practice management measures and technologies for sustainable use of SCS coastal habitats and land-based pollution management	30%	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee (RSTC) meeting in October 2022 and the Project Steering Committee (PSC) meeting in December 2022 or January 2023. The PSC will consider the recommendations of the RSTC.
2.5.2 Government officials, community leaders, and habitat and pollution managers exposed to on-going practices in rehabilitation, management, and pollution control and treatment via programme of training, study tours and exchange	5%	
<b>Outcome 2.6 Updated and Ministerially adopted Transboundary Diagnostic Analysis and Strategic Action Programme, including prioritization of national management actions to address climate variability and change</b>		
2.6.1 National and regional level consensus on contemporary issues and problems and updated TDA	10%	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee (RSTC) meeting in October 2022 and the Project Steering Committee (PSC) meeting in December 2022 or January 2023. The PSC will consider the recommendations of the RSTC.
2.6.2. SCS State of Coastal Habitats report in line with global commitments (SDGs, CBD)	5%	
2.6.3 National and regional consultative process to develop updated Strategic Action Programme SAP for adoption at the Project Steering Committee, COBSEA IGM, and for consideration at the Ministerial level including agreed monitoring and reporting mechanisms	5%	
2.6.4 Prioritization of national management actions for incorporation into national policies and plans, in particular for climate variability and change and blue economy	5%	
2.6.5 Updated and adopted National Action Plans for mangroves, coral reefs, seagrass and wetlands, and land-based pollution including enactment of supporting legislation where required	5%	

Project/Activity Title	Implementation status as of end of September 2022 period expressed in %	Progress/Achievements
<b>Component 3. Facilitating regional and national level integration and cooperation for implementation of the South China Sea Strategic Action Programme</b>		
<b>Outcome 3.1 Regional and sub-regional co-operation in the integration of scientific knowledge and research outputs with management and policy making</b>		
3.1.1 Regional Scientific and Technical Committee of the SCS project functioning as a bridge between the scientific community and decision-makers [annual meetings]	25%	First Regional Scientific and Technical Committee Meeting will be organized on 17-19 October 2022 in Bangkok, Thailand. Preparation is ongoing.
3.1.2 Knowledge exchanges between government and scientific community through Regional Scientific Conferences	5%	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee (RSTC) meeting in October 2022 and the Project Steering Committee (PSC) meeting in December 2022 or January 2023. The PSC will consider the recommendations of the RSTC.
3.1.3 Best practice exchanges between local government officials and coastal managers on science-based management <i>via</i> annual Mayor's Round-Table meetings	5%	
3.1.4 Memoranda of Agreement for joint management of 2 priority transboundary water areas agreed & implemented	5%	
3.1.5 Cooperation with the GEF fisheries <i>refugia</i> project and other relevant regional initiatives established	30%	<ul style="list-style-type: none"> <li>- Ongoing coordination with FR project with common site's identified for joint planning including participation in each other's key meetings.</li> <li>- FR focal points as members of SCS committees and working groups.</li> <li>- Ongoing coordination with COBSEA, PEMSEA and UNEP/WCMC on possible joint activities.</li> </ul>
3.1.6 Operational award program on best practices in coastal habitat and land-based pollution management for communities, local governments and industry [annual]	5%	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee (RSTC) meeting in October 2022 and the Project Steering Committee (PSC) meeting in December 2022 or January 2023. The PSC will consider the recommendations of the RSTC.
<b>Outcome 3.2 Capacity for civil society and community organization participation in SAP implementation strengthened <i>via</i> operational partnership with GEF SGP</b>		
3.2.1 Cooperation with GEF SGP in the commissioning and implementation of an additional [#] of community-based projects for SAP implementation	20%	<ul style="list-style-type: none"> <li>- Meetings initiated to plan implementation of SGP grants including engagement of consultant to assist in the operationalization of SCS SGP grants</li> <li>- UNEP and SEAFDEC to meet and plan the detailed implementation of SCS SGP grants including engagement of consultant to assist in the development and operationalization of SCS SGP grants</li> <li>- Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee (RSTC) meeting in October 2022 and the Project Steering Committee (PSC) meeting in December 2022 or January 2023. The</li> </ul>
3.2.2 CSO & CO inputs elicited for planning and M&E of the SCS-SGP partnership <i>via</i> annual NGO forums	5%	
3.2.3 Training program on science and management of SCS coastal habitats and resources for SGP proponents	5%	



Project/Activity Title	Implementation status as of end of September 2022 period expressed in %	Progress/Achievements
3.2.4 SGP project concept notes developed and financial arrangements agreed for 20 community-based projects in support of implementing a revised SAP	5%	PSC will consider the recommendations of the RSTC.
<b>Outcome 3.4 Revitalization of regional mechanisms for communications, knowledge exchange, and information and data management and sharing</b>		
3.4.1 A variety of multi-media information and knowledge products based on SCS SAP implementation communications strategy	10%	<ul style="list-style-type: none"> <li>- Initial publications as part of Inception Phase include Inception Phase publication and national profiles and news items</li> <li>- Plan of future knowledge products in consultation with the Communication Specialist</li> </ul>
3.4.2 Regionally appropriate knowledge tools developed to support decision-making and planning.	10%	<ul style="list-style-type: none"> <li>- Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee (RSTC) meeting in October 2022 and the Project Steering Committee (PSC) meeting in December 2022 or January 2023. The PSC will consider the recommendations of the RSTC.</li> </ul>
3.4.3 The SCS project web portal and clearing house mechanism and associated regional databases online, updated and linked to IW-Learn and other GEF Knowledge management systems	25%	<ul style="list-style-type: none"> <li>- Regularly update web-site <a href="https://scssap.org/">https://scssap.org/</a></li> <li>- Regional database to be developed from 1<sup>st</sup> half 2022.</li> <li>- Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee (RSTC) meeting in October 2022 and the Project Steering Committee (PSC) meeting in December 2022 or January 2023. The PSC will consider the recommendations of the RSTC.</li> </ul>
3.4.4 Active engagement with GEF IW:LEARN [1% of project resources] including participation in IW conferences and 3 experience notes	20%	<ul style="list-style-type: none"> <li>- Coordination with IWLEARN <i>via</i> email and bilaterals;</li> <li>- Participation and presentation of the new IWLEARN program at the Inception Workshop on 1 July 2021;</li> <li>- Contributed news item for the IWLEARN December newsletter</li> <li>- Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee (RSTC) meeting in October 2022 and the Project Steering Committee (PSC) meeting in December 2022 or January 2023. The PSC will consider the recommendations of the RSTC.</li> </ul>

Project/Activity Title	Implementation status as of end of September 2022 period expressed in %	Progress/Achievements
<b>Outcome 3.5 Agreed arrangements for strengthened regional cooperation in the management of the marine and coastal environment of the South China Sea</b>		
3.5.1 Biannual meetings of the Regional Task Force on Legal Matters.	5%	<ul style="list-style-type: none"> <li>- Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee (RSTC) meeting in October 2022 and the Project Steering Committee (PSC) meeting in December 2022 or January 2023. The PSC will consider the recommendations of the RSTC.</li> <li>- Plan to organize the First Regional Task Force on Legal Matters including engagement of consultant to assist and facilitate the development of proposed regional cooperation arrangements</li> </ul>
3.5.2 National Working Groups established and functional.	15%	Working groups established and membership identified in majority of countries.
3.5.3 Process for development of a proposed arrangement for regional cooperation defined and planned	0%	<ul style="list-style-type: none"> <li>- Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee (RSTC) meeting in October 2022 and the Project Steering Committee (PSC) meeting in December 2022 or January 2023. The PSC will consider the recommendations of the RSTC.</li> <li>- Plan to engage consultant to assist and facilitate the development of proposed regional cooperation arrangements</li> </ul>
3.5.4 National stakeholder inputs to drafting of instrument for strengthened regional cooperation facilitated <i>via</i> national consultations	0%	
3.5.5 Adopted instrument for strengthened regional cooperation	0%	

### 3.2 Major Impacts and Issues

The major impacts and issues including action plan to address any project shortcomings and risk management are reported in the third quarterly report (as of 30 September 2022) submitted to UNEP and the additional observation by SEAFDEC.

Issue	Action taken	Result
1. Slow process of recruiting the project manager since early 2022 - Under project management and implementation mechanism among the concerned agencies, UNOPS is responsible for recruiting the project staff.	SEAFDEC encourages the project responsible partners to accelerate the process of recruiting the Project Manager.	Up to date (as of Nov 2022) Incomplete process of recruitment for the Project Manager.
2. Internal coordination and consultation process slow down the development and finalization of national activities and budgets, leading to the delay in the signing of the Project Cooperation Agreements to start execution of site-specific habitat management and restoration.	Project National Coordinators have been fully recruited since April, with a weekly follow-up on their work plan per country, which has allowed the content of the Cambodia, Thailand and Philippines agreements to be close to being ready for signature. A mission to critical countries, including meetings with national lead agencies has been carried out to make the agreement viable.	Ongoing until completion of internal coordination and consultation, and finalization of agreements

Issue	Action taken	Result
3. Delayed implementation of regional activities due to limited project staff to plan, coordinate and execute regional activities. - No Project Manager onboard since early March 2022 as mentioned above.	Recruitment of Project Manager is still ongoing. Regional consultant/s to support specific regional activities are being planned without having the Project Manager. Organization of the Regional Scientific and Technical Committee to plan execution of regional activities and engagement of regional consultation.	Ongoing until completion of the Project Manager recruitment, staff and consultants, and organization of PSC meeting.
4. COVID-19 restrictions create challenges for onsite work, meetings and travel, other than online meetings.	Although COVID situation has improved, most of the work has continued online and with the use of various platforms for teleconferencing. More regular teleconferences established to ensure smooth coordination and continuous dialogue to assess challenges and impacts and adjust the execution steps and timeframe. Procurement of online meeting platform licence (Zoom) completed and operational.	Regular online bilaterals have been held with all countries. Restrictions are now lifting and national teams are able to travel to project sites. For the time being regional meetings are still conducted online.
5. Capacity of the national governments to implement the agreement activities in a timely manner, within the allocated budget and considering the reduced remaining timeline.	Closer coordination with governments was applied, which should be increased during the implementation phase of the agreements to ensure delivery of their commitments. It is planned to establish a systematic monitoring and coordination of the national activities and partners to identify partner's implementation risks in time to mitigate the potential delays or new contingencies that may arise during the execution of the countries. A potential project no-cost extension may be assessed and considered in case the implementation of national workplans are compromised.	Regular dialogue and coordination have been established with national partners and national coordinators. Close supervision and guidance provided in the planning and development of national activities to ensure its delivery within the budget and timeframe.
6. Advanced timeframe and complicated project plan challenge the delivery of all deliverables as per project agreement.	Strengthened team management and intense stakeholder engagement ensure engagement and commitment from all parties. Tight management coordination fora established and working.	Intense stakeholder management, tight planning and commitment from country counterparts are supporting timely delivery.

#### 4. PROPOSED FUTURE ACTIVITIES FOR THE YEAR 2023

##### 4.1 Planning of the Project Activities

Project/Activity Title	Remarks
<b>Component 1. Reducing habitat degradation and loss via national and local reforms to achieve Strategic Action Programme targets for coastal habitat management in the South China Sea</b>	
<b>Outcome 1.1 Appropriate forms of sustainable management established for 860,000 ha of mangrove</b>	
1.1.1 Declaration of 57,400 ha of mangrove as National Parks and Protected Areas	Organization, completion and finalization of the following: - Six National Implementation Reports - Mangrove specialized executing agency and national focal point
1.1.2 Designation and plans for the management of 166,600 ha of mangrove as non-conversion, sustainable use areas	

Project/Activity Title	Remarks
1.1.3 Reform of laws and regulations for the sustainable use of 602,800 ha of mangrove forest	<ul style="list-style-type: none"> <li>- Mangrove national committee/working group and members</li> <li>- Second Meeting of the Regional Working Group on Mangroves</li> <li>- Assessment of SAP mangrove targets and sites implementation from 2008–2020</li> <li>- Review and revision of SAP mangrove targets for project implementation</li> <li>- Best practices on mangrove management for publication</li> </ul> <p>Full implementation of the Project Cooperation Agreement to execute mangrove activities</p>
1.1.4 Replanting of 21,000 ha of deforested mangrove land	
1.1.5 Biodiversity increased for 11,200 ha of mangrove forest <i>via</i> enrichment planting	
1.1.6 Established mechanism for monitoring management, ecological and socio-economic indicators at 26 sites [based on SAP results framework]	
<b>Outcome 1.2 110,430 ha of coral reef at 46 priority sites managed sustainably</b>	
1.2.1 Management capacity (number/levels human resources, facilities and equipment, and sustainable financing mechanisms) built for 46 coral reef sites	<p>Organization, completion and finalization of the following:</p> <ul style="list-style-type: none"> <li>- Six National Implementation Reports</li> <li>- Coral reef specialized executing agency and national focal point</li> <li>- Coral reef national committee/working group and members</li> <li>- Second Meeting of the Regional Working Group on Coral Reefs</li> <li>- Assessment of SAP coral reef targets and sites implementation from 2008-2020</li> <li>- Review and revision of SAP coral reef targets for project implementation</li> <li>- Best practices on coral reef management for publication</li> </ul> <p>Full implementation of the Project Cooperation Agreement to execute coral reef activities</p>
1.2.2 Management approaches and policy, legal & institutional reforms (integrated, community-based, multiple use) improved at 46 coral reef sites	
1.2.3 Management tools (licensing and permit systems, seasonal closures, zoning) developed and utilized to address key threats at priority sites	
1.2.4 Established mechanism for monitoring management, ecological and socio-economic indicators at 46 sites [based on SAP results framework]	
<b>Outcome 1.3 Conservation, management and sustainable use of 15,848 ha of known seagrass area in the South China Sea</b>	
1.3.1 Twenty-one seagrass areas totaling 15,848 ha under sustainable management with supporting laws and regulations	<p>Organization, completion and finalization of the following:</p> <ul style="list-style-type: none"> <li>- Six National Implementation Reports</li> <li>- Seagrass specialized executing agency and national focal point</li> <li>- Seagrass national committee/working group and members</li> <li>- Second Meeting of the Regional Working Group on Seagrass</li> <li>- Assessment of SAP seagrass targets and sites implementation from 2008–2020</li> <li>- Review and revision of SAP seagrass targets for project implementation</li> <li>- Best practices on seagrass management for publication</li> </ul> <p>Full implementation of the Project Cooperation Agreement to execute seagrass activities</p>
1.3.2 Amended management plans for 7 existing MPAs with significant seagrass areas, to include specific seagrass-related management actions and policy, legal & institutional reforms	
1.3.3 Designation of 7 new Marine Protected Areas focusing on seagrass areas identified in the prioritized listings of the SCS Project	
1.3.4 Established mechanism for monitoring management, ecological and socio-economic indicators at 20 sites [based on SAP results framework]	
<b>Outcome 1.4 Integrated management of 783,900 ha of coastal wetland at 19 sites, including habitat restoration and protection strengthened at priority locations</b>	
1.4.1 Integrated management plans developed and under implementation for at least 3 lagoons 9 estuaries, 5 tidal flats, 1 peat swamp and 1 non-peat swamp and associated policy, legal & institutional reforms	<p>Organization, completion and finalization of the following:</p> <ul style="list-style-type: none"> <li>- Six National Implementation Reports</li> <li>- Wetland specialized executing agency and national focal</li> </ul>

Project/Activity Title	Remarks
1.4.2 Declaration of at least 7 wetland areas with protection status ( <i>i.e.</i> non-hunting area, nature reserves, protected areas, Ramsar Sites).	point - Wetland national committee/working group and members
1.4.3 Adoption of a regional estuary monitoring scheme and its national implementation [based on SAP results framework]	<ul style="list-style-type: none"> <li>- Second Meeting of the Regional Working Group on Wetlands</li> <li>- Assessment of SAP wetland targets and sites implementation from 2008–2020</li> <li>- Review and revision of SAP wetland targets for project implementation</li> <li>- Best practices on wetland management for publication</li> </ul> Full implementation of the Project Cooperation Agreement to execute wetland activities
<b>Outcome 1.5 National and regional level cooperation in tracking results of SAP actions for coastal habitat management</b>	
1.5.1 National committees and regional networks of habitat specialists established under the SCS project revitalized and functioning	Countries are establishing national committees/working groups which would contribute to the establishment of regional working groups of habitats, specialists and experts.
1.5.2 Mechanism to monitor and evaluate the impacts of SAP implementation and achievement of habitat targets operational [including agreement on standardized methods and guidelines for inventory and assessment]	Countries are assessing SAP implementation progress as part of the NIR process.
1.5.3 Community leaders and local government from priority habitat sites networked <i>via</i> national and regional round-table meetings to foster cooperation and knowledge sharing on achievements and best practices	Countries are coordinating with local government and communities in site visits and consultations.
1.5.4 Progress and status report of regional and national SAP implementation	Countries are assessing SAP implementation progress as part of the NIR process.
<b>Component 2. Strengthening knowledge-based action planning for the management of coastal habitats and land-based pollution to reduce environmental degradation of the South China Sea</b>	
<b>Outcome 2.1 Enhanced information-base for coastal habitat management, monitoring and action planning</b>	
2.1.1. Validation of existing or improved algorithms with on-site data	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee meeting in October 2022 and the Project Steering Committee meeting in December 2022 or January 2023.
2.1.2 Mechanism for collection and exchange of regional coastal habitat and pollution information and data established	
2.1.3 Role of coastal habitats of the South China Sea in climate change adaptation and the sequestration and storage of carbon	
2.1.4 Review of the potential impacts of sea level rise, climate change, ocean acidification and episodic events on coastal habitats of the South China Sea	
2.1.5. Review of current status of habitat and pollution data available in the SCS, gaps and challenges and innovative technology and approaches to monitoring and assessments that can support SCS monitoring programme	
2.1.6 A regional system for periodic monitoring of the state of coastal habitats of the South China Sea	

Project/Activity Title	Remarks
<b>Outcome 2.2 Effective integration of regional science in the management of land-based pollution</b>	
2.2.1 Nutrient assessment for key sites of the SCS marine basin and integration into SCS GIS	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee meeting in October 2022 and the Project Steering Committee meeting in December 2022 or January 2023.
2.2.2. Regional level assessment of impacts of key contaminants (nutrients, heavy metals, oil, litter) and national or local assessments based on NAP and hotspots	
2.1.3. Quantification of effluent volumes and contaminant loadings from coastal aquaculture to the SCS marine basin	
<b>Outcome 2.3 Strengthened and harmonized national policies and laws, and supporting financial mechanism, for the management of habitats and land-based sources of pollution</b>	
2.3.1. National best practices in waste water management, law enforcement, and community and industry participation in managing land-based sources of pollution and habitat management documented and shared	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee meeting in October 2022 and the Project Steering Committee meeting in December 2022 or January 2023.
2.3.2 Review of legislative and institutional frameworks for land-based pollution and habitat management in participating countries	
2.3.3 Identify gaps and develop national Standard Operating Procedures for land-based pollution control and management [including agreed sediment, biota, & water quality criteria] if appropriate to support harmonized monitoring	
2.3.4. Revised national/provincial policies and supporting regulations for land-based pollution and habitats developed, enacted and implemented	
<b>Outcome 2.4 Updated Total Economic Values of coastal habitats for use in development planning and decision-making and blue economy</b>	
2.4.1 Expanded datasets and estimates of economic valuation information on the goods and services of SCS coastal habitats	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee meeting in October 2022 and the Project Steering Committee meeting in December 2022 or January 2023.
2.4.2. Compilation of good examples, and identify recommendations to strengthen a blue economy (and circular economy) approach and innovative financing for pollution and habitat management	
<b>Outcome 2.5 Regionally appropriate tools and mechanisms to guide the development of sustainable management systems for coastal habitats and land-based pollution</b>	
2.5.1. Online catalogue of best practice management measures and technologies for sustainable use of SCS coastal habitats and land-based pollution management	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee meeting in October 2022 and the Project Steering Committee meeting in December 2022 or January 2023.
2.5.2 Government officials, community leaders, and habitat and pollution managers exposed to on-going practices in rehabilitation, management, and pollution control and treatment <i>via</i> programme of training, study tours and exchange	

Project/Activity Title	Remarks
<b>Outcome 2.6 Updated and Ministerially adopted Transboundary Diagnostic Analysis and Strategic Action Programme, including prioritization of national management actions to address climate variability and change</b>	
2.6.1 National and regional level consensus on contemporary issues and problems and updated TDA	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee meeting in October 2022 and the Project Steering Committee meeting in December 2022 or January 2023.
2.6.2. SCS State of Coastal Habitats report in line with global commitments (SDGs, CBD)	
2.6.3 National and regional consultative process to develop updated Strategic Action Programme SAP for adoption at the Project Steering Committee, COBSEA IGM, and for consideration at the Ministerial level including agreed monitoring and reporting mechanisms	
2.6.4 Prioritization of national management actions for incorporation into national policies and plans, in particular for climate variability and change and blue economy	
2.6.5 Updated and adopted National Action Plans for mangroves, coral reefs, seagrass and wetlands, and land-based pollution including enactment of supporting legislation where required	
<b>Component 3. Facilitating regional and national level integration and cooperation for implementation of the South China Sea Strategic Action Programme</b>	
<b>Outcome 3.1 Regional and sub-regional co-operation in the integration of scientific knowledge and research outputs with management and policy making</b>	
3.1.1 Regional Scientific and Technical Committee of the SCS project functioning as a bridge between the scientific community and decision-makers [annual meetings]	Second Regional Scientific and Technical Committee Meeting. Data and location to be decided at the RSTC1 meeting in October 2022 and the Project Steering Committee meeting in December 2022 or January 2023.
3.1.2 Knowledge exchanges between government and scientific community through Regional Scientific Conferences	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee meeting in October 2022 and the Project Steering Committee meeting in December 2022 or January 2023.
3.1.3 Best practice exchanges between local government officials and coastal managers on science-based management <i>via</i> annual Mayor's Round-Table meetings	
3.1.4 Memoranda of Agreement for joint management of 2 priority transboundary water areas agreed & implemented	
3.1.5 Cooperation with the GEF fisheries <i>refugia</i> project and other relevant regional initiatives established	<ul style="list-style-type: none"> <li>- Ongoing coordination with FR project with common site's identified for joint planning including participation in each other's key meetings.</li> <li>- FR focal points as members of SCS committees and working groups.</li> <li>- Ongoing coordination with COBSEA, PEMSEA and UNEP/WCMC on possible joint activities.</li> <li>- Detailed implementation will be discussed and agreed during the RSTC1 meeting in October 2022 and the PSC meeting in December 2022 or January 2023.</li> </ul>
3.1.6 Operational award program on best practices in coastal habitat and land-based pollution management for communities, local governments and industry [annual]	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee meeting in October 2022 and the Project Steering Committee meeting in December 2022 or January 2023.

Project/Activity Title	Remarks
<b>Outcome 3.2 Capacity for civil society and community organization participation in SAP implementation strengthened <i>via</i> operational partnership with GEF SGP</b>	
3.2.1 Cooperation with GEF SGP in the commissioning and implementation of an additional [#] of community-based projects for SAP implementation	<ul style="list-style-type: none"> <li>- UNEP and SEAFDEC to meet and plan the detailed implementation of SCS SGP grants</li> <li>- Engagement of consultant to assist in the development and operationalization of SCS SGP grants</li> <li>- Detailed implementation will be discussed and agreed during the RSTC1 meeting in October 2022 and the PSC meeting in December 2022 or January 2023.</li> </ul>
3.2.2 CSO & CO inputs elicited for planning and M&E of the SCS-SGP partnership <i>via</i> annual NGO forums	
3.2.3 Training program on science and management of SCS coastal habitats and resources for SGP proponents	
3.2.4 SGP project concept notes developed and financial arrangements agreed for 20 community-based projects in support of implementing a revised SAP	
<b>Outcome 3.3 Relationships between central and local governments and the private sector strengthened and formalized</b>	
3.3.1 Review of past and ongoing public-private partnerships for coastal management in SCS region and case studies for effective private sector engagement	Detailed implementation will be discussed and agreed during the Regional Scientific and Technical Committee meeting in October 2022 and the Project Steering Committee meeting in December 2022 or January 2023.
3.3.2 Identification of opportunities for private sector investment ( <i>e.g.</i> oil and gas, fisheries, tourism) in implementation of the updated SAP	
3.3.3 Public-private partnerships and investment plan for the implementation of the updated SAP solidified through two partnership forums to facilitate	
3.3.4. Updated and adopted National Investment Plans for land-based pollution and habitat management in the SCS [Yr 5]	
3.3.5. Regional financial mechanism for land-based pollution and habitat management	
<b>Outcome 3.4 Revitalization of regional mechanisms for communications, knowledge exchange, and information and data management and sharing</b>	
3.4.1 A variety of multi-media information and knowledge products based on SCS SAP implementation communications strategy	<ul style="list-style-type: none"> <li>- Publication of Inception Phase reports, national profiles, steering committee and regional working group meeting reports, SAP implementation achievement reports, and best practices on habitat and land-based pollution management</li> <li>- Future information and knowledge tools and products in consultation with the Communication Specialist</li> <li>- Detailed implementation will be discussed and agreed during the RSTC1 meeting in October 2022 and the PSC meeting in December 2022 or January 2023.</li> </ul>
3.4.2 Regionally appropriate knowledge tools developed to support decision-making and planning.	
3.4.3 The SCS project web portal and clearing house mechanism and associated regional databases online, updated and linked to IW-Learn and other GEF Knowledge management systems	<ul style="list-style-type: none"> <li>- Regularly update web-site <a href="https://scssap.org/">https://scssap.org/</a></li> <li>- Develop regional database</li> </ul>
3.4.4 Active engagement with GEF IW:LEARN [1% of project resources] including participation in IW conferences and 3 experience notes	<ul style="list-style-type: none"> <li>- Coordination with IWLEARN <i>via</i> email and bilaterals</li> <li>- Participation in IW conferences and events</li> <li>- Contribution to IW experience notes and newsletters</li> </ul>



Project/Activity Title	Remarks
<b>Outcome 3.5 Agreed arrangements for strengthened regional cooperation in the management of the marine and coastal environment of the South China Sea</b>	
3.5.1 Biannual meetings of the Regional Task Force on Legal Matters.	<ul style="list-style-type: none"> <li>- Organization of the First Regional Task Force on Legal Matters</li> <li>- Engagement of consultant to assist and facilitate the development of proposed regional cooperation arrangements</li> <li>- Detailed implementation will be discussed and agreed during the RSTC1 meeting in October 2022 and the PSC meeting in December 2022 or January 2023.</li> </ul>
3.5.2 National Working Groups established and functional.	Working groups established and membership identified in majority of countries.
3.5.3 Process for development of a proposed arrangement for regional cooperation defined and planned	<ul style="list-style-type: none"> <li>- Engagement of consultant to assist and facilitate the development of proposed regional cooperation arrangements</li> <li>- Detailed implementation will be discussed and agreed during the RSTC1 meeting in October 2022 and the PSC meeting in December 2022 or January 2023.</li> </ul>
3.5.4 National stakeholder inputs to drafting of instrument for strengthened regional cooperation facilitated <i>via</i> national consultations	
3.5.5 Adopted instrument for strengthened regional cooperation	

#### 4.2 Expected Outcomes/Outputs

For the expected outcomes and outputs of the activities covered for Year 2023, please see Section 4.1 above.

These activities and outputs will contribute towards the achievement of project objectives. It will: foster and encourage collaboration and partnership in addressing environmental problems of the South China Sea and Gulf of Thailand between and among stakeholders at all levels; enhance the capacity of the participating governments to integrate environmental considerations into national development planning; and strengthen and expand the network of scientists, government officials and civil society established under the project.

#### 5. PROJECT IN RELEVANCE TO THE PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR FOOD SECURITY FOR THE ASEAN REGION TOWARDS 2030



**PROJECT DOCUMENT  
ACHIEVEMENTS FOR THE YEAR 2023**

<b>Project id:</b> 202101015			
<b>Program Categories:</b>	Other Programs		
<b>Project Title:</b>	Survey to Estimate Levels of Abandoned, Lost or otherwise Discarded Fishing Gear in Thailand Gillnet and Trap Fisheries		
<b>Program Strategy No</b>	I	<b>Total Duration:</b>	2021–2022
<b>Lead Department:</b>	TD	<b>Lead Country:</b>	None
<b>Donor/Sponsor:</b>	FAO	<b>Total Donor Budget:</b>	USD 18,249
<b>Project Partner:</b>	DOF Thailand	<b>Budget for 2023:</b>	None
<b>Project leader:</b>	Isara Chanrachkij (TD)	<b>Project Participating Countries</b>	Thailand

## 1. INTRODUCTION/BACKGROUND

Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) has been recognized as a significant component of marine debris. It serious impacts on habitats, fish stocks and other marine species in particular Endangered, Threatened and Protected Species (ETP Species). In addition, ALDFG may result in reduced profits when it continues to fish and is linked to Illegal, Unreported and Unregulated (IUU) Fishing as those engaging in such activities are more prone to discard their fishing gear at sea.

SEAFDEC Member Countries addressed their concern on the marking of fishing gear in the Fifty-first Meeting of the Council of the SEAFDEC, organized in March 2019, in Surabaya, East Java, Indonesia that *marine debris and environmental-friendly fishing gear should be taken into consideration in SEAFDEC's future direction of regional fisheries development*. The research study on the fishing gear loss in the sea is harmonized with the “Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030” which was prepared by the ASEAN Member States. RES#11 *recommends the ASEAN Member States and SEAFDEC to increase awareness and support the reduction of impacts of aquatic pollution and marine debris, including abandoned, lost or otherwise discarded fishing gear (ALDFG), and microplastics/microbeads on fisheries and aquaculture*. POA#26 *recommends the ASEAN Member States and SEAFDEC to assess and manage the impacts of aquatic pollution and marine debris, including abandoned, lost, or otherwise discarded fishing gear (ALDFG) and microplastics/microbeads*.

To develop a research study in harmonizing with the international concern, SEAFDEC collaborated with FAO to improve the knowledge and skill on ALDFG. In this connection FAO technically and financially supported to SEAFDEC through the contract agreement between SEAFDEC and FAO agencies to conduct the project “Survey to Estimate levels of Abandoned, Lost or otherwise Discarded Fishing Gear in Thailand Gillnet and Trap Fisheries”. Project was carried out from 1<sup>st</sup> April to 30<sup>th</sup> November 2021 and extended to 31<sup>st</sup> January 2022 with no-cost extension.

## 2. PROJECT

### 2.1 Goal/Overall Objectives

The project aims to verify the fishing gear loss questionnaires and user’s manuals designed for gillnet and trap fisheries. SEAFDEC fishing gear technologists provided the recommendation to improve data entering into the online FAO fishing gear loss online database. The preliminary study on the Abandoned, Lost or otherwise Discarded Fishing Gear in Thailand (Phang Nga and Krabi Province) Gillnet and Trap Fisheries.

### 2.2 Outcomes and Outputs

The expected outcome of the project is the fishing gear loss questionnaire, user’s manuals and the web-based data entering procedure will be global practices in the future. The main project outputs are as follows;

1. Project Narrative Report, “Survey to Estimate levels of Abandoned, Lost or otherwise Discarded Fishing Gear in Thailand Gillnet and Trap Fisheries” with contents as follows;

- 1.1. Recommendations for improvement of the FAO fishing gear loss questionnaires and associated user's manuals designed for gillnet and trap fisheries;
  - 1.2. Summary survey on ALDFG focused on gillnets and traps at three different sites in Thailand using FAO Fishing Gear Loss Questionnaires for gillnet and trap fisheries;
  - 1.3. Recommendation of the data entering into the online FAO fishing gear loss database
  - 1.4. Guide of Data Entering Abandoned, Lost or otherwise Discarded Fishing Gear; and
  - 1.5. Report of the Online Meeting the Assessment of the Results from ALDFG Survey (Virtual Meeting)
2. Preliminary Report on the Investigation to Estimate the Abandon, Lost, and Discard Gillnet and Traps (pots) along the Coast of Thailand (Phang Nga and Krabi Province)

### 2.3 Project Description/Framework

The project comprised with activities on the technical consultation meetings and the survey on the ALDFG to verify the FAO fishing gear loss questionnaires and associated User's Manuals designed for gillnet and trap fisheries. FAO expert and Technical Officer provided the example of original version of questionnaires and User's Manuals designed for gillnet and trap fisheries and SEAFDEC technician learned how to fill-in questionnaires. In addition, SEAFDEC fishing gear technologist also provide comments to simplify the User's Manuals for friendly user.

To completely understand the merit and demit of the questionnaires, SEAFDEC fishing gear technologist conducted three (3) surveys on ALDFG focused on gillnets in Thailand by using the FAO fishing gear loss questionnaires for gillnet and trap fisheries. Due to the COVID 19 pandemic, SEAFDEC researchers could not conduct surveys throughout the country. All fishing ports and landing sites were restricted to enter, and all provincials-imposed restrictions to enter and requirements for quarantine in the infection areas. Therefore, SEAFDEC agreed by Department of Fisheries, Thailand, selected two (2) provinces along the coast of Andaman Sea, Southern of Thailand, *i.e.* 1) Phang Nga Province and 2) Krabi Province, to conduct the ALDFG surveys. There are one hundred and sixty (160) questionnaires complete by three (3) survey trips during May to October 2021.

The post survey activities are data entering into the database of FAO Fishing gear loss. SEAFDEC staff practiced on the data entering and identify the difficulty and bugs of the application of database of FAO Fishing gear loss. In addition, the Online Meeting the Assessment of the Results from ALDFG Survey was organized and facilitated by FAO. The project activities are listed as below;

- Activity 1.** To provide recommendations for improving FAO Fishing Gear Loss Questionnaires and associated User's Manuals designed for gillnet and trap fisheries.
- Activity 2.** Survey(s) on the ALDFG on gillnets and traps at Phang Nga and Krabi Province, Thailand by using the FAO Fishing Gear Loss Questionnaires for gillnet and trap fisheries.
- Activity 3.** Enter the data into the online FAO Fishing Gear Loss Questionnaires
- Activity 4.** Participation in the Online Meeting the Assessment of the Results from ALDFG Survey organized and led by FAO to assess the survey results
- Activity 5.** Producing the Narrative Report and Technical reports

## 3. PROGRESS/ACHIEVEMENTS OF ACTIVITIES IN THE YEAR 2022

### 3.1 Activities Achievements in the Year 2022

Project/Activity Title	Duration	Remarks
<b>Activity 1.</b> To provide recommendations for improving FAO Fishing Gear Loss Questionnaires and associated User's Manuals designed for gillnet and trap fisheries.  The Achievements are 1) Questionnaires, and 2) User's Manuals designed for gillnet and trap fisheries	April to June 2021	Done

Project/Activity Title	Duration	Remarks
<p><b>Activity 2.</b> Survey(s) on the ALDFG on gillnets and traps at Phang Nga and Krabi Province, Thailand by using the FAO Fishing Gear Loss Questionnaires for gillnet and trap fisheries.</p> <p>The achievements are three (3) survey reports on the ALDFG using FAO Fishing Gear Loss Questionnaires (gillnets and traps). Total number of questionnaires are one hundred and sixty (160) comprise one hundred and eleven (111) gillnets and forty nine (49) traps interviewed from local fishers in Phang Nga and Krabi Province of Thailand</p>	April to June 2021	Conducted May to October 2021
<p><b>Activity 3.</b> Entering data into the online system of FAO Fishing Gear Loss database.</p> <p>The achievement are 1) Summary of the issues found during data entering into the online FAO Fishing Gear Loss database, and 2) Guide of Data Entering into the Online FAO Fishing Gear Loss (FAO and SEAFDEC used)</p>	April to July 2021	Input data period from September to November 2021
<p><b>Activity 4.</b> Participation in the Online Meeting the Assessment of the Results from ALDFG Survey.</p> <p>The achievement is the meeting report to introduce the methodology of data analysis developed by FAO, and summary the way forward of FAO and SEAFDEC on the research of ALDFG.</p>	August 2021	Conducted in December 2021
<p><b>Activity 5.</b> Producing the Narrative Report and Technical reports</p> <p>The expected achievements are 1) Project Narrative Report and 2) Preliminary Report on the Investigation to Estimate the Abandon, Lost, and Discard Gillnet and Traps (pots) along the Coast of Thailand (Phang Nga and Krabi Provinces)</p>	August to October 2021	Completed, Reported, and submitted in February 2022

#### 4. PROJECT IN RELEVANCE TO THE PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR FOOD SECURITY FOR THE ASEAN REGION TOWARDS 2030





**PROJECT DOCUMENT  
ACHIEVEMENT FOR YEAR 2021  
AND  
PROPOSED ACTIVITIES FOR YEAR 2022**

			<b>Project id:</b> 202001016
<b>Program Categories:</b>	Other Programs		
<b>Project Title:</b>	Seminar-Workshop on Aquaculture Development in Southeast Asia (ADSEA)		
<b>Strategy No.:</b>	II	<b>Total Duration:</b>	2022 (6 months)
<b>Lead Department:</b>	Aquaculture Department	<b>Lead Country:</b>	Philippines
<b>Donor/Sponsor:</b>	AQD; JTF	<b>Total Donor Budget:</b>	USD 35,000 (estimated)
<b>Project Partner:</b>	JTF	<b>Budget for 2023:</b>	To be determined
<b>Project leader:</b>	Mr. Dan Baliao and Dr. Sayaka Ito	<b>Project Participating Countries</b>	ASEAN Member Countries

## 1. INTRODUCTION/BACKGROUND

Traditional aquaculture has been practiced by fish farmers of Southeast Asia for centuries. In the past years, however, the introduction and development of modern innovative aquaculture technologies have transformed this age-old occupation into a major industry that has increased the national fish production, produced much-needed export earning, and generated employment and business opportunities. Aquaculture slowly became a necessity in order to produce more fish in the face of decreasing supply from marine fisheries and increasing demand from the burgeoning population. The challenge now is how to make the best possible use of coastal and inland waters for aquaculture which are cost-efficient and causing no adverse environmental and socioeconomic changes.

Since its establishment more than 46 years ago, the Aquaculture Department of the Southeast Asian Fisheries Development Center (SEAFDEC/AQD) has generated technologies that contributed significantly to the development of aquaculture in the region. Aquaculture technologies must keep abreast of the present and future needs and challenges of the industry. Thus, the Seminar-Workshop on Aquaculture Development in Southeast Asia (ADSEA) is being proposed.

ADSEA was first conducted in 1987 in Iloilo City, Philippines with the main goal of re-examining the existing aquaculture technologies in Southeast Asia and identifying future directions for aquaculture in the region. It was then conducted every four years in 1991, 1994, and 1999. Through the revival of this Seminar-Workshop, AQD can collect valuable inputs from aquaculture officers from SEAFDEC Member Countries in terms of research areas and training opportunities where closer collaboration and partnership can be strengthened. Therefore, ADSEA wishes to review recent developments in aquaculture and provide a forum to discuss strategies to ensure further developments of responsible aquaculture in the region.

## 2. PROJECT

### 2.1 Goal/Overall Objectives

ADSEA was first conducted in 1987 in Iloilo City, Philippines with the main goal of re-examining the existing aquaculture technologies in Southeast Asia and identifying future directions for aquaculture in the region. It was then conducted every four years in 1991, 1994, and 1999. Through the revival of this Seminar-Workshop, AQD can collect valuable inputs from aquaculture officers from SEAFDEC Member Countries in terms of research areas and training opportunities where closer collaboration and partnership can be strengthened. Therefore, ADSEA wishes to review recent developments in aquaculture and provide a forum to discuss strategies to ensure further developments of responsible aquaculture in the region. Specifically, it aims to:

- a) assess the progress and developments of aquaculture technologies in the region;
- b) assess the progress of research and development within AQD concerning the current status aquaculture research and technologies in the Region;
- c) review recent advances in sustainable and responsible aquaculture elsewhere in the world; and
- d) identify strategies for sustainable and responsible aquaculture in the region.

## 2.2 Expected Outcomes and Outputs:

At the end of the workshop, the participants will be updated on the recent activities on sustainable and responsible aquaculture technologies including the gaps and possible research areas. It also aims to put forward recommendations to address the gaps and issues identified during the workshop.

## 2.3 Project Description/Framework

In order to achieve these objectives, the seminar-workshop proposed the following activities:

Activity 1. *Country Reports*. Status reports of SEAFDEC Member Countries on sustainable aquaculture including recent developments, pressing issues, gaps, possible strategies, and recommendations.

Activity 2. *Review of Research and Development Activities at AQD*. Status, updates, and plans of the aquaculture technologies being developed by scientists and researchers in AQD.

Activity 3. *Special Reports*. Updates on the latest research aquaculture technologies by scientists and researchers from distinguished research institutions and universities; and the industry

Activity 4. *Workshop Discussion*. Identification of research gaps and collaborative activities among Member Countries.

## 3. PROGRESS/ACHIEVEMENTS OF ACTIVITIES IN THE YEAR 2022

### 3.1 Activities Achievements in the Year 2022

Project/Activity Title	Duration	Remarks
AQD revisited the planning process for the conduct of this seminar-workshop. No technical progress for this year.	2022	

## 4. PROPOSED FUTURE ACTIVITIES FOR THE YEAR 2023

### 4.1 Planning of the Project Activities

Project/Activity Title	Duration	Remarks
In 2023, AQD aims to fully conduct the seminar-workshop either through face-to-face, hybrid, or purely online.	2023	

### 4.2 Expected Outcomes/Outputs

AQD is expected to conduct a successful seminar-workshop which will enable AQD to collect valuable inputs from aquaculture officers from SEAFDEC Member Countries in terms of research areas and training opportunities where closer collaboration and partnership can be strengthened.

## 5. PROJECT IN RELEVANCE TO THE PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR FOOD SECURITY FOR THE ASEAN REGION TOWARDS 2030



**PROJECT DOCUMENT  
ACHIEVEMENT FOR YEAR 2021**

			<b>Project id:</b> 202206001
<b>Program Categories:</b>	Other Programs		
<b>Project Title:</b>	Collection of Research and Datasets from Data-poor Countries in Southeast Asia Related to SDG Indicator 14.4.1 and Formulation of a Thesaurus for Aquatic Genetic Resource		
<b>Program Strategy No.:</b>	-	<b>Total Duration:</b>	January – November 2022
<b>Lead Department:</b>	Secretariat	<b>Lead Country:</b>	-
<b>Donor/Sponsor:</b>	FAO	<b>Total Donor Budget:</b>	USD 52,525
<b>Project Partner:</b>	-	<b>Budget for 2023:</b>	-
<b>Project leader:</b>	Ms. Nualanong Tongdee		

## 1. INTRODUCTION/BACKGROUND

The Sustainable Development Goals (SDGs) were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. One of the indicators for “Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development,” specifically for “Target 14.4: By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics” is “Indicator 14.4.1: Proportion of fish stocks within biologically sustainable levels.” A wide range of data and information is being compiled to support monitoring of the progress in the implementation of the SDG; however, there are still some data that are difficult to access, such as the data stored within the national institutions, written in local languages, unpublished data, grey literature, etc.

This project<sup>1</sup> is therefore formulated and supported by the Food and Agriculture Organization of the United Nations (FAO) for SEAFDEC to implement activities, *i.e.* 1) Definition of subject scope and search strategy for identifying research and data related to SDG Indicator 14.4.1 agreed and documented; 2) A series of five online training sessions to be held with participants, enabling them to deploy the above search strategy and record research and data related to SDG Indicator 14.4.1; and 3) Research and data recorded by participants will undergo bibliometric analysis with results presented in a report. Coordinated by the SEAFDEC Secretariat in collaboration with AQD, TD and MFRDMD, the total duration of the project is from 1 January 2022 until 30 November 2022. In 2022, this project has worked with institutions in data-poor countries in Southeast Asia to identify and record research publications and data related to SDG Indicator 14.4.1.

## 2. PROJECT

### 2.1 Goal/Overall Objectives

The goal of the project is to obtain better research and datasets from data-poor countries in Southeast Asia that are relevant the SDG Indicator 14.4.1 and record in OpenASFA

### 2.2 Expected Outcomes and Outputs:

The expected outputs of the Project are:

- 1) Training delivered to Southeast Asian fisheries institutions to record research publications and datasets related to SDG Indicator 14.4.1;
- 2) Research and data recorded on OpenASFA platform; and
- 3) A bibliometric analysis of the research and data recorded as part of this project.

<sup>1</sup> Under the “Letter of Agreement (LOA) between FAO and SEAFDEC for provision of ‘Collection of Research and Datasets from data-poor countries in Southeast Asia related to SDG Indicator 14.4.1 and formulation of a Thesaurus for Aquatic Genetic Resources’



## 2.3 Project Description/Framework

The project was coordinated by the SEAFDEC Secretariat with assistance from the FAO/Aquatic Sciences and Fisheries Abstracts (ASFA) Secretariat and FAO/ Fisheries and Resources Monitoring System (FIRMS) Secretariat on relevant activities. The project involved staff of SEAFDEC Departments in the implementation, namely: Librarian and staff of SEAFDEC/AQD, marine biologists from TD and MFRDMD; and up to 15 institutions across Southeast Asia to deliver the outputs of this project.

The Project activities include:

- Activity 1:** Definition of subject scope and search strategy for identifying research and data related to SDG Indicator 14.4.1 agreed and documented
- Activity 2:** A series of five online training sessions to be held with participants, enabling them to deploy the above search strategy and record research and data related to SDG Indicator 14.4.1
- Activity 3:** Research and data recorded by participants to undergo bibliometric analysis with results presented in a report

## 3. PROGRESS/ACHIEVEMENTS OF ACTIVITIES IN THE YEAR 2022

### 3.1 Activities Achievements in the Year 2022

Project/Activity Title	Duration	Remarks
<p><b>Activity 1:</b> Definition of subject scope and search strategy for identifying research and data related to SDG Indicator 14.4.1 agreed and documented</p> <p>ASFA Secretariat; SEAFDEC/AQD Librarian together with marine biologists from MFRMD and TD (Project Team) agreed on the scope of the project and search strategies to ensure that most of the research and datasets produced from the target countries will be covered. The Project Team conducted example searches for all the countries from various online sources using the agreed methodology. The ASFA Secretariat conducted searches from the ASFA Database (ASFA) and the Web of Science Database (WOS), while SEAFDEC/AQD Librarian conducted searches from the Scopus Database. The Search Strategies can be accessed through:  <a href="https://docs.google.com/document/d/1nvuJkgSUld3psNCEvuayHcO1OI9cMjiMoi4Llbixjrg/edit?usp=sharing">https://docs.google.com/document/d/1nvuJkgSUld3psNCEvuayHcO1OI9cMjiMoi4Llbixjrg/edit?usp=sharing</a></p> <p>The Project Team also identified at most 15 participants from the primarily data-poor countries in Southeast Asia. Participants from the academe, governments (Department of Fisheries), and research institutions were invited to ensure that more research and data will be covered in each country.</p>	Feb.–June 2022	Completed
<p><b>Activity 2:</b> A series of five online training sessions to be held with participants, enabling them to deploy the above search strategy and record research and data related to SDG Indicator 14.4.1</p> <p>A total of 15 participants, composed of information professionals and researchers from the academe, research, and government institutions, joined the training activities. The participants were from Cambodia (2), Indonesia (6), Philippines (3), and Viet Nam (4). Five training sessions were conducted on 12 July 19 July, 26 July, 2 August, and 9 August 2022. The participants were provided with knowledge of the project, its subject scope, and the search strategies they used to gather relevant research and data. Subsequently, the participants were trained on creating records for different types of resources (including datasets) in OpenASFA. Solutions to the problems and issues encountered by the participants during research and data gathering and records creation were also discussed during the training. Finally, the participants were advised on how to finalize their contributions and complete their reports. The Project Team also assisted the participants on their inquiries related to the project throughout the training period.</p>	July–Aug. 2022	Completed

Project/Activity Title	Duration	Remarks
The project resulted in 1,159 records being created. As of 5 September 2022, 817 had been fully reviewed by the ASFA Secretariat and added to the FAO-SEAFDEC collection. These 817 records can be broken down into: 255 books, 92 chapters, 83 datasets and 387 journal articles.		
<b>Activity 3:</b> Research and data recorded by participants to undergo bibliometric analysis with results presented in a report  SEAFDEC/AQD Librarian together with marine biologists from MFRMD and TD summarized findings and perform a bibliometric analysis of the results, the report of which was submitted to FAO for approval. (As of 30 September 2022)	Sep.–Nov. 2022	50%

**4. PROJECT IN RELEVANCE TO THE PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR FOOD SECURITY FOR THE ASEAN REGION TOWARDS 2030**





## PIPELINE PROJECT

**Project Title:** Implementation and Assessment of the ASEAN Regional Plan of Action for the Management of Fishing Capacity

**Prospect Funding Agency:** Japan-ASEAN Integration Fund (JAIF): AJCEP

**Lead Department:** MFRDMD

**Proposed Budget:** USD 573,028.87

**Duration:** 2 Years

### 1. BACKGROUND/INTRODUCTION

In the past three to four decades, AMSs ranked among the top ten countries with the largest fishing industries in the world leading to the rapid and intensive development of the fisheries industry in the region. The rising number of fishing vessels in the Southeast Asian region coupled with the rapid increase in harvesting capacity has not been matched with the development of national capacities and regional or sub-regional cooperation to manage the fishing effort. Limited management or regulation and control of active fishing capacity allow fisheries to operate in an “open-access regime” leading to a continued increase in the number of vessels and people engaged in fisheries. Without effective Monitoring, Control, and Surveillance (MCS) and fisheries management schemes in the region, it could be one of the primary reasons that drive the fishing industries to operate illegal fishing activities, later identified as Illegal, Unreported, and Unregulated (IUU) fishing in the EEZs of neighboring countries.

It has therefore become necessary to improve and implement licensing schemes and other capacity management measures that would effectively limit entry into the fisheries by replacing the present inadequately designed systems. The development of a Fisheries Management Plan is one of the important measures to prevent overfishing and help overfished stocks rebound.

### 2. GOAL/OVERALL OBJECTIVES

To assess the implementation of the ASEAN Regional Plan of Action to Manage Fishing Capacity and regional fishery information systems/mechanisms to facilitate sharing, exchange, and compilation of fishery data and information that are required at the sub-regional and regional levels for the improvement of transboundary fisheries management.

### 3. PROJECT DESCRIPTION

#### 3.1 Management and Assessment of Fishing Capacity

- 3.1.1 Develop questionnaires on the implementation of the RPOA-Capacity, fishing capacity profiles, fishing effort, and stock status in AMSs
- 3.1.2 Regional kick-off meeting
- 3.1.3 Assessment of fishing capacity based on the questionnaire
- 3.1.4 Organization of a regional technical consultation on status implementation of the RPOA-Capacity, fishing capacity profiles, fishing effort, and stock status in AMSs

#### 3.2 Compilation and Enhancement of Relevant Existing Fisheries Information Systems/Mechanisms

- 3.2.1 Develop questionnaires on the current status of existing fisheries statistics and information or relevant system in AMSs and send the questionnaire to AMSs
- 3.2.2 Compilation of information on fisheries statistics profile and gap analyses based on the questionnaire
- 3.2.3 Organization of a regional workshop on the current status of existing fisheries statistics and information or relevant system, proposed mechanisms to facilitate sharing, exchange, and compilation of statistics and information

#### 3.3 Standardization of Simple and Practical Fisheries Indicators

- 3.3.1 Organization of a regional workshop for standardization of simple and practical indicators to support planning and monitoring of sustainable fisheries of pelagic fish



### 3.4 Compilation and Assessment of Management Strategies of Transboundary Species

- 3.4.1 Develop questionnaires on the current status and proposed establishment of the closed season, closed areas, or other management strategies of transboundary species in AMSs and send the questionnaire to AMSs
- 3.4.2 Regional synthesis on proposed management strategies for transboundary species in AMSs based on the questionnaire
- 3.4.3 Organization of a regional technical consultation on conservation efforts and management strategies of transboundary species resources in AMSs

### 3.5 Compilation and publication of the terminal report

- 3.5.1 Compilation of information for the success stories in AMSs
- 3.5.2 Compilation of information for the draft of the terminal report
- 3.5.3 Harmonization of the draft of the terminal report
- 3.5.4 Finalization of terminal report

### 3.6 Project monitoring and evaluation

- 3.6.1 Project midterm review and evaluation meeting
- 3.6.2 Terminal project monitoring and evaluation meeting

## 4. EXPECTED OUTPUTS/OUTCOMES

- Output 1:** Status of the RPOA-Capacity Implementation in AMSs is assessed through the survey conducted in AMSs
- Output 2:** The relevant existing fisheries information systems and mechanisms are compiled and enhanced to facilitate information sharing and exchange among AMSs
- Output 3:** Simple and practical indicators are standardized in supporting the planning and monitoring of sustainable fisheries of pelagic fish
- Output 4:** Current status and establishment of the closed season, closed areas, or other management strategies of transboundary species in AMSs are identified and documented
- Output 5:** Terminal report is prepared and published
- Output 6:** Project monitoring and evaluation are conducted

## 5. PROGRESS AND STATUS

The proposal has been resubmitted to the JAIF Management Team (JMT).

## STATEMENT

By *Dr. Simon Funge-Smith*  
Senior Fishery Officer of the Food and Agriculture Organization  
of the United Nations (FAO), Regional Office for Asia and the Pacific

*Dr. Malinee Smithrithee*, Secretary General, SEAFDEC,  
Distinguished SEAFDEC Programme Committee Members,  
SEAFDEC colleagues,  
Delegates from regional organizations and arrangements,

On behalf of Jong-Jin Kim, Assistant Director General and Regional Representative of the Food and Agriculture Organization of the United Nations of Regional Office for Asia and the Pacific, I would like to thank SEAFDEC for providing the opportunity to provide a statement to the 45<sup>th</sup> SEAFDEC Programme Committee regarding areas of cooperation and coordination between FAO, SEAFDEC and her member countries.

FAO would also like to appreciate SEAFDEC's continuing cooperation with FAO across a range of activities during 2022 that support capacity building and knowledge exchange amongst our mutual membership.

This has been delivered through collaborative workshops attendance in meetings as well as support to the global normative work of FAO. A major highlight since the 44<sup>th</sup> PCM, has been the co-organization of two “*FAO-SEAFDEC Training Workshops on Stock Assessment in Support the Implementation of the International Commitments for Sustainable Use of Fisheries Resources*” (13-17 December 2021 SEAFDEC Secretariat, Bangkok, 29 August–6 September 2022, SEAFDEC Training Department Samut Prakarn) SEAFDEC and FAO have also collaborated on technical activities including:

- the delegation of an FAO technical specialist as a resource persons to the “*Regional Technical Consultation on Development of the ASEAN-SEAFDEC Common Positions on the Proposed Listing of Commercially-exploited Aquatic Species into the CITES Appendices*” (30 August–1 September 2022, Bangkok, Thailand).
- A survey to Estimate Levels of Abandoned, Lost or Otherwise Discarded Fishing Gear in Thailand, Gillnet and Trap Fisheries
- The assessment of Gender Dimensions in the Value Chain of Small-scale Fisheries and Aquaculture in Southeast Asia”
- An assessment of the sustainability of currently used fishing technologies and operations in Thailand and options for innovation and improvements’
- Collection of Research and Datasets from data-poor countries in Southeast Asia related to SDG Indicator 14.4.1 and formulation of a Thesaurus for Aquatic Genetic Resources

I am pleased to say that we have built on our experiences of virtual workshops and networking to move towards hybrid modes of working. This has the advantages of face to face workshops and mentoring, but also enables us to communicate and reach a wider group of trainees or stakeholders who can join virtually the plenary sessions. This definitely increases our impact and ability to reach more people than would otherwise be possible through conventional physical workshops.

This modality is also increasingly enabling FAO to be able to delegate technical specialists from FAO headquarters to present and participate in meetings that they would otherwise be unable to attend due to travel costs. With careful planning and attention to timing, we foresee that FAO and SEAFDEC should be able to expand specialized technical cooperation in future meetings and workshops.

Looking at the SEAFDEC Programme to be reviewed by the 45<sup>th</sup> PCM, FAO commends the commitment of the SEAFDEC Members to sustainable fisheries in the region and the attention paid improving fisheries assessments in the ASEAN region. The better understanding of fisheries status is an essential part of sustainable fisheries management, and underpins the effective use of an ecosystem approach to fishery management.

FAO is pleased to be cooperating with SEAFDEC under the second phase of the GEF and NORAD financed Bay of Bengal Large Marine Ecosystem project (BOBLME II) that has just been declared operational. This covers areas of priority that are relevant to the SEAFDEC programmes particularly in building capacity to implement Ecosystem Approaches to Fishery management (EAFm), combatting IUU and responsible approaches to reducing pollution from fishing activities.

SEAFDEC will also be cooperating as lead Executing agency in the Large Marine Ecosystem Project for the Gulf of Thailand (GOTFISH). SEAFDEC's progress in promoting regional uptake of EAFM is to be congratulated and we encourage greater human capacity development for EAFM in the SEAFDEC member countries and the GOTFISH project will serve as a vehicle for this activity.

FAO would like to emphasize the projected need for increased aquaculture production in the coming years as one of the strategies for sustaining affordable fish supplies in the ASEAN region. The promotion of sustainable aquaculture is a key strategy in the FAO initiative on "Blue Transformation" and how to improve sustainable financing in the aquaculture sector. We also see future opportunities to cooperate in the areas of Mariculture development and linkage to the Blue Horizons project.

The UN General Assembly declared 2022 as the International Year of Artisanal Fisheries and Aquaculture (IYAFA) and FAO as lead agency appreciates SEAFDEC's activities in support of Small-scale fisheries. This should continue beyond the year of IYAFA as we look at ways to secure small-scale fisheries in the region.

There is much more potential on the horizon, for and in closing I would like to appreciate the close cooperation FAO enjoys with SEAFDEC, the Member countries and the SEAFDEC Centres.

It is this effective dialogue that allow us to respond effectively to the needs of member countries and develop initiatives to respond to their requests in a timely and effective manner.

Thank you again for providing this opportunity for FAO to highlight some of our ongoing and future cooperative activities.

Thank you

## STATEMENT

*By Dr. Steven G. Olive*

Mission Director of the United States Agency for International Development/  
Regional Development Mission for Asia (USAID/RDMA)

*Ms. Malinee Smithrithee*, Secretary-General,  
Distinguished Members of the SEAFDEC Program Committee and their country delegates,  
SEAFDEC Senior Officials,  
Ladies and gentlemen,

The U.S. Government would like to extend its gratitude to SEAFDEC for the opportunity to participate in this 45<sup>th</sup> Program Committee Meeting. We also extend our deep gratitude to the Republic of the Philippines for hosting this important meeting, and to each of the SEAFDEC member countries for their active participation.

The U.S. Government, through the U.S. Agency for International Development, has many reasons to be thankful to SEAFDEC, its member countries, and the many esteemed international partners represented here today. We are proudgrateful to be a part of this supportive, effective partnership on sustainable fisheries in Southeast Asia, together with SEAFDEC, its member states, and the many esteemed international partners here today.

The Director of USAID's Regional Development Mission for Asia, Dr. Steve Olive, had the privilege of joining *Ms. Malinee Smithrithee* at the SEAFDEC Training Centre in October to celebrate the success impact of the Smart Infrastructure for the Mekong activity, together with our partners in the U.S. Department of the Interior. As he shared during that event, USAID has worked with SEAFDEC since 2015 to promote sustainable fisheries and marine conservation throughout Southeast Asia. We appreciate this opportunity to come together each year to review progress, discuss regional concerns, and adapt our collective work for greater impact.

As demonstrated at the recent UN Climate Change Conference, COP27, the Biden administration is committed to supporting our international partners on decisive actions to tackle the climate crisis. This means delivering on the President's Emergency Plan on Adaptation & Resilience, or PREPARE, which will help more than half a billion people adapt to and manage the impacts of climate change by 2030. PREPARE is a central component of USAID's Climate Strategy and will help countries and communities strengthen their capacity to integrate adaptation into key sectors, such as food security. We all know that, particularly in this region, fish are not only a source of key protein and nutrition—fisheries sustain the livelihoods of individuals and the overall well-being of communities.

Currently, USAID is working with SEAFDEC through our Sustainable Fish Asia, or SuFiA, Project to improve the management of marine biodiversity and fisheries resources in the region. The SuFiA Local Capacity Development activity, which ended in August 2022, strengthened both human and institutional capacity to support sustainable fisheries management plans and enhance public-private partnerships to combat illegal, unregulated, and unreported fishing and seafood fraud.

SuFiA Technical Support, which launched in November 2021, supports aims to work with regional organizations like SEAFDEC to implement demand-driven solutions organized around three key components: regionally-focused fisheries policies, standards, and regulatory frameworks; fair labor and sustainable fishing practices used by the seafood industry; and improved regional outreach and communications among relevant institutions and stakeholders.

Through our collaboration with the National Oceanic and Atmospheric Administration, or NOAA, USAID worked with SEAFDEC to host two in-person training sessions on implementation of the Agreement on Port State Measures. These workshops, held in September 2022 at the SEAFDEC Training Centre, strengthen the enforcement of requirements at ports, and eliminate ports of convenience for illegal, unreported, and unregulated fish products.

We look forward to continuing our support of SEAFDEC and its member countries through a direct grant to SEAFDEC from USAID that both organizations have been designing together over the last nine months. USAID is committed to promoting local leadership with effective homegrown solutions, and we look forward to sharing more information once the activity begins.





Indeed, we are proud of our partnership with SEAFDEC and we are eager to continue supporting SEAFDEC's invaluable work. USAID believes that the partnerships SEAFDEC has formed throughout the region are a critical driving factor behind the progress that has been made across the region to combat IUU fishing and enhance the sustainability of Southeast Asia's fisheries.

We will continue to facilitate engagement of the U.S. Department of State, NOAA, the Department of Interior, and other US Government counterparts towards this goal. We will continue to engage with regional partners and local actors to synergize efforts. And USAID will continue to demonstrate the importance of our relationship with SEAFDEC, to promote its leadership, and to advance the priorities of its member countries towards national and regional initiatives.

Thank you again for the opportunity to participate in another successful PCM, we look forward to our continued collaboration and partnership in the coming year.

**STATEMENT**

*By Mr. Aaron McNevin*  
World Wildlife Fund (WWF)

Dear SEAFDEC Program Committee and distinguished guests,

Thank you for the opportunity to address the committee today, and I apologize for not being able to join you in Iloilo City.

WWF and SEAFDEC began to work together on the GEF Blue Horizons: Ocean Relief through Seaweed Aquaculture project in the midst of the COVID-19 pandemic. I must admit that while I was very much excited to work with SEAFDEC, I was not entirely sure if we would be able to conduct workshop upon workshop in a remote manner to successfully submit the final proposal on time. However, I can say with great admiration that the network of partners and the reach SEAFDEC has into country and provincial governments was key to the completion of this proposal.

A few months ago, we found out that our proposal was approved and that the work to implement the Blue Horizons project can now commence.

My short address today is to say thank you for all your dedication, kindness, patience and expertise. I am hopeful that the Blue Horizon project is the beginning of a much deeper partnership and collaboration between WWF and SEAFDEC as we have great overlap in our shared interests for sustainable aquaculture production for the region.

My sincere thanks to all that have been involved in the Blue Horizon proposal development. I recognize it was not easy but we did it!

I am wishing you, the committee members and guests a fruitful and successful set of meetings and I look forward to meeting with you in person in 2023.



## **MONITORING AND EVALUATION OF THE IMPLEMENTATION OF THE RESOLUTION AND PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR FOOD SECURITY IN THE ASEAN REGION TOWARDS 2030**

### **1. BACKGROUND**

The Resolution and Plan of Action on Sustainable Fisheries for Food Security in the ASEAN Region Towards 2030 (RES&POA-2030) was adopted by the ASEAN Senior Officials and Ministers to serve as a policy framework and direction for the region's fisheries development towards sustainability in the coming decade. Specifically, the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030 (POA-2030) has six Components, namely: 1) Planning and Information, 2) Fisheries Management, 3) Aquaculture, 4) Optimal Utilization of Fish and Fishery Products, 5) Fish Trade, and 6) Regional and International Policy Formulation. These Components had a total of 88 actions for the implementation by SEAFDEC and ASEAN Member States (AMSs) at the regional, sub-regional, and/or national levels through programs, projects, and activities under the ASEAN-SEAFDEC mechanism.

To monitor and evaluate the implementation of the RES&POA-2030, SEAFDEC proposed the Concept Note for organizing the Regional Workshop on the Roadmap for Monitoring and Evaluation of the Implementation of the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030 during the 53<sup>rd</sup> Meeting of the SEAFDEC Council (53CM). The Council supported such ideas and suggested several issues. Firstly, SEAFDEC was suggested to engage AMSs in the implementation of RES&POA-2030. Secondly, the Council suggested SEAFDEC to develop and disseminate the key indicators for monitoring and evaluation of the implementation of RES&POA-2030 in order that the countries could provide valuable inputs during the Workshop. Thirdly, SEAFDEC and the Member Countries were recommended to take cognizance toward complementation and cooperation, and to minimize duplication of efforts in this aspect. Lastly, the Council suggested SEAFDEC to consider developing the scale for the monitoring and evaluation. In addition, the Council wished that the majority of the RES&POA-2030 would be achieved within the projected timeline while the promotion of RES&POA-2030 in the region and support of the monitoring and evaluation would be possible through the roles of the Regional Fisheries Policy Network.

SEAFDEC therefore organized the “RES&POA-2030: Regional Workshop on Development of Key Indicators and Detailed Roadmap” on 23–24 March 2022 through a virtual platform to discuss the key indicators and detailed roadmap including the scale for monitoring and evaluation, baseline data and information, targets, reporting and timeframe for the monitoring and evaluation of the implementation of the RES&POA-2030. The Workshop came up with the key indicators and timeframe for monitoring implementation of the RES&POA-2030. During the Workshop, the participants proposed to conduct the trial exercise in providing inputs to the reporting template before the key indicators is finalized at the second Regional Workshop in June 2022.

Subsequently, SEAFDEC organized the “RES&POA-2030: Regional Workshop on Finalization of the Key Indicators for Monitoring and Evaluation of the Implementation of the RES&POA-2030” on 14 June 2022 through a virtual platform. The Workshop aimed at discussing the results of the trial exercise and finalizing the key indicators, reporting template, and timeframe for monitoring and evaluation of the implementation of the RES&POA-2030. Based on trial exercise, to gather comments and recommendations from the ASEAN Member States (AMSs) to revision of the key indicators and how to rating the score and the revision of the draft reporting template, the countries provided feedbacks and comments and made the adjustment of some key indicators and finally, the Workshop agreed on the key indicators of POA-2030. During the discussion, the AMSs agreed on the timelines of the submission of country inputs for the baseline information 2021. The results of this Workshop and results of baseline evaluation 2021 would be reported to the upcoming meetings of the SEAFDEC Program Committee, Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership, the SEAFDEC Council and through the ASEAN mechanism, respectively. The series of Workshops were supported by the Japanese Trust Fund under the project “Assistance for Capacity Building Development in the Region to Address International Fisheries-related Issues.”

### **2. MONITORING AND EVALUATION OF THE IMPLEMENTATION OF THE RES&POA-2030 (2021 BASELINE INFORMATION)**

The aims of monitoring and evaluation of the implementation of the RES&POA-2030 are to assess, identify gaps, and provide recommendations to enhance the implementation of the RES&POA-2030. The survey template was

circulated to all AMSs for the 2021 Baseline Information to be submitted to SEAFDEC Secretariat on 14 October 2022. Among the 10 AMSs, six AMSs *i.e.* Cambodia, Indonesia, Malaysia, Myanmar, Philippines, and Thailand submitted the inputs to SEAFDEC. The information was analyzed using descriptive statistics, *i.e.* frequency and mode.

The analyzed information showed that the regional implementation of all 88 POAs was at a good level. Under Components A–E, all AMSs implemented the POAs at a good level, while the POA under Component E was implemented at an excellent level. At the national level, more than 14 percent of 88 POAs were implemented at an excellent level, about 43 percent at a good level, 17 percent at a fair level, 16 percent at a limited level, and 8 percent were not implemented at all; while, around two percent were not applicable for the AMSs.

The gaps and challenges in implementing the POAs by AMSs can be identified such as fisheries development planning process still depend on collaboration with international organizations and development partners; systems and mechanisms for collection of statistics and data disaggregated at the species level depend on budget allocation which is still limited; need for the establishment of reference points for the management of fish stocks and aquatic species including harvest control rules; request for technical and awareness support on application of energy-efficient technologies for fishing gears, fishing vessels and fishing operations; implementation of the requirements of port State measures and flag State responsibility; conduct research on the impacts of various fishing gear types and methods; need for studies on wild fisheries, migration patterns, spawning grounds and seasons, nursery grounds, and environmental issues/impacts are also conducted to understand the stock populations; monitoring and assessment of the impacts of the construction/operations of man-made structures that could alter the water ways and affect migration and spawning of aquatic animals; development and implementation of ASEAN guidelines and measures for environment-friendly and responsible aquaculture and good aquaculture practices; national competent authority's monitoring system/mechanism on warning of emerging/existing diseases in the country is not yet in place; the official list of national concerned diseases of aquatic animals is not yet available; there is a guideline regarding Good Fish Handling Practices, however the practices still needs improvement related to implementation and monitoring in the field; and implementation of the regional/ASEAN standards on the international trading of fishery and aquaculture products.

The recommendations to enhance the implementation of POA-2030 include establishment of centralized data, statistics, and information system on fisheries; conduct of national stock assessment program including capacity building of local staff to collect fishery statistics data; development of reference points, harvest control rules, and fishing grounds for major commercially important species; development of guidelines for identification and monitoring of species under international concern; execution of research on the impacts of various fishing gear types and methods; implementation of approaches to sustainable management of major critical coastal habitats; conduct of fisheries vulnerability assessment to climate change and development of climate adaption and resilience plan; develop guidelines on hygiene onboard fishing vessel; conduct of regular artificial reef, habitat restoration, and restocking programs; adoption of the Regional Technical Guidelines on an Early Warning System for Aquatic Animal Health Emergencies; establishment of accredited laboratories according to ISO/OIE standards; provision on responsible use of antibiotics in aquaculture; R&D on local ingredients for alternative protein sources; cooperation in various platforms which involves trade at regional level such as ASEAN in Goods Agreement (ATIGA), Regional Comprehensive Economic Partnership (RCEP) and ASEAN +1; and alignment of national standards with the ASEAN GAqP and ASEAN Shrimp GAP. These recommendations could be seen as enhancing the way POAs carried out and should be applied according to the national contexts.

The draft report of the Monitoring and Evaluation of the Implementation of RES&POA-2030 (2021 Baseline Information) appears in **Appendix 1**.

### **3. TIMELINE FOR MONITORING AND EVALUATION OF THE IMPLEMENTATION OF THE RESOLUTION AND PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR FOOD SECURITY FOR THE ASEAN REGION TOWARDS 2030**

Taking the abovementioned suggestions by 53CM and two Regional Workshops, the timeline to monitor and evaluate the implementation of the RES&POA-2030 appears in **Table 1**.

**Table 1** Timeline for the Monitoring and Evaluation of the Implementation of the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030 (RES&POA-2030)

<b>Date</b>	<b>Activities</b>	<b>Responsibility</b>
Dec 2022	Report the results of the Regional Workshop and analysis of results of baseline evaluation 2021 to the 45 <sup>th</sup> Meeting of the Program Committee and 25 <sup>th</sup> Meeting of Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership	SEAFDEC SEC
Jan 2023	AMSs that have not yet submitted the baseline information to provide the inputs to SEAFDEC	Relevant AMSs
2023	Report the results of the Regional Workshop and analysis of results of baseline evaluation 2021 to the 55 <sup>th</sup> Meeting of the SEAFDEC Council and ASEAN mechanism	SEAFDEC SEC
2025	Accomplish the Template for the Monitoring and Evaluation of the Implementation of RES&POA-2030 (Mid-term Review 2025)	AMSs
2025	Regional Workshop on the Mid-term Evaluation of the Implementation of the RES&POA-2030	SEAFDEC and ASEAN-SEAFDEC Member Countries
2025	Report the results of the Regional Workshop and mid-term evaluation to the 48 <sup>th</sup> Meeting of the Program Committee	SEAFDEC SEC
2026	Report the results of the Regional Workshop and mid-term evaluation to the 58 <sup>th</sup> Meeting of the SEAFDEC Council	SEAFDEC SEC
2029	Accomplish the Template for the Monitoring and Evaluation of the Implementation of RES&POA-2030 (Final Evaluation 2029)	AMSs
2029	Regional Workshop on the Final Evaluation of the Implementation of the RES&POA-2030	SEAFDEC and ASEAN-SEAFDEC Member Countries
2029	Report the results of the Regional Workshop and final evaluation to the 52 <sup>nd</sup> Meeting of the Program Committee	SEAFDEC SEC
2030	Report the results of the Regional Workshop and final evaluation to the 62 <sup>nd</sup> Meeting of the SEAFDEC Council	SEAFDEC SEC

#### 4. REQUIRED CONSIDERATION BY THE 45PCM

- Take note of the draft Report of the Monitoring and Evaluation of the Implementation of RES&POA-2030 (2021 Baseline Information)
- Provide comments on the inputs of the AMSs and to improve analysis of the 2021 Baseline Information
- Request the AMSs that have not yet submitted to submit their inputs to SEAFDEC by the end of January 2023

**Draft Report of the  
Monitoring and Evaluation of the Implementation of RES&POA-2030  
(2021 Baseline Information)**

## 1. INTRODUCTION

The Resolution and Plan of Action on Sustainable Fisheries for Food Security in the ASEAN Region Towards 2030 (RES&POA-2030) was adopted by the ASEAN Senior Officials and Ministers to serve as a policy framework and direction for the region's fisheries development towards sustainability in the coming decade. To monitor and evaluate the implementation of the RES&POA-2030, SEAFDEC proposed the Concept Note for organizing the Regional Workshop on the Roadmap for Monitoring and Evaluation of the Implementation of the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030 during the 53<sup>rd</sup> Meeting of the SEAFDEC Council. The Council supported such ideas and suggested SEAFDEC to develop and disseminate the key indicators for monitoring and evaluation of the implementation of RES&POA-2030 in order that the countries could provide inputs.

During a series of online Regional Workshops organized by SEAFDEC in March and June 2022, SEAFDEC in collaboration with the ASEAN Member States (AMSs), namely: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam, developed and adopted the key indicators and template for monitoring and evaluation of the implementation of the RES&POA-2030 for the three periods (*i.e.* in 2021 for baseline information, 2025 for midterm evaluation, and 2029 for final evaluation). Moreover, the SEAFDEC National Coordinators were designated as the focal persons to facilitate the monitoring and evaluation of the implementation of RES&POA-2030.

The objectives of monitoring and evaluation of the implementation of the RES&POA-2030 are to: 1) assess the level of regional and national implementation of the RES&POA-2030; 2) identify the gaps, challenges, and lessons learned from the implementation of the RES&POA-2030; and 3) provide recommendations to the ASEAN Member States to enhance the implementation of the RES&POA-2030.

## 2. MATERIAL AND METHODS

### 2.1 Information compilation

The survey template (**Appendix 1A**) for the Monitoring and Evaluation of the Implementation of RES&POA-2030 was developed through a series of online Regional Workshops organized by SEAFDEC in March and June 2022, SEAFDEC in collaboration with the ASEAN Member States (AMSs), namely: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam. All AMSs adopted this survey template including the key indicators to be used for monitoring and evaluation of the implementation of the RES&POA-2030 for the three periods (*i.e.* in 2021 for baseline information, 2025 for midterm evaluation, and 2029 for final evaluation).

The survey template was composed of a table with four columns *i.e.* column 1: POA-2030 no., column 2: Key indicators, column 3: Rating, and column 4: Criteria used for rating. Each Plan of Action (POA) was designated with 1–2 key indicators. The AMSs were requested to rate each key indicator of all POAs using common criteria (*e.g.* policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others). Each key indicator was rated as 1 = not at all, 2 = at a limited level, 3 = at a fair level, 4 = at a good level, and 5 = at an excellent level. If the key indicator is not applicable to the country, it was indicated as N/A.

In addition, the SEAFDEC National Coordinators were designated as the focal persons to facilitate the monitoring and evaluation of the implementation of RES&POA-2030. They were also requested to coordinate with the relevant agencies/institutions in their respective countries to gather and compile the relevant information as inputs to the survey template. The survey template was circulated to all AMSs for the 2021 Baseline Information to be submitted to SEAFDEC Secretariat on 14 October 2022.

### 2.2 Analysis

The average rating was calculated for actions of POA-2030 with more than one key indicator. Then, the ratings of all actions of the POA-2030 were analyzed using descriptive statistics, *i.e.* frequency and mode.

The best and good practices of the countries were identified from each component of RES&POA-2030 with the POAs rated with 4 (good level) or 5 (excellent level). On the other hand, the gaps and challenges in the implementation of the RES&POA-2030 were identified from each component of RES&POA-2030 with the POAs rated with equal to or less than 3 (fair level). Based on the identified gaps and challenges of specific POA, recommendations would be provided by SEAFDEC and AMSs to enhance the implementation of the RES&POA-2030 at the regional and national levels.

### 3. RESULTS AND DISCUSSION

Among the 10 AMSs, Cambodia, Indonesia, Malaysia, Myanmar, Philippines, and Thailand submitted the inputs to SEAFDEC. The level of regional and national implementation of the RES&POA-2030 was analyzed for the six AMSs which are discussed below.

#### 3.1 Level of regional and national implementation of the RES&POA-2030

At the regional level, the implementation of all POAs was at a good level. All AMSs implemented the POAs under Components A–E at a good level, while the POA under Component E at an excellent level (**Figure 1**).

For Cambodia, all POAs were implemented at a limited level. The POAs under Component A were implemented at a good level, while POAs under Component B were not been implemented at all. In addition, the POAs under Components B1 and B2 were implemented at a fair level. Moreover, the country implemented the POAs under Components C, D, and E at a limited level while the POA under Component F was implemented at an excellent level.

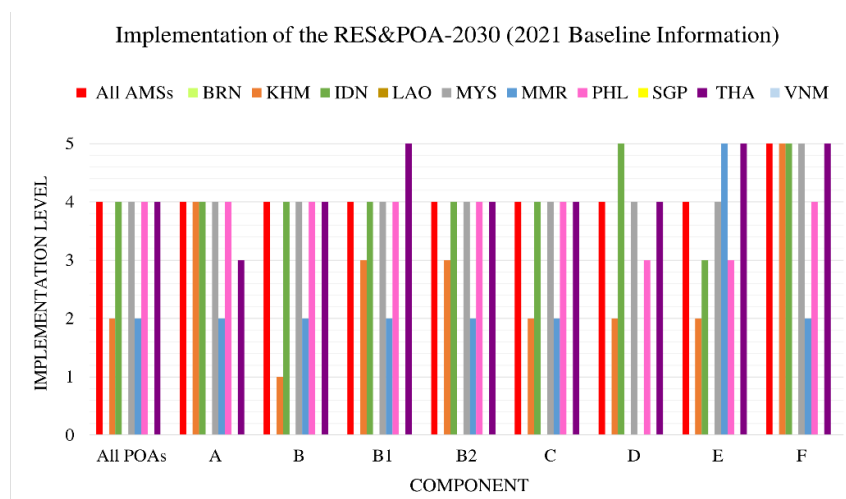
For Indonesia, all POAs were implemented at a good level. The POAs under Components A–C were implemented at a good level, while POAs under Component E were implemented at a fair level. In addition, the POAs under Components D and F were implemented at an excellent level.

For Malaysia, all POAs were implemented at a good level. The POAs under Components A–E were implemented at a good level, while POA under Component F was implemented at an excellent level.

For Myanmar, all POAs were implemented at limited level. The POAs under Components A–C were implemented at a fair level, while POAs under Components E and F were implemented at an excellent level. In addition, the POAs under Component D were not applicable for the country.

For the Philippines, all POAs were implemented at good level. The POAs under Component A–C were implemented at a good level, while POAs under Components D and E were implemented at a fair level. In addition, the POAs under Components F were implemented at a good level.

For Thailand, all POAs were implemented at a good level. The POAs under Component A were implemented at a fair level, while POAs under Components B, B2, C, and D were implemented at a good level. In addition, the POAs under Components B1, E, and F were implemented at an excellent level.



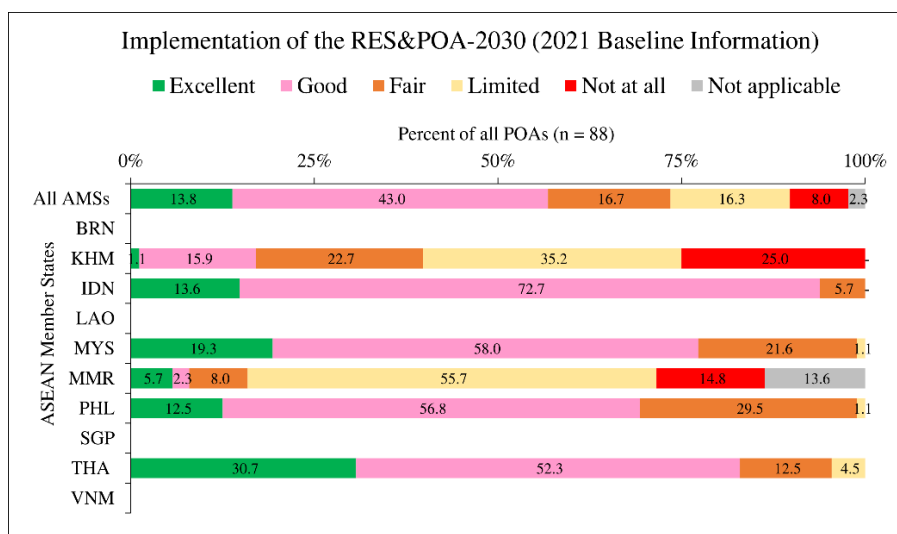


**Figure 1.** Level of implementation of the POAs of the RES&POA-2030 by the ASEAN Member States in 2021 (Implementation level: 0 = N/A, 1 = Not at all, 2 = Limited level, 3 = Fair level, 4 = Good level, 5 = Excellent level; Component: A = Planning and Information, B = Fisheries Management, B1 = Fisheries Management (Marine Fisheries), B2 = Fisheries Management (Inland Fisheries), C = Aquaculture, D = Optimal Utilization of Fish and Fishery Products, E = Fish Trade, F = Regional and International Policy Formulation)

### 3.2 Implementation of the POAs of the RES&POA-2030

**Figure 2** shows that of 88 POAs, all AMSs implemented more than 14 percent at an excellent level, about 43 percent at a good level, 17 percent at a fair level, 16 percent at a limited level, and eight percent were not implemented at all. Around two percent of POAs were not applicable for all AMSs.

At the national level, the implementation of all POAs at an excellent level ranged from one percent to 31 percent. The proportion of POAs implemented at a good level was between two percent and 73 percent. The POAs implemented at a fair level were 6–30 percent, while at a limited level were 1–56 percent. Moreover, 15–25 percent of all POAs were not implemented at all and 2–14 percent were not applicable.

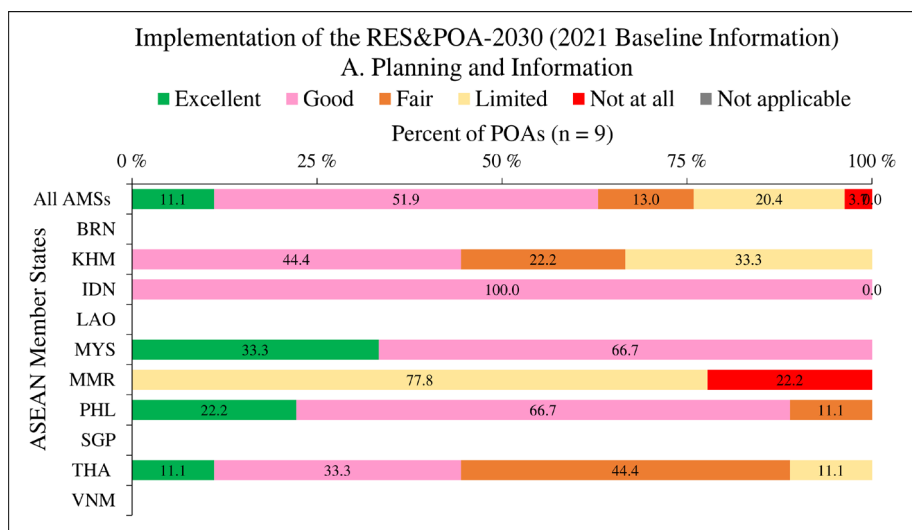


**Figure 2.** Implementation of the POAs of the RES&POA-2030 by the ASEAN Member States in 2021

#### 3.2.1 Component A. Planning and Information

As shown in **Figure 3**, the nine POAs under Component A. Planning and Information, all AMSs implemented 11 percent of the POAs at an excellent level while 52 percent of the POAs were implemented at a good level. All AMSs implemented at a fair level for 13 percent of POAs and at a limited level for 20 percent of POAs. Around four percent of the POAs were not implemented by all AMSs.

For the national level, 11–33 percent of the POAs were implemented at an excellent level. The proportion of POAs implemented at a good level was between 33 percent and 100 percent. The POAs implemented at a fair level were 11–44 percent and at a limited level were 11–78 percent, while 22 percent of POAs were not implemented.



**Figure 3.** Implementation of POAs of the RES&POA-2030 under the Component A. Planning and Information of the ASEAN Member States in 2021

Under Component A, the AMSs encountered several gaps and challenges in implementing the POAs which are listed below;

- Fisheries development planning process still depend on collaboration with international organizations and development partners,
- Systems and mechanisms for collection of statistics and data disaggregated at the species level depend on budget allocation which is still limited,
- Collections of statistics on catch quantities of overall marine species under the international concerns have been done as a whole, but cannot classify into particular species such as sharks. The quantity is recorded in logbook when rare marine aquatic animals/marine mammals are found by fishing vessels as a preliminary estimation of their quantities. There is no concrete survey and data collection has been carried out,
- Though establishing a framework for standardizing regional data and supported the exchange of information with regional and international organizations, there is still lack of concrete linkage mechanisms including information is not up-to-date, and
- Need for the establishment of reference points for the management of fish stocks and aquatic species including harvest control rules.

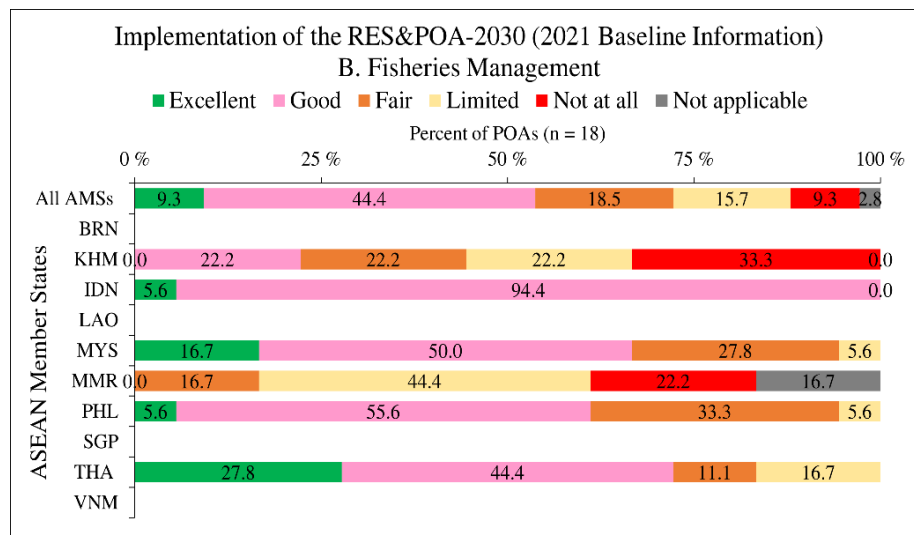
To address the abovementioned gaps and challenges, AMSs may consider the following programs, projects, and/or activities that have been implemented by other AMSs at good and excellent levels.

- Establishment of management board to develop strategic plans for fisheries management, policy to promote and solve fishing problem on offshore sea, aquaculture development plan, inland fisheries management plan, coastal resource management plan, related fisheries industries development policy etc.,
- Management of fisheries is implemented in accordance with relevant domestic laws and regulations,
- Designated areas for fisheries management through a consultative process and scientific advisory group,
- Assessment of the Maximum Sustainable Yield (MSY) and determination of total allowable catch (TAC),
- Issuance of fishing license based on the TAC,
- Preparation of annual fishery statistics and regularly prepare forecast data (marine fisheries, freshwater and aquaculture),
- Programs on enhancement of fish stock,
- Provide regular inputs and reports for RVFR, FAO Global Records, FAO Statistics and SEASOFIA,
- National fisheries statistics are available online,
- Establishment of systematic data collection and development of centralized data, statistics and information in fisheries in coordination with relevant authorities,
- Conduct of national stock assessment program including capacity building of local staff to collect fishery statistics data,
- Development of guidelines for monitoring population of species under international concern
- Conduct of fisheries observer program on species of special interest, and
- Actively participating in knowledge sharing and exchange of research findings, good practices and experience at regional forums.

### 3.2.2 Component B. Fisheries Management

As shown in **Figure 4**, the eighteen under Component B. Fisheries Management, all AMSs implemented 9 percent of the POAs at an excellent level while 44 percent of the POAs were implemented at a good level. All AMSs implemented at a fair level for 19 percent of POAs and at a limited level for 16 percent of POAs. Around 9 percent of the POAs were not implemented by all AMSs, while 3 percent were not applicable.

For the national level, 5–28 percent of the POAs were implemented at an excellent. The proportion of POAs implemented at a good level was between 22 percent and 94 percent. The POAs implemented at a fair level were 11–33 percent and at a limited level were 6–22 percent. Moreover, 22–33 percent of POAs were not implemented and 17 percent were not applicable.



**Figure 4.** Implementation of POAs of the RES&POA-2030 under the Component B. Fisheries Management by the ASEAN Member States in 2021

In Component B, the AMSs faced various gaps and challenges in implementing the POAs as listed below;

- Fisheries law is under process of amendment,
- Since the microcredit offered has restrictions, criteria, and specifications, not all sorts of fishing and agricultural are covered,
- Adoption of energy-efficient technologies on fishing vessels are still low,
- Request for technical and awareness support on application of energy-efficient technologies for fishing gears, fishing vessels and fishing operations,
- In the process of surveying the area for aquaculture and exploring the marine fishery resources in the offshore area, and
- Implementation of climate adaptation and resilience along the coastal areas.

Under Component B, the POAs implemented by the AMSs at good and excellent levels were carried through the following programs, projects, and/or activities:

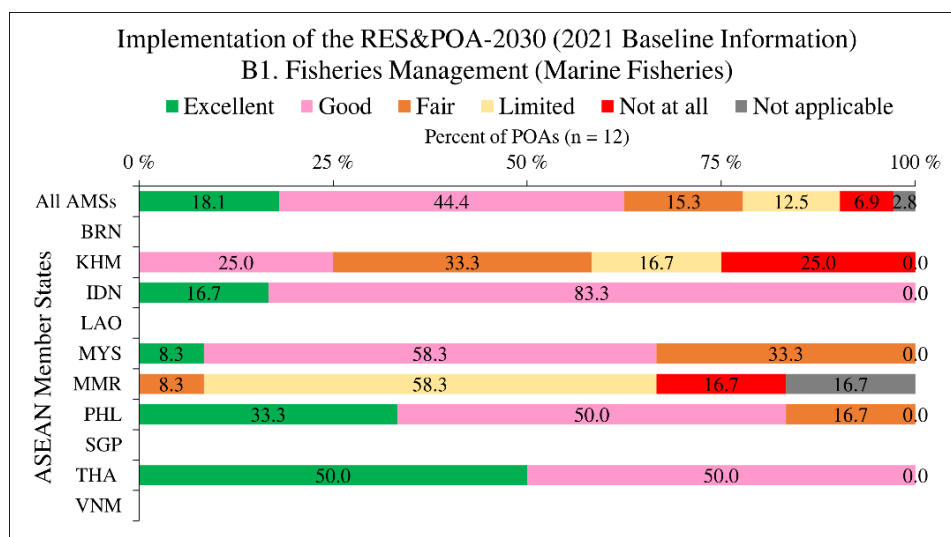
- Regular conducts reviews of fisheries management policies through public consultative process and dissemination to various stakeholders,
- Establishment of comprehensive mechanisms of regional policies (e.g. RPOA-IUU, AN-IUU) and national regulations/policies (e.g. NPOA-IUU) on prevention (such as electronic vessel monitoring, vessel inspections at sea, fisheries observer program, and surveillance at fishing ports), as well as prosecution (e.g. inter-agencies enforcement cooperation, employ smart-application for suppression of illegal fishing activities) to combat IUU fishing,
- Conduct of national fisheries reform and management of fisheries in accordance with relevant domestic laws,
- Establishment of local fisheries organizations along with budget support and adoption of fisheries management approaches (e.g. co-management, EAFM, *refugia*) to engage them if fisheries resource management,
- Synergy between regional and central governments through top-down and bottom-up approaches,
- Establishment of fisheries cooperative for fishers to access financial resources and support for micro loans with low interest rates,

- R&D on environment-friendly fishing gear and fishing vessel design,
- Adoption of the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F) as this is a binding treaty that set the minimum training requirements for safety of life at sea of crews of seagoing fishing vessels,
- Introduction and installation of modernized mechanisms onboard *e.g.* net hauler, telescopic crane and power block to optimize the number of crew,
- Setting up the requirements (temporary employment) for foreign crews, and issuance of fisher identity for local fishers,
- Development of guidelines and criteria for accommodation of crew on local fishing vessel,
- Exploration of deep-sea fisheries,
- Sharing information for fishers *e.g.* fish prices for each species,
- Include small-scale fishery products in national and international trade shows,
- Development of marketing channel(s) for fishery products produced by small-scale fishers
- Program to raise awareness of youth who lives in coastal area on the importance of sustainable management of coastal area, and impacts of climate change to their environment,
- Conduct of fisheries vulnerability assessment to climate change and development of climate adaption and resilience plan,
- Issuance of regulations and programs to address marine litter, and marking of fishing gears, and
- Actively involves in international platform to assess and manage transboundary fishery resources (*e.g.* IOTC, WCPFC, GoTFish Project).

### 3.2.3 Component B1. Fisheries Management (Marine Fisheries)

As shown in **Figure 5**, the twelve POAs under Component B1. Fisheries Management (Marine Fisheries), all AMSs implemented 18 percent of the POAs at an excellent level while 44 percent of the POAs were implement at a good level. All AMSs implemented at a fair level for 15 percent of POAs and at a limited level for 13 percent of POAs. Around 7 percent of the POAs were not implemented by all AMSs, while 3 percent were not applicable.

For the national level, 8–50 percent of the POAs were implemented at an excellent level. The proportion of POAs implemented at a good level was between 25 percent and 83 percent. The POAs implemented at a fair level were 8–33 percent and at a limited level were 17–58 percent, while 17–25 percent of POAs were not implemented. Moreover, 17 percent of POAs were not applicable.



**Figure 5.** Implementation of POAs of the RES&POA-2030 under the Component B1. Fisheries Management (Marine Fisheries) by the ASEAN Member States in 2021

In Component B1, the gaps can be identified on the implementation of POAs by AMSs on several aspects as follows;

- Implementation of the requirements of port State measures and flag State responsibility,
- Conduct research on the impacts of various fishing gear types and methods,
- Implementation of approaches to sustainable management of major critical coastal habitats,

- Compliance with international standards on safety at sea, decent working conditions, and onboard fishing vessels sanitation.

To address abovementioned challenges, the recommendations are taken from actions by AMSs that implemented POAs at good and excellent level as follow;

- Development of guidelines and SOP of Port State Measures and designated port for foreign fishing vessels,
- Actively involvement in consultative dialogues to address issues in fisheries management at regional/sub-regional levels to share and exchange information on updated legal and regulatory frameworks *e.g.* bilateral meetings between neighboring countries, ASEAN Regional Forum workshop on law of the sea and fisheries, AN-IUU etc.,
- Application of Turtle Excluder Device and mesh size rules for trawlers,
- Report of bycatch and discard in the logbook for endangered species on deep sea and tuna fishing vessel,
- Development of fishing gear specification and value-added on used-nets for other products,
- Conduct of capacity building activities for fishers on the use of biodiesel, motorized sailing boats, solar cells, and wind power,
- Establishment of conservation areas and restoration of fishery resources in critical habitats,
- Conduct of training on safety at sea; ratification of STCW-F and C-188 – Work in Fishing Convention,
- Application of FAO manual on safety at sea for small-scale fishers; and develop guidelines on hygiene onboard fishing vessel,
- Conduct of regular artificial reef, habitat restoration, and restocking programs, and
- Collaboration with local community along the coastal area to conduct conservation and management of coastal habitat.

### 3.2.4 Component B2. Fisheries Management (Inland Fisheries)

Figure 6 showed that the eight POAs under Component B2. Fisheries Management (Inland Fisheries), all AMSs implemented 13 percent of the POAs at an excellent level while 48 percent of the POAs were implement at a good level. All AMSs implemented at a fair level for 15 percent of POAs and at a limited level for 13 percent of POAs. Around 10 percent of the POAs were not implemented by all AMSs, while 2 percent were not applicable.

For the national level, 38 percent of the POAs were implemented at an excellent level. The proportion of POAs implemented at a good level was between 38 percent and 75 percent. The POAs implemented at a fair level were 13–50 percent and at a limited level were 13–63 percent. Moreover, 25–38 percent of POAs were not implemented and 13 percent were not applicable.

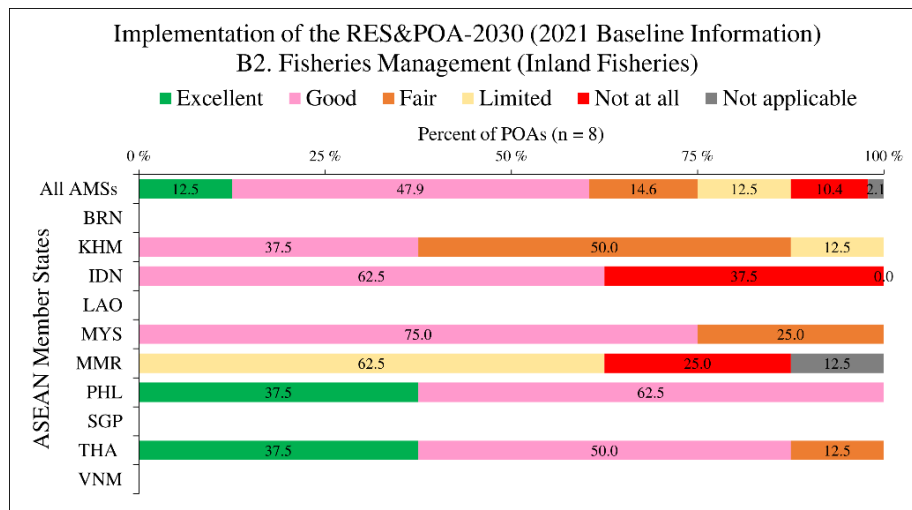


Figure 6. Implementation of POAs of the RES&POA-2030 under the Component B2. Fisheries Management (Inland Fisheries) by the ASEAN Member States in 2021

Under Component B2, the AMSs encountered several gaps and challenges in implementing the POAs which are listed below;

- Collection of catch data and target indicators for supporting inland fisheries management,
- Regulations governing inland fishing in lakes and inland waters,
- Conduct activities to involve stakeholders to restore, raise awareness and conserve important inland habitats,

- Integrated collaboration among the following national agencies and a clear mechanism for their actions at both national and regional levels,
- There is a cooperation between countries involved in sub-regional transboundary mechanism, however, there has not been a concrete solution to the management of cross-border freshwater fisheries.
- Studies on wild fisheries, migration patterns, spawning grounds and seasons, nursery grounds, and environmental issues/impacts are also conducted to understand the stock populations,
- Monitoring and mitigation of the negative impacts of invasive/alien species on the inland ecosystem and biodiversity,
- Monitoring and assessment of the impacts of the construction/operations of man-made structures that could alter the water ways and affect migration and spawning of aquatic animals including capacity to implement the mitigation measures, and
- There is a need to develop knowledge of the staff on the assessment and management of inland fishery resources.

For Component B2, the POAs implemented by the AMSs at good and excellent levels were carried through the following programs, projects, and/or activities;

- Prevention and control of fisheries in critical aquatic animal habitats,
- Importation control of invasive/alien species, and
- Establishment of fish passage and monitor the impacts of man-made structures on fish migration and ecological health or under EIA procedures.

### 3.2.5 Component C. Aquaculture

Figure 7 showed that the twenty-two POAs under Component C. Aquaculture, all AMSs implemented 8 percent of the POAs at an excellent level while 43 percent of the POAs were implement at a good level. All AMSs implemented at a fair level for 17 percent of POAs and at a limited level for 22 percent of POAs. Around 10 percent of the POAs were not implemented by all AMSs, while 1 percent was not applicable.

For the national level, 5–23 percent of the POAs were implemented at an excellent level. The proportion of POAs implemented at a good level was between 59 percent and 73 percent. The POAs implemented at a fair level were 5–32 percent and at a limited level were 41–91 percent. About 18–41 percent of the POAs were not implemented while 5 percent of the POAs were not applicable.

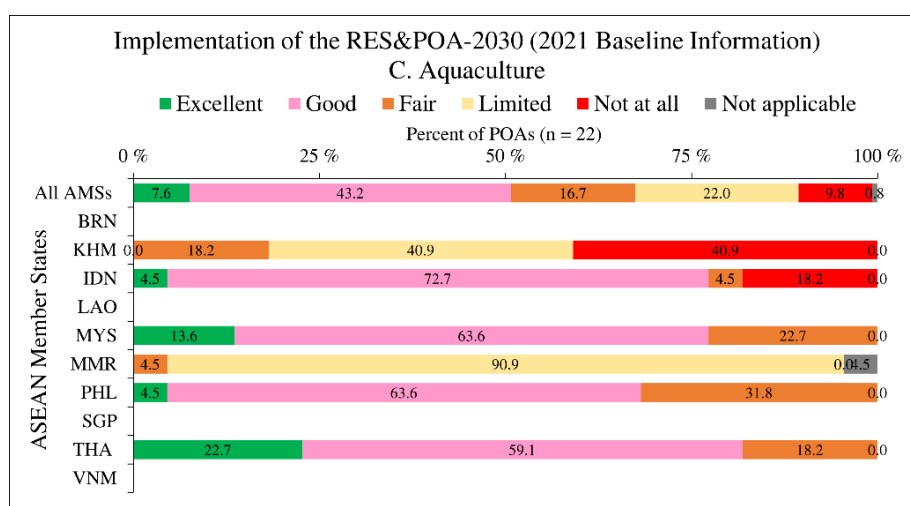


Figure 7. Implementation of POAs of the RES&POA-2030 under the Component C. Aquaculture by the ASEAN Member States in 2021

In Component C, the AMSs faced various gaps and challenges in implementing the POAs as listed below;

- Development and implementation of ASEAN guidelines and measures for environment-friendly and responsible aquaculture and good aquaculture practices,
- Implementation of aquatic biosecurity measures,
- National competent authority's monitoring system/mechanism on warning of emerging/ existing diseases in the country is not yet in place,
- The official list of national concerned diseases of aquatic animals is not yet available

- Capability to diagnose and control aquatic animal diseases,
- Implementation of regional warning systems on aquatic animal health and diseases,
- Promotion of the prudent use of legal antibiotics in aquaculture and monitoring of the impacts of antimicrobial resistance (AMR) on aquatic animals,
- Conduct risk assessments of the culture of exotic aquatic species and prevent the escape of high-risk species,
- Since the microcredit offered has restrictions, criteria, and specifications, not all sorts of agriculture and fisheries are covered,
- Adoption of measures to mitigate the potential impacts of climate change in aquaculture sector,
- Application of the precautionary approach to safeguarding the environment from the over-intensification and expansion of inland, coastal, and offshore aquaculture, and
- Conduct of risk assessment and R&D related to the use of GMO products in aquaculture.

Under Component C, the POAs implemented by the AMSs at good and excellent levels were carried through the following programs, projects, and/or activities:

- Formulation and implementation of ASEAN standards and measures for responsible and environment-friendly aquaculture and good aquaculture practices,
- Implementation of regional warning systems on aquatic animal health and diseases, and application of the precautionary approach to safeguarding the environment from the over-intensification and expansion of inland, coastal, and offshore aquaculture.
- Capacity building on biosecurity system and establishment of quarantine measures before importing aquatic species into the country,
- Adoption of the Regional Technical Guidelines on an Early Warning System for Aquatic Animal Health Emergencies,
- Annual budget for aquaculture development, yearly grant and microcredit for farmers,
- Establishment of accredited laboratories according to ISO/OIE standards,
- Provision on responsible use of antibiotics in aquaculture,
- R&D on local ingredients for alternative protein sources,
- Review mitigation measure from time to time to overcome the potential impacts of climate change,
- Application of geographic information system in identification of appropriate areas and carry capacity for aquaculture as well as managing under national regulations, and
- Provision on aquaculture activities related with GMO species.

### 3.2.6 Component D. Optimal Utilization of Fish and Fishery Products

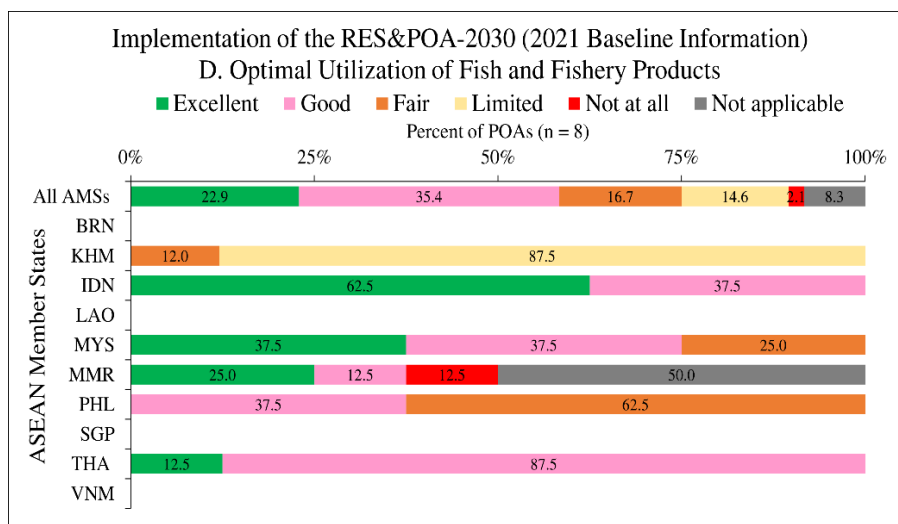
As shown in **Figure 8**, the twelve POAs under Component D. Optimal Utilization of Fish and Fishery Products, all AMSs implemented 23 percent of the POAs at an excellent level while 35 percent of the POAs were implemented at a good level. All AMSs implemented at a fair level for 17 percent of POAs and at a limited level for 15 percent of POAs. Around 2 percent of the POAs were not implemented by all AMSs, while 8 percent were not applicable.

For the national level, 13–63 percent of the POAs were implemented at an excellent level. The proportion of POAs implemented at a good level was between 13 percent and 88 percent. The POAs implemented at a fair level were 25–63 percent and at a limited level were 88 percent, while 13 percent of POAs were not implemented. Moreover, 50 percent of POAs were not applicable.

Under Component D, the gaps can be identified on the implementation of POAs by AMSs as follows;

- Applicability of technologies to optimize the utilization of catches/farmed products,
- Promotion of the production of and preserve the diversity of traditional fish products, and legislation, and coordinated mechanisms/activities with relevant control agencies throughout the fish value chain
- There is a guideline regarding Good Fish Handling Practices, however the practices still needs improvement related to implementation and monitoring in the field.





**Figure 8.** Implementation of POAs of the RES&POA-2030 under the Component D. Optimal Utilization of Fish and Fishery Products by the ASEAN Member States in 2021

To address the abovementioned gaps and challenges, AMSs may consider the following programs, projects, and/or activities that have been implemented by other AMSs at good and excellent levels.

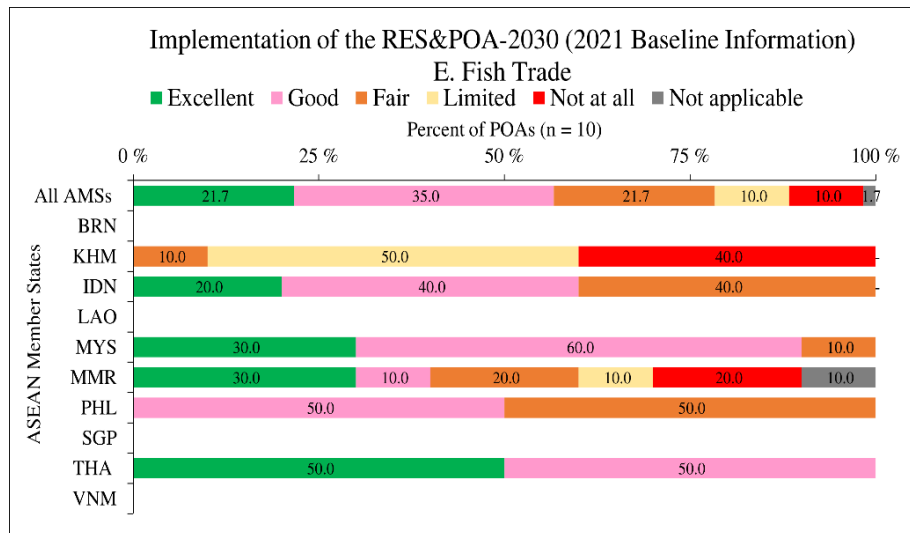
- National program to improve competitiveness and diversification of local food products,
- Improvement of quality assurance systems for small and medium-sized, traditional fishery product processing establishments,
- Facilitation of the facilities and infrastructure of the cold chain system, handling, and processing which aims to stimulate micro and small-scale fish processors to increase business productivity and the quality and quality of processed products,
- Certification system of quality seal for fish and fishery products was established to promote market competitiveness,
- Application of the “Manual of Good Hygiene Practices for Fishing Boats and Fish Landing Sites in Small Scale Fisheries” as a possible guidance for good hygienic practices on fishing boats and landing sites in small scale fisheries,
- Introduction of mechanized harvesting technologies *e.g.* power block to reduce fish loss,
- Use of fish waste to produce aquatic feeds,
- Capacity building for development of local fishery products,
- Improved access to credit and other government financial institutions, and
- Establishment of fishery product traceability and food safety regulations.

### 3.2.7 Component E. Fish Trade

**Figure 9** showed that the ten POAs under Component E. Fish Trade, all AMSs implemented 22 percent of the POAs at an excellent level while 35 percent of the POAs were implemented at a good level. All AMSs implemented at a fair level for 22 percent of POAs. Around 10 percent of POAs were implemented at a limited level as well as were not implemented at all. Moreover, 2 percent of POAs were not applicable.

For the national level, 20–50 percent of the POAs were implemented at an excellent level. The proportion of POAs implemented at a good level was between 10 percent and 60 percent. The POAs implemented at a fair level were 20–50 percent and at a limited level were 10–50 percent. Moreover, 20–40 percent of POAs were not implemented and 10 percent were not applicable.





**Figure 9.** Implementation of POAs of the RES&POA-2030 under the Component E. Fish Trade by the ASEAN Member States in 2021

In Component E, the gaps can be identified on the implementation of POAs by AMSs as follows;

- Implementation of international standards on the trading of fish and fishery products within the region,
- Implementation of the regional/ASEAN standards on the international trading of fishery and aquaculture products,
- Cooperation with other AMSs towards common positions that could be reflected in international fish trade-related fora,
- Implementation of support programs to assist and build the capacity of small-scale producers to comply with standards on safety and quality of fish and fishery products,
- Development/improvement of branding or eco-labeling of fish and fishery products.

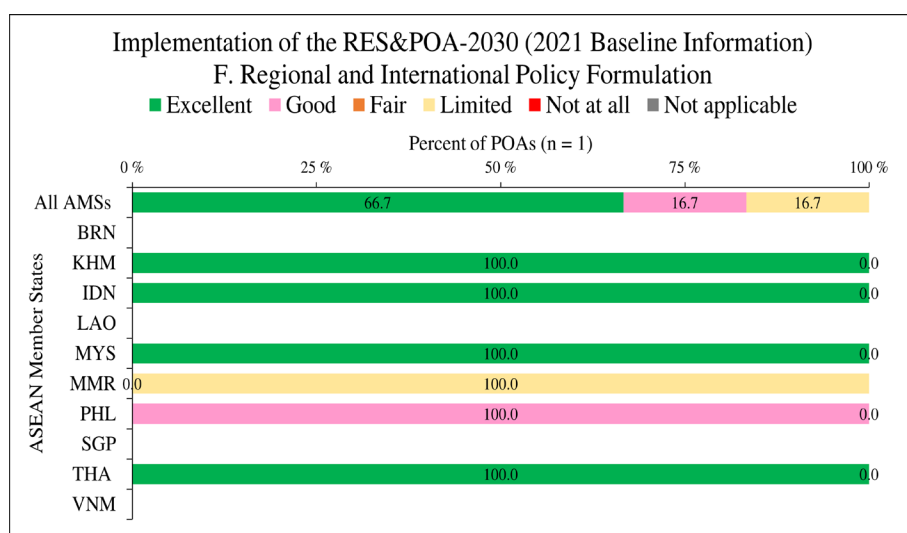
For Component E, the POAs implemented by the AMSs at good and excellent levels were carried through the following programs, projects, and/or activities;

- Cooperation in various platforms which involves trade at regional level such as ASEAN in Goods Agreement (ATIGA), Regional Comprehensive Economic Partnership (RCEP) and ASEAN +1,
- Alignment of national standards with the ASEAN GAqP and ASEAN Shrimp GAP,
- Actively participation in relevant discussion platforms e.g. consultation to develop common position on the listing of aquatic species in the CITES Appendices,
- Development of safety guideline and capacity building of small-scale business actors,
- Development of certification of national eco-labels for fishery products.

### 3.2.8 Component F. Regional and International Policy Formulation

**Figure 10** showed that the one POA under Component F. Regional and International Policy Formulation, all AMSs implemented 67 percent of the POAs at an excellent level while 17 percent of the POAs were implemented at both good and limited levels. There is no gap in the implementation of POA in this component.

For the national level, Cambodia Indonesia, Malaysia and Thailand implemented 100 percent of the POA at an excellent level while Myanmar implemented 100 percent of the POA at limited level and Philippines implemented 100 of the POA at a good level.



**Figure 10.** Implementation of POAs of the RES&POA-2030 under the Component Regional and International Policy Formulation by the ASEAN Member States in 2021

#### 4. SUMMARY AND RECOMMENDATIONS

Based on the implementation of all POAs at the regional level, the AMSs implemented all POAs at a good level. All AMSs implemented the POAs under Components A–E at a good level, while the POA under Component E at an excellent level. At national level, there were two countries implemented all POAs at a limited level *i.e.* Cambodia and Myanmar while four countries implemented all POAs at a good level *i.e.* Indonesia, Malaysia, Philippines, and Thailand. For the 88 POAs, all AMSs implemented more than 14 percent at an excellent level, about 43 percent at a good level, 17 percent at a fair level, 16 percent at a limited level, and 8 percent were not implemented at all. Around 2 percent of POAs were not applicable for the AMSs.

The constraints on the implementation of POAs under Component A. Planning and Information were the capacity and mechanism for collection of statistics and establishment of reference points for the management of fish stock as well as for aquatic species under international concern. On these concerns, the centralized data, statistics, and information system on fisheries should be established to support decision making, conduct of national stock assessment program including capacity building to local staff to collect fishery statistics data, and develop reference points, harvest control rules, and fishing grounds for major commercially important species, development of guidelines for identification and monitoring of species under international concern, and participate in knowledge sharing and exchange of research findings, good practices and experience at regional forums.

The issues of on the implementation of POAs under the Component B. Fisheries Management were the timeliness in which national policies are reviewed and updated, the adoption of fisheries management approaches, restriction to access microcredits, application of energy-efficient technologies for fishing gear, fishing vessels, and fishing operations, the sufficiency of the country's capable fishing crew and appropriate technologies to optimize the number of crew onboard fishing vessels, the implementation of good and appropriate employment practices, the exploration and sustainable exploitation of potentially underutilized fishery resources, and monitoring and assessment of the impacts of climate change on fisheries and aquaculture.

With the abovementioned concerns, several recommendations were identified such as AMSs may regularly conduct reviews of fish stock assessment including public consultation to engage relevant stakeholders and disseminate the significant information; establishment of comprehensive mechanisms of regional policies and national regulations/policies on prevention and prosecution to combat IUU fishing, management of fisheries in accordance with relevant domestic laws, establishment of local fisheries organizations along with budget support; adoption of ecosystem approach to fisheries management; synergy between regional and central governments through top-down and bottom-up approaches; R&D on environmental friendly fishing gear and fishing vessel design; adoption of the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F) as this is a binding treaty that set the minimum training requirements for safety of life at sea of crews of seagoing fishing vessels; introduction and installation of modernized mechanisms onboard *e.g.* net hauler, telescopic crane and power block to optimize the number of crew; setting up the requirements (temporary employment) for foreign crews; exploration of deep-sea fisheries; conduct of fisheries

vulnerability assessment to climate change and development of climate adaption and resilience plan; issuance of regulations and programs to address marine litter, and marking of fishing gears; and actively participate in international platform to assess and manage transboundary fishery resources.

The implementation of POAs under Component B1. Fisheries Management (Marine Fisheries) had been constrained to the implementation of requirements of port State measures and flag State responsibilities, execution of research on the impacts of various fishing gear types and methods, implementation of approaches to sustainable management of major critical coastal habitats, and country's compliance with international standards on safety at sea, decent working conditions, and onboard fishing vessels sanitation. The recommendations are for example; development of guidelines and SOP of Port State Measures and designated port for foreign fishing vessels; development of fishing gear specification and value-added on used-nets for other products; application of Turtle Excluder Device and mesh size rules; establishment of conservation areas and restoration of fishery resources in critical habitats; conduct of training on safety at sea; ratification of STCW-F and C-188 – Work in Fishing Convention; application of FAO manual on safety at sea for small-scale fishers; develop guidelines on hygiene onboard fishing vessel; conduct of regular artificial reef, habitat restoration, and restocking programs, and collaboration with local community along the coastal area to conduct conservation and management of coastal habitat.

The constraints of the implementation of POAs under Component B2. Fisheries Management (Inland Fisheries) were collection of catch data and target indicators for supporting inland fisheries management; regulations governing inland fishing in lakes and inland waters; conduct activities to involve stakeholders to restore, raise awareness and conserve important inland habitats; integrated collaboration among the following national agencies and a clear mechanism for their actions at both national and regional levels; there has not been a concrete solution to the management of cross-border freshwater fisheries; monitoring and mitigation of the negative impacts of invasive/alien species on the inland ecosystem and biodiversity, as well as monitoring and assessment of the impacts of the construction/operations of man-made structures that may alter waterways and affect aquatic animal migration and spawning, including the capacity to implement mitigation measures. With these concerns, the recommendations included importation control of invasive/alien species; establishment of fish passage and monitor the impacts of man-made structures on fish migration and ecological health or under EIA procedures; and There is a need to develop knowledge of the staff on the assessment and management of inland fishery resources.

The issues of on the implementation of POAs under the Component C. Aquaculture such as the formulation and implementation of ASEAN standards and measures for responsible and environment-friendly aquaculture and good aquaculture practices; national warning systems on aquatic animal health and diseases is not yet in place; official list of national concerned diseases of aquatic animals is not yet available; capability to diagnose and control aquatic animal diseases; application of the precautionary approach to safeguarding the environment from the over-intensification and expansion of inland, coastal, and offshore aquaculture. With these concerns, several recommendations were identified; promoting national good aquaculture practices in line with the ASEAN Good Aquaculture Practices; capacity building on biosecurity system and establishment of quarantine measures before importing aquatic species into the country; adoption of the Regional Technical Guidelines on an Early Warning System for Aquatic Animal Health Emergencies; establishment of accredited laboratories according to ISO/OIE standards; provision on responsible use of antibiotics in aquaculture; R&D on local ingredients for alternative protein sources; application of geographic information system in identification of appropriate areas and carry capacity for aquaculture as well as managing under national regulations; and provision on aquaculture activities related with GMO species.

For Component D. Optimal Utilization of Fish and Fishery Products had the constraints on applicability of technologies to optimize the utilization of catches/farmed products, promotion of the production of and preserve the diversity of traditional fish products, and legislation, and coordinated mechanisms/activities with relevant control agencies throughout the fish value chain. With these concerns, AMSs may consider the “Manual of Good Hygiene Practices for Fishing Boats and Fish Landing Sites in Small Scale Fisheries” as a possible guidance for good hygienic practices on fishing boats and landing sites in small scale fisheries; introduction of mechanized harvesting technologies *e.g.* power block to reduce fish loss; use of fish waste to produce aquatic feeds; capacity building for development of local fishery products; establishment of fishery product traceability and food safety regulations.

Under Component E. Fish Trade had several issues on the implementation of POAs such as on cooperation with other AMSs to implement international standards on the trading of fish and fishery products; cooperation with other AMSs towards common positions that could be reflected in international fish trade-related for a;

implementation of support programs to assist and build the capacity of small-scale producers to comply with standards on safety and quality of fish and fishery products; development/improvement of branding or eco-labeling of fish and fishery products. In this regard, AMSs should cooperate in various platforms which involves trade at regional level such as ASEAN in Goods Agreement (ATIGA), Regional Comprehensive Economic Partnership (RCEP) and ASEAN +1; alignment of national standards with the ASEAN GAqP and ASEAN Shrimp GAP; actively participate in relevant discussion platforms *e.g.* consultation to develop common position on the listing of aquatic species in the CITES Appendices; development of safety guideline and capacity building of small-scale business actors; and development of certification of national eco-labels for fishery products.

In summary, AMSs have implemented the RES&POA-2030 actively. However, there are many gaps and challenges in the implementation of the RES&POA-2030 (the Baseline Information). There is possibility to improve such implementation at national level to ensure that existing regional policies are implemented and translated into national policy, program, and legislation (where appropriate). As many countries had a certain level of implementation of the RES&POA-2030 and reported various good practices to be used as guide and applied in each local context. The recommendations were shared among AMSs for improving such implementation. Upon the implementation in the coming years, these gaps would be expected to decrease, hence, enhancing the sustainable fisheries of the region.

### Template for the Monitoring and Evaluation of the Implementation of RES&POA-2030

Following the adoption of the Resolution and Plan of Action on Sustainable Fisheries for Food Security in the ASEAN Region Towards 2030 (RES&POA-2030) in 2020, the Concept Note for organizing the Regional Workshop on the Roadmap for Monitoring and Evaluation of the Implementation of the Resolution and Plan of Action on Sustainable Fisheries for Food Security in the ASEAN Region Towards 2030 (RES&POA-2030) was endorsed during the 53<sup>rd</sup> Meeting of the SEAFDEC Council in 2021. The objectives of monitoring and evaluation of the implementation of the RES&POA-2030 are to 1) assess the level of regional and national implementation of the RES&POA-2030; 2) identify the gaps, challenges, and lesson learned from the implementation of the RES&POA-2030; and 3) provide recommendations to the ASEAN Member States to enhance the implementation of the RES&POA-2030. The results of the monitoring and evaluation of the implementation of the RES&POA-2030 would support the AMSs in enhancing the implementation of the RES&POA-2030 at the national and regional levels through evidence-based development and implementation of policies, programs, and projects for the sustainable development of fisheries and aquaculture in the Southeast Asian region.

During a series of online Regional Workshops organized by SEAFDEC in March and June 2022, SEAFDEC in collaboration with the ASEAN Member States (AMSs), namely: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam, developed and adopted the key indicators and template for monitoring and evaluation of the implementation of the RES&POA-2030 for the three periods (*i.e.* in 2021 for baseline information, 2025 for midterm evaluation, and 2029 for final evaluation). Moreover, the SEAFDEC National Coordinators were designated as the focal persons to facilitate the monitoring and evaluation of the implementation of RES&POA-2030.

#### **Instruction**

1. This Template is a tool for the monitoring and evaluation of the implementation of the POA-2030 through the self-assessment of the key indicators by the respective AMSs. The Template should be accomplished by the AMSs in each period, *i.e.* 2021 for baseline information, 2025 for midterm evaluation, and 2029 for final evaluation.
2. The Template is composed of a table with four columns *i.e.* column 1: POA-2030 no., column 2: Key indicators, column 3: Rating, and column 4: Criteria used for rating.
3. For column 1, please refer to the RES&POA-2030 to see the details of the POA-2030. The document is accessible at <http://hdl.handle.net/20.500.12066/6583>.
4. For column 2, the key indicators are categorized into six components of the POA-2030, namely: A) Planning and Information, B) Fisheries Management, C) Aquaculture, D) Optimal Utilization of Fish and Fishery Products, E) Fish Trade, and F) Regional and International Policy Formulation. Please note that each POA-2030 has either one or two key indicators.
5. For column 3, the AMSs are requested to rate each key indicator using common criteria (*e.g.* policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others). Each key indicator should be rated as 1 = not at all, 2 = at a limited level, 3 = at a fair level, 4 = at a good level, and 5 = at an excellent level. If the key indicator is not applicable for the country, please indicate N/A.
6. The criteria used for rating each key indicator should be specified in column 4. These criteria should be maintained during each period of the monitoring and evaluation of the implementation of the POA-2030 (*i.e.* in 2021 for baseline information, in 2025 for midterm evaluation, and in 2029 for final evaluation). For key indicators that are N/A, please provide the explanation also in column 4.
7. The AMSs are requested to provide all the required inputs in columns 3 and 4 so that SEAFDEC will be able to facilitate the efficient analysis of data and information. The SEAFDEC Secretariat will coordinate with the respective AMSs to verify the information, as needed.
8. The SEAFDEC National Coordinators are requested to coordinate with the relevant agencies/institutions in their respective countries to gather and compile the relevant data and information as inputs to this Template.
9. The accomplished Template should be submitted by the SEAFDEC National Coordinators to the SEAFDEC Secretariat no later than **14 October 2022**.

Country: \_\_\_\_\_

Period:  2021 Baseline Information     2025 Midterm Evaluation     2029 Final Evaluation**A. Planning and Information**

POA-2030 No.	Key indicators	Rating (1–5 or N/A)	Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)
1	Level of integration of planning of marine capture fisheries, inland capture fisheries, and aquaculture sub-sectors for sustainable fisheries (e.g. availability of fisheries management/master plan that integrated all fisheries sub-sectors, multi-stakeholder participation in the planning process)		
2	Level of the country's capacity to develop a plan towards sustainable fisheries		
3	Level of sufficiency of the country's systems and mechanisms for collection of statistics and data disaggregated at the species level to support fisheries valuation including monitoring of their performance (e.g. existing programs on data collection)		
4	Level of the country's capacity to establish reference points for the management of fish stocks (e.g. biomass, MSY, ABC, TAE, spawning potential ratio (SPR), minimum length (especially for blue swimming crab)		
5a	Level of the country's capacity to collect data and information on aquatic species under international concern (e.g. sharks, rays, sea turtles, catadromous eels, aquatic mammals)		Please specify all species 1) _____ 2) _____
5b	Level of the country's application of SOPs to harmonize/standardize data collection methods for species under international concern		
6	Level of applicability of regional fishery information systems and mechanisms to facilitate sharing, exchange, and compilation of statistics and information that are harmonized with international statistical standards to the country's fishery information systems and mechanisms (e.g. data and information digitization programs)		
7	Level of sharing of relevant statistics and fisheries-related data and information between the country's fisheries agency and other authorities (e.g. in-country coordination)		

POA-2030 No.	Key indicators	Rating (1–5 or N/A)	Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)
8	Level of the country’s application of simple and practical indicators for planning, monitoring, and evaluation of fisheries		
9	Level of the country’s sharing/ exchanging of information on research findings, good practices, and experiences among countries and regional institutions		

**B. Fisheries Management**

POA-2030 No.	Key Indicators	Rating (1-5 or N/A)	Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)
10	Level of timeliness of the country’s reviewing and updating of national fisheries policies, legal and institutional frameworks in consultation with stakeholders		
11	Level of the country’s acceleration of the development of fisheries management plans for conservation and management		
12	Level of the country’s implementation of measures to prevent unauthorized fishing and eliminate illegal fishing practices		
13	Level of the country’s implementation of comprehensive policies for fisheries management		
14	Level of the country’s application of fisheries management approaches (e.g. co-management, EAFM, among others)		
15	Level of capacity of the country’s fisheries communities and capability of fisheries-related organizations to implement necessary actions to address issues on the well-being of fishers		
16	Level of participation of the country’s local communities and fisheries-related organizations in fisheries management		
17	Level of the country’s awareness/ perception of the need to develop financial incentives (e.g. micro-credit) for small-scale stakeholders and cooperatives for the responsible development of fisheries enterprises and developmental activities that optimize economic returns		

POA-2030 No.	Key Indicators	Rating (1-5 or N/A)	Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)
18	Level of the country's application of energy-efficient technologies for fishing gears fishing vessels, and fishing operations		
19a	Level of sufficiency of the country's capable fishing crew and workers in the fishing industry (e.g. enough number of competent fishing crew and workers, programs for new crew members and workers)		
19b	Level of the country's application of appropriate technologies to optimize the number of crew onboard fishing vessels		
20	Level of the country's implementation of good and appropriate employment practices in accordance with domestic laws and regulations or relevant international instruments <ul style="list-style-type: none"> <li>• relevant provisions of ILO Conventions (e.g. C-188)</li> </ul>		
21	Level of capacity of the country's relevant authorities and communities to collaboratively resolve conflicts on resources utilization (e.g. establishment of an authorized multi-stakeholder committee at local level)		
22	Level of the country's exploration and sustainable exploitation of potential underutilized fishery resources through comprehensive fishery resources surveys in a precautionary manner (e.g. exploitation of deep-sea resources)		
23a	Level of the country's implementation of the SSF Guidelines		
23b	Level of the country's effort to collect sex-disaggregated statistics on fishers and fish workers in the fisheries value chain		
24	Level of the country's effort to promote fair distribution of benefits from the intra-regional and international trade of fish and fishery products among small-scale actors along the value chain (e.g. national policy for trading of fish and fishery products from small-scale fisheries to international markets, sharing of information on market prices)		
25a	Level of the country's monitoring and assessment of the impacts of climate change on fisheries and aquaculture		



POA-2030 No.	Key Indicators	Rating (1-5 or N/A)	Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)
25b	Level of country's adjustment of existing programs taking into consideration the effects of climate change and natural disasters		
26	Level of the country's assessment and management of the impacts of aquatic pollution (e.g. marine debris, ALDFG, microplastics) on fisheries and aquaculture		
27	Level of the country's cooperation with other countries to assess and manage straddling, transboundary, and highly migratory fishery resources, as appropriate (e.g. country's participation in BOBLME, GOT-Fish, RFMOs, bilateral arrangements)		
<b>Marine Fisheries</b>			
28	Level of the country's implementation of measures and activities to combat IUU fishing activities (e.g. NPOA-IUU, IUU-related information sharing, fishing vessel record database, VMS, port-in & port-out controls, conservation and management measures of relevant RFMOs of which SEAFDEC Member Countries are a member, MCS infrastructure and equipment*)		
29	Level of the country's involvement and participation at regional, sub-regional, and bilateral levels on fisheries management, combating IUU fishing, and MCS network through inter-agency coordination and information sharing (e.g. country's cooperation/ coordination with AN-IUU, RPOA-IUU, among others)		
30	Level of the country's utilization of existing regional frameworks and tools for combating IUU fishing activities (e.g. RFVR, ACDS, and innovative technologies)		
31	Level of involvement of the country's legal officers in consultative dialogues at regional/sub-regional level to share and exchange information on updated legal and regulatory frameworks to address issues in fisheries management, as applicable		

\* FAO. (2003). *Recent Trends in Monitoring, Control and Surveillance Systems for Capture Fisheries*. FAO Fisheries Technical Paper 415. Rome, FAO.

POA-2030 No.	Key Indicators	Rating (1-5 or N/A)	Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)
32a	Level of capacity of the country's relevant authorities to implement the requirements of port State measures		
32b	Level of capacity of the country's relevant authorities to implement the requirements of flag State responsibilities		
33a	Level of the country's effort to conduct research on the impacts of various fishing gear types and methods on aquatic ecosystems and animal populations		
33b	Level of country's development and promotion of environment-friendly fishing practices (e.g. low impact and fuel-efficient (LIFE) fishing gears/methods)		
34	Level of the country's implementation of regional and international guidelines to mitigate bycatch and discard		
35	Level of the country's promotion of adoption of resource enhancement approaches with appropriate monitoring and evaluation programs (e.g. artificial reefs, restocking programs, mobile hatcheries, habitat restoration)		
36	Level of the country's application of the fisheries <i>refugia</i> concept		
37	Level of the country's implementation of approaches to sustainable management of major critical coastal habitats (e.g. mangroves, coral reefs, seagrasses)		
38	Level of the country's compliance with international standards on safety at sea, decent working conditions, and onboard fishing vessels sanitation		
39	Level of the country's effort to assess the possible impacts of subsidies on fisheries, particularly on the special requirements and the needs of small-scale fisheries in the region		
<b><i>Inland Fisheries</i></b>			
40	Level of the country's implementation of comprehensive policies and provision of support to legal and institutional frameworks for inland fisheries (e.g. co-management, rights-based fisheries, ecosystem approach to inland fisheries management)		

POA-2030 No.	Key Indicators	Rating (1-5 or N/A)	Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)
41	Level of awareness of the country's relevant stakeholders of the importance of inland fisheries and of the need to rehabilitate/restore habitats and aquatic species for local food security		
42	Level of the country's effort to monitor and mitigate the negative impacts of invasive/alien species on the inland ecosystem and biodiversity		
43a	Level of coordination among the country's national agencies on multiple utilization of inland water resources to mitigate conflicts among users		
43b	Level of the country's involvement in sub-regional mechanisms to address transboundary inland fisheries management issues, where applicable		
44a	Level of the country's effort to promote R&D to understand the migration patterns, spawning grounds and seasons, and nursery grounds of important inland aquatic animals		
44b	Level of the country's effort to sustain inland fisheries ecosystem health, habitat inter-connectivity, and dry season management		
45a	Level of the country's effort to monitor and assess the impacts of construction/operations of man-made structures on inland waterways		
45b	Level of the country's capacity to implement the mitigation measures and appropriate conservation and management measures for such impacts		
46a	Level of the country's effort to undertake coordinated planning and management on the use of inland water bodies (e.g. closed and open season regulations, leasable or auction fisheries, special area for conservation and fish <i>refugia</i> (SPECTRA))		
46b	Level of capacity of the country's human resources and institutions to implement the plan and manage the use of inland water bodies		

POA-2030 No.	Key Indicators	Rating (1-5 or N/A)	Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)
47	Level of the country's effort to develop/implement the guidelines to promote the use of practical and simple indicators for inland/floodplain fisheries within the national inland fisheries management framework (provincial/ community notifications for inland fisheries measures based on indicators e.g. succession of species, amount of rainfall and water inflow, level and duration of flood, abundance of macro-invertebrates)		

### C. Aquaculture

POA-2030 No.	Key Indicators	Rating (1-5 or N/A)	Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)
48	Level of the country's implementation of programs and policies on aquaculture to address social, economic, and environmental aspects of sustainable aquaculture to improve food security, livelihoods, and employment, and alleviate poverty (e.g. rural aquaculture program)		
49	Level of the country's implementation of the ASEAN guidelines for environment-friendly and responsible aquaculture and good aquaculture practices		
50	Level of coordination among the country's national agencies to integrate aquaculture into rural development activities within the context of multiple-use of land and water resources		
51	Level of the country's utilization of advanced technologies for marine and inland aquaculture such as full-cycle breeding and culture of high-value species		
52	Level of the country's implementation of measures or strategies for responsible, environment-friendly, and sustainable aquaculture		
53	Level of the country's support for R&D on aquaculture (e.g. genetic resources, impacts of climate change, feed, aquatic animal health management)		

POA-2030 No.	Key Indicators	Rating (1-5 or N/A)	Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)
54	Level of the country's promotion of production and distribution of good quality broodstock and seeds (e.g. specific pathogen-free (SPF), specific pathogen resistant (SPR))		
55	Level of the country's implementation of aquatic biosecurity measures		
56	Level of the country's implementation of policies that complement and support fish farmers, hatchery operators, and other stakeholders		
57	Level of the country's implementation of good and appropriate employment practices in accordance with domestic laws and regulations or relevant international instruments		
58	Level of the country's awareness/perception of the need to develop financial incentives and micro-credit systems for the responsible development of aquaculture enterprises and developmental activities that optimize economic returns		
59	Level of the country's implementation of programs/efforts to regulate the introduction and movement of aquatic organisms in accordance with regional and international guidelines (e.g. national measures or SOPs including quarantine measures on the importation of aquatic species)		
60	Level of the country's implementation of programs/efforts to prevent and control serious disease outbreaks (e.g. R&D, OIE standards, other initiatives following standard procedures)		
61	Level of the country's capability to diagnose and control aquatic animal diseases (e.g. human resources, assessment and development plan, harmonized diagnostic methods/protocols, laboratories)		
62	Level of the country's involvement in the implementation of regional warning systems on aquatic animal health and diseases (e.g. compliance with the Regional Technical Guidelines on Early Warning System for Aquatic Animal Health Emergencies)		
63	Level of the country's effort to promote the prudent use of legal antibiotics in aquaculture and monitoring of the impacts of antimicrobial resistance (AMR) on aquatic animals		

<b>POA-2030 No.</b>	<b>Key Indicators</b>	<b>Rating (1-5 or N/A)</b>	<b>Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)</b>
64	Level of the country's efficient usage of aquafeeds including the use of alternative protein sources to reduce fish meal and other fish-based products (e.g. utilization of the Regional Database of Alternative Feed Ingredients in Aquaculture)		
65	Level of the country's effort to conduct risk assessments of the culture of exotic aquatic species and prevent the escape of high-risk species		
66	Level of the country's implementation of programs to improve human resource capabilities for responsible aquaculture		
67	Level of the country's implementation of policies and strategies that enable the aquaculture sector to adopt measures to mitigate the potential impacts of climate change and environmental stressors		
68	Level of the country's application of the precautionary approach to safeguarding the environment from the over-intensification and expansion of inland, coastal, and offshore aquaculture (e.g. utilization of tools such as software program to measure carrying capacity)		
69	Level of the country's effort to conduct risk assessment and R&D related to the use of GMO products in aquaculture		

#### **D. Optimal Utilization of Fish and Fishery Products**

<b>POA-2030 No.</b>	<b>Key Indicators</b>	<b>Rating (1-5 or N/A)</b>	<b>Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)</b>
70	Level of country's applicability of technologies to optimize the utilization of catches/farmed products		
71	Level of the country's effort to promote the production of and preserve the diversity of traditional fish products		
72a	Level of the country's effort to implement quality and safety management systems that support the competitive position of ASEAN fish and fishery products in the global markets		

POA-2030 No.	Key Indicators	Rating (1-5 or N/A)	Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)
72b	Level of the country's effort to promote the implementation of the quality and safety management systems among small and medium enterprises		
73	Level of the country's legislation, and coordinated mechanisms/activities with relevant control agencies throughout the fish value chain (e.g. product traceability or certification)		
74	Level of country's effort to promote and conduct training programs and develop training materials to upgrade the technical skills and competencies of relevant personnel in the public and private sectors on fisheries post-harvest technologies, and food quality and safety management systems		
75	Level of the country's awareness/perception of the need to develop financial incentives and micro-credit systems for the responsible development of fisheries and aquaculture enterprises and developmental activities that optimize economic returns, specifically for the post-harvest fisheries sub-sector		
76	Level of the country's implementation of good and appropriate employment practices in accordance with domestic laws and regulations or relevant international instruments		
77	Level of the country's capability to adopt standards and guidelines for handling fish and fishery products, and implement hygienic fish handling onboard fishing vessels and market places		

#### E. Fish Trade

POA-2030 No.	Key Indicators	Rating (1-5 or N/A)	Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)
78	Level of the country's cooperation with other AMSs to implement international standards on the trading of fish and fishery products within the region (e.g. development of regional guidelines relevant to international standards on trading of fish and fishery products, harmonization and standardization of fish trade system including farm/hatchery certification through		

POA-2030 No.	Key Indicators	Rating (1-5 or N/A)	Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)
	bilateral agreements or mutual recognition agreement)		
79	Level of the country's effort to implement the regional/ASEAN standards (e.g. ASEAN GAqP, ASEAN Shrimp GAP, others) on the international trading of fishery and aquaculture products		
80	Level of the country's implementation of fish trade-related standards (e.g. SPS/TBT measures)		
81	Level of country's development and implementation of national laws, rules, and regulations on trading of species in accordance with international laws		
82	Level of the country's cooperation with other AMSs towards common positions that could be reflected in international fish trade-related fora		
83	Level of the country's engagement of private sector to address trade-related issues and promote/sustain regional and international trade		
84	Level of the country's implementation of support programs to assist and build the capacity of small-scale producers to comply with standards on safety and quality of fish and fishery products		
85	Level of the country's effort to assist small-scale producers from both capture fisheries and aquaculture in securing and maintaining access to markets at national, regional, and international levels		
86	Level of the country's application of traceability systems to certify or validate the information for the whole supply chain		
87	Level of country's effort to develop/improve branding or eco-labeling of fish and fishery products that demonstrate the eco-friendly and socially acceptable nature of ASEAN products		





**F. Regional and International Policy Formulation**

<b>POA-2030 No.</b>	<b>Key Indicators</b>	<b>Rating (1-5 or N/A)</b>	<b>Criteria used for rating (e.g. policies, programs, legal frameworks, working mechanisms, human resources, financial resources, others)</b>
88	Level of the country's participation and involvement in fisheries-related international fora and technical committees to promote the ASEAN interests at the global level		

## THE OUTLINE OF JAPANESE TRUST FUND-7

### INTRODUCTION

The Government of Japan has provided SEAFDEC with the Japanese Trust Fund (JTF) since 1998 for about 25 years already. Currently, the JTF is in JTF6-2 under the title ‘Promotion of Sustainable Fisheries in Southeast Asian Region,’ harmonized with the Resolution on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030 (RES&POA-2030) and other important international policy frameworks and emerging issues such as the United Nations 2030 Agenda for Sustainable Development adopted in 2015, particularly those that contribute to achieving sustainable development and management of fisheries (e.g. SDG1, 2, 5, 14) which started in 2020 and will finish in 2024.

The new phase of “Japanese Trust Fund 7 (JTF-7)” is expected to succeed the JTF6-2 projects which begin in 2025 for 5 years. SEAFDEC has drafted the outlines of the new JTF-7. The draft outlines will be submitted to the Fisheries Agency of Japan in January 2023 for their consideration, and as a reference for the national budget request for the 1<sup>st</sup> year of JTF-7.

### THE OUTLINE OF JTF-7

#### **Theme: Enhanced Capability of Fisheries and Aquaculture in Southeast Asia**

##### **Focused on:**

- Improvement of the reliability of fishery stock assessment of each AMS through sharing good practices and methods in collaboration with SEAFDEC Departments and AMSs.
- Dissemination of updated aquaculture technology in collaboration with SEAFDEC Departments and AMSs.

#### ***Concept 1: Strengthen collaboration and capacity building on common issues in Southeast Asia***

*(Scope:)* international fisheries-related issues, regional fishery information system/mechanisms, IUU elimination, fishing technology, aquatic environmental matter, training for the acquisition of expertise, etc.

##### *(Activities: some examples)*

- Consultation and capacity-building programs on international fish trade-related issues
- Harmonization and dissemination of fishery statistics and information
- Development of measures to eliminate IUU fishing (including capacity building for Monitoring, Control, and Surveillance (MCS))
- Encourage /Promote traceability for fish and fishery products
- Facilitate the concept of “Low Impact and Fuel Efficient” fishing
- Research and study of aquatic pollution including marine debris
- Training of expertise in sustainable fisheries for AMS officers in Japan

#### ***Concept 2: Enhanced national and regional research capacities to manage fisheries resources***

*(Scope:)* Stock and risk assessment, fishery resource management, enhancement of marine/inland fisheries resources and its research, mitigation technologies: etc.

##### *(Activities: some examples)*

- Enhanced the stock and risk assessment of neritic tuna and small pelagic species in collaboration with SEAFDEC Departments and AMSs.
- Introducing the latest research instruments and tools to improve biodata for stock and risk assessment, and updating its analysis method/knowledge. Introducing updated stock & risk assessment models from the related Japanese scientists and setting for co-research activities.
- Research of regional useful species (e.g. sharks & rays, tropical anguillid eels, etc.) for sustainable utilization.
- Facilitate collection of data and information in inland fishery including data collecting through artificial intelligence technologies devices.-Development of methods for the conservation and enhancement of marine/inland fishery resources.



**Concept 3: Improvement of sustainability and productivity in Aquaculture**

(Scope:) Initiatives for Good Aquaculture Practice (GAqP) including inland water aquaculture, etc.

(Activities: some examples)

- Establishment of environmental carrying capacity assessment techniques for a sustainable aquaculture.
- Development of comprehensive aquaculture technology for good aquaculture practice (GAqP) including cost-effective development of fish meal alternative feeds. Establishment of surveillance systems against serious and emerging aquatic diseases across the ASEAN region.
- Promotion of aquaculture of emerging indigenous aquatic species (such as pompano, shortfin scad, and kawakawa)
- Revival of *Penaeus monodon* shrimp aquaculture in the ASEAN region.
- Promotion of a responsible aquaculture production system with food safety as the primary consideration.
- Dissemination of updated aquaculture technology in collaboration with SEAFDEC departments in the ASEAN region.

**Concept 4: Enhanced national and regional capabilities in small-scale fisheries**

(Scope:) Small-scale fisheries including marine and inland fisheries, fisheries management (EAFM), the livelihood of small-scale fisheries communities, etc.

Imp

(Activities: some examples)

- Development of capacity building for small-scale fisheries management (including extension service).
- Dissemination of appropriate management schemes including ecosystem approach to fisheries management (EAFM).
- Establishment/promotion of a supply chain, and branding of processing fish products in local communities.
- Establishment/dissemination of freshwater aquaculture systems with minimal input to complement small-scale fisheries.

**TENTATIVE SCHEDULE FOR THE JTF-7 FORMULATION PROCESS:**

Appendix 1

**Remark:**

Since Japan operates on a single-year basis, FAJ is not in a position to guarantee a five-year budget. The budget request process will proceed every year.

**Tentative Schedule for the JTF-7 formulation process:**

Year	2022				2023				2024				2025			
Quarter	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
JTF Period	<b>JTF6-2</b>								<b>Envisaged JTF7</b>							
Planning of JTF7 Projects in SEAFDEC	Internal Consideration for developing draft JTF7 Projects				Submit the draft outline JTF7 to the 45PCM proposal of the draft outline JTF7 to FAJ Internal Consideration for developing draft JTF7 Projects				Submit the draft JTF7 projects to the 46 PCM The outline JTF7 Approved by the 55 Council Meeting Internal Consideration for adjusting JTF7 Projects to 2024 budget				Submit JTF7 projects (Final) and 2025 activity to the 47PCM The 1st year (2025) activities of JTF7 Approved by the 56 Council Meeting Implementation of JTF7 Projects			
Budget Request Process in Japan	Internal Consideration for JTF7 Budget				Budget Request for fiscal year 2024(the 1st year for JTF7) to Ministry of Finance Budget Decision for fiscal year 2024 after Passing Budget bill through the Diet				Budget for Fiscal Year 2024 Remitted to SEAFDEC, which can be used from beginning of JAN 2025							



## LETTER OF AGREEMENT TO SUPPORT THE IMPLEMENTATION OF NATIONAL ACTIVITIES UNDER SEAFDEC PROJECTS

SEAFDEC has been providing technical support and services to the Member countries by implementing a number of programs and projects towards achieving the organization’s vision for “*sustainable development and management of fisheries and aquaculture to contribute to food security, poverty alleviation, and livelihood of people in the Southeast Asian region.*” Toward this, SEAFDEC has been granted funds from various donors. It is envisaged that more programs and projects of SEAFDEC would be supported by non-traditional donors in the future.

In order to meet the requirement of international standards of the donors and to ensure that the funds are used in a transparent and accountable manner, a number of administrative and financial policies were developed and put into practice by SEAFDEC, including the “Grant Administrative Manual” that shall be applied when SEAFDEC provides grants to the respective national agencies (as grantee) for the implementation of activities at the national/local levels.

In providing a grant under each SEAFDEC project to the national agency in the future, it is required that a “**Letter of Agreement**” or LOA (the template of which appears as **Appendix 1**) be developed, agreed on, and signed by the SEAFDEC Secretary-General and the respective Council Director. It is also required that the “Project National Focal Point” be nominated by the Council Director to run all the tasks and implement the activities under the project; while other information including the general conditions of the use of grants would also be elaborated in the LOA.

### REQUIRED CONSIDERATION BY THE 45PCM

- To take note of the need to develop/sign the “Letter of Agreement” when SEAFDEC provides a grant to the Member Countries to implement national activities in the future.

**Letter of Agreement between SEAFDEC and .....**

**(TITLE OF PROJECT)**

**I. Introduction**

This Letter of Appointment (LOA) is made between the Southeast Asian Fisheries Development Center (hereafter referred to as “SEAFDEC”) and Agency name (hereafter referred to as “Grantee”). This LOA is a part of the project on “Project title” with funding support from “Donor agency title”.

**II. Objective**

Through this LOA, SEAFDEC offers the Grantee to conduct activities on “Activity title” under the project on “Project title.”

**III. Duration**

The LOA will enter into force upon the date of signature by SEAFDEC, by the Grantee, and will terminate on date/month/year.

**IV. Responsibilities**

Under this LOA, the Grantee shall perform the responsibilities as follow:

- 1) .....
- 2) .....
- 3) .....
- 4) .....

**V. Expected Deliverables**

In line with the aforementioned responsibilities, the expected deliverables from the Grantee are:

- 1) .....
- 2) .....
- 3) .....
- 4) .....

The Grantee will be responsible for submitting all outputs as referred to the abovementioned requirements. Furthermore, the Grantee is also responsible for submission of necessary records and documents, such as original receipts and other relevant documents as requested by SEAFDEC.

Detailed workplan and budget appear in **Annex ...**

**VI. Budget and Condition of Payment**

For the Grantee to carry out activities on “Activity title” as mentioned above, SEAFDEC shall provide the Grantee with funding support up to a maximum amount of USD ..... (only US dollars ..... ) to be used for implementation of the activities to achieve the expected deliverables as agreed in the abovementioned requirements. The funds will be made available in the ..... installments in accordance with the condition as follows:

Schedule of payment and amount (USD)	Date and condition of payment
1 <sup>st</sup> Payment, USD ...	month/year, upon signing of both parties in this Letter of Agreement
2 <sup>nd</sup> Payment, USD ...	month/year, after receiving Deliverable 1
3 <sup>rd</sup> Payment, USD ...	month/year, after receiving Deliverable 2
...	

The Payment shall be made in accordance with the detailed banking instruction provided by the Project National Focal Point as follows:

Account name	
Bank name	
Bank address	
Account Number	
BIC/SWIFT Code	
Account type	
Account currency	

Within one (1) month upon termination date of this LOA, the Grantee, through the Project National Focal Point, shall return unspent balance of the above funds to SEAFDEC/TD with the following bank instruction:

Account name	
Bank name	
Bank address	
Account Number	
BIC/SWIFT Code	
Account number/type	
Account currency	
Address	
Telephone Number	

#### **VII. General conditions of the Use of Grant**

The funding under this LOA is limited to the amount listed above. SEAFDEC shall not be responsible for any costs incurred beyond the activities and amounts listed above. Additional funding shall be provided only by amendment to this LOA. If the Grantee seeks reimbursement for costs that are outside the objectives and scope of this LOA, such costs shall be considered ineligible, and SEAFDEC reserves the right to refuse reimbursement of these costs. If the ineligible costs have already been paid by the Grantee under the prior payment from SEAFDEC, SEAFDEC reserves the right to request the Grantee to return the ineligible payment to SEAFDEC, or SEAFDEC will deduct such amount from future payments accordingly. This LOA between SEAFDEC and a partner agency as a grantee at the national/local level shall be under the supervision of the SEAFDEC Council Director of the respective county. Rules and regulations of the National Government shall be applied in the usage of funds under this LOA.

If the Grantee makes any changes in work and budget plans, the Grantee must obtain SEAFDEC’s written approval before continuing the implementation of activities, or before implementing such changes.

SEAFDEC may decide to withhold the disbursement, in whole or in part, if substantial deviations from the agreed plan, budget occur, reports are not delivered as agreed, or circumstances are otherwise revealed which make the program develop unfavorably in any other important respect. Before taking such a decision, SEAFDEC shall initiate discussions with the Grantee.

If the conditions set out in this article are not fulfilled or fully complied with, SEAFDEC may reclaim funds disbursed, in whole or in part, from the Grantee.

#### **VIII. Responsible Persons**

The correspondence regarding this LOA should be addressed to:

SEAFDEC shall nominate one of its staff members to coordinate the progress of activities and act as the contact point under this LOA. The staff contact details are as follows:





Name .....
Title .....
Address .....
Tel: .....
Email: .....

[...Grantee name...] shall nominate one of its staff members to serve as Project's National Focal Point for the implementation of activities under this LOA and submission of the outputs to SEAFDEC and to act as the contact point with SEAFDEC. The staff contact details are as follows:

Name .....
Title .....
Address .....
Tel: .....
Email: .....

IX. Notification and Amendment

This LOA and its Appendices may be modified or amended only by written agreement signed by both Parties. Should it become evident that an extension beyond the agreed completion date as set out in Clause III of this LOA is required. The Parties shall consult with each other in order to agree on the revised completion date. Upon reaching a new LOA, the Parties shall immediately conclude on an amendment to this effort prior to the expiry of this LOA.

The terms and conditions stipulated in the amendment shall be appended to and be construed as an integral part of the LOA.

X. Termination

The LOA shall enter into force upon the signature by both parties, and shall remain in force until Day/Month/Year.

SEAFDEC shall have the right to terminate this LOA, by written notice to this effect, if it considers that continued implementation of the LOA is impossible or impractical:

- (i) For unforeseen causes beyond the control of SEAFDEC
(ii) In the event of a default or delay on the part of the Grantee after written notice by SEAFDEC which provides a reasonable period to remedy the default or delay.

In the event of termination by SEAFDEC, the termination shall not apply to funds committed in good faith by the Grantee to third parties before the date of the notice of termination, provided that the commitments were made in accordance with this LOA.

If Grantee would like to terminate this LOA, the Grantee must obtain SEAFDEC's written approval. In the event of termination by the Grantee, no funds shall be made available for activities after the expiry of this LOA.

IN WITNESS WHEREOF, the duly authorized representatives of the Parties affix their signatures below.

Two original copies of the LOA shall be signed, and each Party shall keep one original copy of the signed LOA:

For and on behalf of the
Southeast Asian Fisheries Development Cen ter
(SEAFDEC)

Secretary-General of SEAFDEC

Date/Month/Year

For and on behalf of the
.....
.....

(Name of Council Director).....

Date/Month/Year

### CLOSING REMARKS

By *Ms. Malinee Smithrithee*  
SEAFDEC Secretary-General

*Atty. Demosthenes Escoto*, Director of the Bureau of Fisheries and Aquatic Resources,  
*Mr. Dan Balio*, Chief of SEAFDEC Aquaculture Department,  
Distinguished Members of the SEAFDEC Program Committee, and country representatives,  
SEAFDEC Deputy Secretary-General and Advisor, SEAFDEC Department Chiefs and Deputy Chiefs, and  
SEAFDEC officials, Ladies and gentlemen,  
Good Afternoon!

The adoption of the Report of this Meeting brings us to the conclusion of the official business of this Meeting. On behalf of the SEAFDEC Secretariat and Departments, I would like to express our deep appreciation and gratitude to the members of the Program Committee and our collaborating partners for your kind cooperation and contributions during the deliberation on SEAFDEC programs and crucial issues. I would also wish to express my sincere appreciation to Chief Dan and his SEAFDEC/AQD staff for their preparation of the Meeting, support, and warm hospitality, making this Meeting possible here in Iloilo city as well as the Secretariat for making this Meeting successful. Please give big round of applause for the excellent work.

All in all, the outputs of this Meeting together with your recommendations on the programs of SEAFDEC would be presented to the Twenty-fifth Meeting of the FCG/ASSP which will be held back-to-back with this Meeting. Once again, we are appreciated your significant advice and proper guidance which made us achieve the objective of this meeting.

To conclude, please allow me to extend our wishes to some of you who will leave this beautiful city before the FCG/ASSP Meeting, I wish you a safe journey back to your respective homes, and I will see the others during the FCG/ASSP from tomorrow until Friday. With that, ladies and gentlemen, I now declare the Forty-fifth Meeting of SEAFDEC Program Committee closed.

Thank you very much and keep safe.