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**FRAMEWORK OF THE
COLLABORATIVE RESEARCH
WORKS ON ENVIRONMENTAL
STUDY AND RESOURCES
SURVEY**

By

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FRAMEWORK OF THE COLLABORATIVE RESEARCH ON MARINE ENVIRONMENTAL STUDY AND RESOURCES SURVEY BY M.V. SEAFDEC

1. INTRODUCTION

Southeast Asian Countries face today a grave situation of environmental damage and misuse. The rapid development in marine fisheries sector has been satisfactory judging from the considerably increase in fish catches. Much of this development has, however, taken place with negligible consideration for its impact on the very environment which sustains it. SEAFDEC was established to address itself to just such issues. Since its establishment, SEAFDEC has been working to move towards a sustainable future. With the newly acquired of the modern training and research vessel, M.V. SEAFDEC, the Center will concentrate on consolidating its collaborative research programs among the Center's departments and its member countries.

The oceanographic data in the Southeast Asian region is rather scanty. Besides, most of the oceanographic information were not available from the Asian countries in the form of publications.

The acoustic survey technique for resource assessment has been widely used by developed countries as a mean of quick estimation of abundance. Though this technique has been introduced in this region in the 1980, very little work has been done in this area.

The increasing global concern in the environmental issues requires a close monitoring on the quality of water and other pollutants that might be harmful to aquatic resources and to human beings. However, this information are very limited for proper management.

At its twenty sixth Council Meeting, the meeting had approved the proposal to fully utilize M.V. SEAFDEC in the collaborative research programs among the Center's departments and with member countries.

2. OBJECTIVES

The prime objectives of the collaborative research survey area:

1. To collect and analyse data and information necessary for the management of fishery resources and the protection of the environment through collaborative research among Member Countries and Organisations concerned, and
2. To train researchers from Member Countries on modern research techniques through the collaborative research project.

3. RESEARCH VESSEL AND EQUIPMENT TO BE USED

M.V. SEAFDEC with a displacement 1178 GRT and a cruising speed of 15 knots will be deployed for the survey. She is well equipped with the latest oceanographic equipment e.g. Rosette water sampler with ICED and NOAA (APT) Receiver. The vessel is also equipped with the Furuno FQ 70 scientific echosounder and relevant data processing software suitable for acoustic survey. In addition, the national research vessels of member Countries are also deployed, and/or if necessary to charter commercial vessels to carry out some scientific/fishing trials.

4. SURVEY AREA AND DURATION

The proposed survey area are shown in **Fig. 1**. The survey track is composed of parallel track of 20 nautical mile. 45 oceanographic stations will be in the "Gulf of Thailand, 45 stations in the east coast of Peninsular Malaysia and 97 stations in the Sarawak and Sabah. Bunkering will be in Songkhla, Kuala Terengganu and Labuan. The acoustic survey will follow the same track as the oceanographic survey. Sampling of fish species will be carried out to obtain the species composition for the biomass estimation by deploying M.V. Pramong from Thailand and K.K. Manchong from Malaysia.

Table 1, 2 and 3 shows the survey duration:

Table 1: The first and second survey cruise in 1995

<i>Gulf of Thailand (45 Stations)</i>	
Survey distance	1,780 nautical mile
Survey activities	16 days
<i>East Coast of Peninsular Malaysia (45 Stations)</i>	
Survey distance	1,530 nautical mile
Survey activities	14 days
– Hydroacoustic calibration	1 day
– Bunkering at Songkhla	1 day
– Bunkering at Kuala Terengganu	1 day
– Spare time	2 day
Total =	<u>35 days</u>

Table 2: The third and fourth survey cruise in 1996

<i>West coast of Sabah and Sarawak (97 Stations)</i>	
Survey distance	2,970 nautical mile
Survey activities	25 days
– Hydroacoustic calibration	1 day
– Sailing Bangkok – Kuching	3 days
– Bunkering at Labuan	2 days
– Sailing Kota Kinabalu – Bangkok	3 days
– Spare time	2 days
Total =	<u>36 days</u>

Table 3: The proposed survey area and duration in 1995 and 1996

	<i>April–May</i>	<i>August–September</i>
1995	The Gulf of Thailand & East Coast of Peninsular Malaysia (–35 days)	The Gulf of Thailand & East Coast of Peninsular Malaysia (–35 days)
1996	West Coast of Sabah and Sarawak (–36 days)	West Coast of Sabah and Sarawak (–36 days)

PROPOSE RESEARCH PROJECT AREAS

1. Physical Oceanography Study

Water Circulation Pattern in Southeast Asian Waters.

<i>Parameter</i>	<i>Equipment/Methods</i>
Temperature profile	ICTD
Salinity profile	ICTD
pH profile	ICTD
Dissolve oxygen profile	ICTD
Sea surface temperature	NOAA (APT)

2. Chemical Oceanography Study

Nitrate, Nitrite, Ammonia	Autoanalyser
Phosphate, Silicate	Autoanalyser

3. Biological Oceanography Study

Distribution, Abundance and Composition of Marine organisms in Southeast Asian Waters.

Phytoplankton	Phytoplankton net (56 um)
Zooplankton	Plankton net (330 um)
Chlorophyll	ICTD (fluorometers)
Benthos	Smith Me Intre Grab
Fish larvae	Bongo net/Egg and Larva net
Fish	Trawl net

4. Resource Survey

: Biomass Estimation in Southeast Asian Waters.

Acoustic survey	FQ – 70 Scientific Echo Sounder
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5. Marine Environmental Study

: Marine Pollution in Southeast Asian Waters.

Heavy metal	Rosette water sampler
Oil pollution	Crab
Red tide	Core sampler

5.3 Biological Oceanography

Phytoplankton	Plankton net (56 um)
Zooplankton	Plankton net (300 um)
Chlorophyll	ICTD (fluorometer)
Benthos	Smith Me Intre Grab
Fish larvae	Net

5.4 Resource Survey

Acoustic Survey	FQ – 70 Scientific Echosounder
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Detail research title are shown in appendix 1, 2 & 3.

6. Participants

The participants for the research survey are member countries scientists who are currently involved in the oceanography studies and resources assessment surveys. The allocation participating scientists is as follows:

MFRDMD (Malaysia)	6
FRI (Malaysia)	4
Thailand	7
TD / SEAFDEC	5
Japanese Expert	3
Total	<u>24</u>

7. Budget Requirement

The budget necessary to conduct this collaborative survey will be decided in early next year taking into account the result of budgetary acquisition of Japan.

8. Data analysis/Report

Data analysis and report writing will be undertaken by the scientists from MFRDMD, TD and DOF Malaysia and Thailand. Other participation scientists may participate in the data analysis or report writing. For this purpose an allocation of fund to cover travelling and other expenses is required.

9. Conclusions

At present the environment is one of the most pressing issues facing most countries in the Southeast Asia region. Therefore, there is a need for both catalysts and facilitators to help bridge the efforts to maximize the natural resources utilization and to achieve the sustainable development. To this regard, SEAFDEC can play a vital role. This collaborative research between TD and MFRDMD would generate up to date scientific information on the marine resources status and to train the participated national scientists on board M.V. SEAFDEC.

FIG: 1
Singapore to Saigon
and the Gulf of Thailand

