

TD/RP/8

REPORT ON THE FIRST REGIONAL TRAINING COURSE
FOR
FISHERIES EXTENSION OFFICERS IN MARINE CAPTURE FISHERIES
SUPPORTED BY THE ROYAL NETHERLANDS GOVERNMENT
FROM 2 FEBRUARY TO 27 MARCH 1981

Submitted by
the Training Department,
Southeast Asian Fisheries Development Center
to
the Royal Government of the Netherlands

Samutprakarn, Thailand

1981

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I. INTRODUCTION

Small-scale fishermen comprise the majority of the total number of persons engaged in fisheries in South and Southeast Asia. At the Symposium on the Development and Management of Small-Scale Fisheries held at the 19th Session of the FAO Indo-Pacific Fishery Commission in Kyoto from 21 to 30 May 1980, it was learned that, in several Asian countries, between 90-97 percent of the total number are within the small-scale sector. In general most of them are extremely poor and lack the basic necessities of life. Thus, they need assistance from their government to acquire a better standard of living. On the other hand, their government usually lacks a sufficient amount of experienced fishery extension officers who are not only knowledgeable in various important subjects related to appropriate technology, but also can effectively communicate this knowledge to the small-scale fishermen. Therefore, ways and means to improve the transfer of technology to small-scale fishermen has been uppermost in the minds of fisheries personnel during the past few years, as was expressed during the aforementioned Symposium on the Development and Management of Small-Scale Fisheries in the Indo-Pacific Area.

Although their numbers are few and their means are usually curtailed by financial restraints, the cadre of fishery extension officers must be expanded to meet the needs of the small-scale fishermen in Asia. The Southeast Asian Fisheries Development Center (SEAFDEC) has attempted to strengthen the extension service of its member countries following a recommendation made at the Consultative Meeting on Fisheries Education and Training in Southeast Asia, organized by the SEAFDEC Training Department in Bangkok, May 14-18, 1978. The participants recommended that SEAFDEC should provide training for various types of fisheries personnel, the priority of which should be given to the training of instructors, extension workers, administrators, managers and selected fishermen. Another recommendation was that the SEAFDEC Training Department should conduct courses in teaching techniques and extension methodology, for instructors and extension workers from the region. In this context, SEAFDEC cooperated with FAO and the Department of Fisheries of Thailand, in organizing a crash course for extension officers engaged in small-scale fisheries development from 5-30 November 1979. These officers were from the Member Countries of SEAFDEC, as well as from

Indonesia and Sri Lanka. Since this course was a prototype of its kind in the region, its primary objective was to ascertain the problems inherent to this type of training course, to examine the subjects offered for instruction, and to evaluate the response of the trainees during and after their training. These comments were used in the improvement of future extension officer training programs in the region.

While the above-mentioned project was being implemented, SEAFDEC held its Twelfth Meeting of the Council in Singapore, 6-10 November 1979, when the Council endorsed the establishing of fisheries extension courses as an integral part of the curriculum of the Training Department. Thus, with the endorsement of the Council and the favourable response of the trainees who participated in the three-week FAO/SEAFDEC/Thai Department of Fisheries Crash Course, the Training Department embarked upon this type of training. SEAFDEC conducted the First Regional Training Course for Fishery Extension Officers in Marine Capture Fisheries from 2 February to 27 March 1981, with the funds kindly donated by the Royal Netherlands Government under the "Programme for Studies in the Region". The course was conducted at the premises of the SEAFDEC Training Department for a duration of 40 working days (approximately 2 months).

Originally, the course was intended for participants from the Member Countries of SEAFDEC, Sri Lanka, Indonesia, and Bangladesh, with the anticipated number of:-

Philippines	4
Malaysia	4
Singapore	2
Sri Lanka	2
Indonesia	4
Bangladesh	2
Thailand	<u>7</u>
Total	<u>25</u>

Unfortunately, Indonesia could not dispatch any participants due to the unavailability of personnel. Bangladesh did not respond to SEAFDEC's offering of two seats in the course despite two formal invitation letters plus two reminding cables. However, the Member Countries of SEAFDEC and Sri Lanka responded to the invitation and sent their participants as allocated. The total number of 19 participants then attended the course and graduated (Annex A) as follows:

Philippines	4
Malaysia	4
Singapore	2
Sri Lanka	2
Thailand	<u>7</u>
Total	<u>19</u>

II. OBJECTIVES OF THE TRAINING COURSE

The objectives of the Training Course are:

1. To expose extension officers from Southeast Asia to the problems facing the livelihood of small-scale and coastal fishermen and their families;
2. To familiarize them with techniques and the methodology pertaining to extension work, and the ways and means of assisting these small-scale and coastal fishermen;
3. To provide practical experience and knowledge relating to the development of coastal and inshore fisheries with particular reference to the efficient and rational utilization of fisheries resources in these waters.

Emphasis in the curricula was placed on fishing gear and methods, as well as marine engineering. Shipboard training and field trips to fishing centers and related places were organized as an integral part of the course. Training was practical rather than theoretical, considering that extension work is largely for coastal fisheries which require practical knowledge and skills. This course was therefore designed to furnish the extension officers with basic skills appropriate to marine capture fisheries in the region, together with a knowledge and understanding of the concepts involved in fisheries extension.

III. COURSE OUTLINE

The course was conducted through the following subjects:

1. Target Groups of Marine Fisheries Extension: To introduce participants to people in various fishing circles they have been called to serve, in order to understand their basic problems, their attitudes to life and work, and how they can be helped to organize their activities in a way that will stimulate economic life and prosperity in their communities. These are grouped as:-

- 1.1 Fishing Communities: Analysis of typical communities and fishing villages; population structure, per capita income, life style, local government and social practices. Fishing activities, how they vary and how they are carried out.
- 1.2 Fishery Cooperatives: Case studies and examples of cooperatives or communal activities in Southeast Asia.

Basic principles of formation and operation of cooperatives.

The human factor - leadership, trust, community spirit.

Organizational and economic factors, marketing, purchasing, etc.

- 1.3 Field trip to a Fishermen's Cooperative: interview local fishermen and officials, to collect data for assessing the extent and nature of the cooperative action and the benefits it brings.
- 1.4 Field trip to a fishing village with no cooperative: interview fishermen and observe local facilities, to find out what fishermen understand about a cooperative and what are the constraints to the establishment of a cooperative.

2. Principles of Fisheries Extension Work: The subject includes the basic and important concepts of fisheries extension in a form that will be easily understood and assimilated. They are:-

- 2.1 Extension Philosophy: Discussed were basic questions, such as: What is fisheries extension? What is the underlying need for fisheries extension? Why do we believe it will do some good and what is the idea behind the whole program of assistance and technology transfer? Social, economic and resource problems were considered against the background of the current situation.
- 2.2 Extension Methodology: Concerning the purpose and function of fisheries extension, how are its objectives to be realized? What is a fishery extension officer required to do? How can he be equipped for that task? What methods are used to make extension effective, and what are the mistakes to be avoided?

2.3 Extension Communication: To know how the extension service communicates with the fishermen. What is involved in this communication? Human and cultural factors. Communication at the grass roots level. Working with individuals and groups. Instructors and demonstration. Use of audio and visual aids. Use of media.

2.4 Field trips to Fishing Villages: Awareness of local culture and of the sensitivity of village peoples. Use of "black book" diary for the benefit of survey - practicing the visual written description of people, places, objects and modes.

3. Resources of Marine Capture Fisheries: In this brief series of lectures the participants were reminded of the whole marine ecosystem and cycles of food production in the sea. Major fish and shellfish species were discussed. The balance and the limitation of marine life was emphasized against the background of increasing pressure on fish stocks from fishing fleets, and the dangers of pollution and destruction of coral and mangrove habitats for sea life. In the long run, a well-balanced and more gentle range of harvesting technologies permits the sea to yield an optimum continuous supply for future generations.

3.1 Fish Biology and Fish Stocks: Summary of the fish and marine species in the Indo-Pacific region with an assessment of the current state of the various stocks. The effect of 200 mile EEZs and of the expression of fleets of large powerful trawlers and purse seiners were discussed as well as local man made and natural factors affecting stock replenishment, fish growth and spawning.

3.2 Fishery Exploitation and Conservation: Brief explanation of current theories on the exploitation of fish stocks, together with case histories of some of the major species. Summary of conservative measures and proposals, their drawbacks and constraints, and methods of local protection of fish nursery and breeding areas.

3.3 Field trip to Marine Fisheries Laboratory and Bangkok Fish Market:

Observed most of the major species of the local marine catch at the fish market. Interviewed some vessel captains for their opinions on the present scarcity of fish stocks. Attended the Marine Fisheries Laboratory to study the national

program for monitoring fish stocks and the measures proposed for the conservation of the resources.

4. Technologies for Marine Capture Fisheries: Extension officers are working chiefly in villages where there is a generally low level of technology. Considerable emphasis was therefore placed on utilizing local resources to the maximum (e.g. materials such as bamboo and coconut, village smitheries, craftsmen, local skills, traditional designs). In view of the current energy crisis, this course focused on alternative energy systems, low cost tools and implements, and labour-intensive technologies. Participants were requested to analyse these and to select or adapt what may be suitable for the fishing villages in their respective countries.

4.1 Fish Catching Technologies: consist of:-

- 4.1.1 Fishing Gear Design: How fishing is specified. Net plans and how to read them. Hanging ratios. Types, materials, strength, and quality of rope and twine.
- 4.1.2 Net Construction: How to weave a sheet of netting.
- 4.1.3 Net Repair: Basic principles of net mending, cutting, halfer mesh, side knots, repairing of net at various sections,
- 4.1.4 Fishing Methods: Catching fish by means of gill nets, traps, life nets, ring nets, seines, trawls, hand lines, long lines.
- 4.1.5 Knots and Splices: Joining and bending ropes together. Knots and bends. Rope splices.
- 4.1.6 Basic Seamanship: How to handle and use rope, wire, chain and twine. Mooring and anchoring a boat. Sea regulations. Safety and life saving.
- 4.1.7 Marlinspike seamanship.

4.2 Boat Propulsion Technologies: consist of:-

- 4.2.1 Engine Design
- 4.2.2 Engine Installation
- 4.2.3 Engine trouble shooting, dismantling

4.2.4 Fuel saving, fuel substitution

4.2.5 Refrigeration for fishing vessels

4.3 Fish Preservation Technologies: consist of:-

4.3.1 Fish handling

4.3.2 Fish Preservation and Processing

4.3.3 Fish Products

A list of subjects covered in the course is given as Annex B.

IV. TRAINING

In conducting the course, the facilities and resources of the SEAFDEC Training Department were fully utilized, including the 65.47 gross ton training vessel, M.V. PLATOO.

The training was intensely practical. Most of the technical subjects were handled at workshop sessions at the SEAFDEC Training Department fishing net loft and laboratory, and marine engineering workshop. Two days were spent at sea on board the purseiner M.V. PLATOO to practice operations on various fishing gear. Lectures on more theoretical subjects were interspersed with field trips. Class participation was sought through discussion, assignments, projects and exercises (see Annex C on work schedule during the course and Annex D on books and lecture notes employed in this course).

External facilities were also utilized in order to enhance the training program. These included basic wood-work instruction conducted at the Samutprakarn Technical College; training in boathandling (motoring, sailing, oaring) and marlinspike seamanship lectures by an instructor from the Royal Thai Naval Academy; net manufacturing demonstrations by a commercial net maker, i.e. Siam Brothers Net Co., Ltd.; fuel substitution demonstrations by an expert from the Ministry of Industry; and fish preservation demonstrations presented by an expert from the Fisheries Technological Development Division, Thai Department of Fisheries.

Field Trips: Participants visited various places relating to fishing activities such as fishing villages, fish markets, fishing vessel building dockyards, net factory, fishing communities with and without a cooperative, etc. The places visited during the course appear below.

- Feb. 14 : Visit to Siam Brother Co., Ltd., in Phrapradaeng to observe net and rope manufacturing.
- Feb. 18 : Visit to Fish Marketing Organization, Marine Fishery Division and Cold Storage Organization to observe their activities.
- Feb. 19 : Visit to Samut Sakorn Fish Marketing Organization to observe fish landing activity; and to smoked fish and fish meal plants to learn how fish is preserved and processed.
- Feb. 21 : Visit to Techo Marine Partnership & Technautic Co., Ltd., to observe fibre glass boat construction; and to Sahai Sant Co., Ltd., to observe steel and wooden boat construction.
- Feb. 25 : Visit to Fish Technology Development Division Laboratory, to observe and study how to make use of low priced fish; and to a steamed fish and fish-ball plant, to learn about processing methods.
- Feb. 27 : Visit to fish sauce and dried fish plants in Samutprakarn, to observe the processing procedures; and to Surapol Sea Food Co., Ltd., to observe packing and freezing of marine products.
- Mar. 12-14 : Travel to fishing village in Ban Phe district, Rayong Province, for field practice related to the socio-economic conditions of fishing households.
- Mar. 20 : Visit to fishing communities in Prachuab Kirikhan Province to observe fish landing activities and survey fishing households.
- Mar. 21 : Visit to fishing communities in Phetburi Province to observe fish landing activities and survey fishing households.
- Mar. 22-25 : Visit to Chiangmai Province to observe marine fish market in order to survey the distribution of marine catch from producer to consumer, as well as considering the marketing margin; and to Tanin Electronic Co., Ltd., and Tanin Condenser Co., Ltd., to observe production lines of plants and their products.

Sea Trip: Two day cruise in the Thai Gulf on March 18-19, 1981, on board the 65.47 gross ton training vessel M.V. PLATOO. Training concentrated on:-

1. Orientation of the vessel navigating instruments.
2. Orientation of the engine room machinery layout and deck machinery.
3. Demonstration of the operation on bottom gill net, drift gill net, marlin long line, squid lift net, long line crab trap net, pole and line.

V. EVALUATION

At the conclusion of the training course a questionnaire was completed by each participant to determine their subjective opinions about the First Regional Training Course for Extension Officers in Marine Capture Fisheries.

The questions were divided according to different subjects and the 19 participants were requested to indicate their attitude toward various aspects of the course. Results of the questionnaire appear as Annex E.

In summary, the majority of the trainees considered that the course was beneficial and were able to make recommendations which could improve subsequent courses of this nature. They especially noted that practical work assignments and field trips helped to clarify the principles taught in the classrooms. They especially liked to do things for themselves rather than relying on classroom demonstrations. One favorite field exercise was the survey made on the socio-economic conditions of small-scale fishermen which could be adopted for their work in respective countries.

Some modifications of the syllabus were suggested to improve similar courses in the future. The "Suggestions for Course Improvement" obtained from this batch of participants are of value, such as:

1. Greater concentration on basic subjects essential for extension work in marine capture fisheries.
2. Better sequence of subjects in the work schedule (Note: the schedule of the short-term course was determined primarily by the availability of lecturers and also by the arrangement of field trips).
3. Addition of some useful subjects to the course such as first aid at sea, coastal navigation and maritime laws.
4. Appropriate distribution of time on each subject and related practice.

VI. FINANCIAL STATEMENT

The complete financial statement as audited by the auditors, Turquands Ernst and Whinney, will be provided to the Royal Netherlands Government in a separate report.

VII. CONCLUSION

The SEAFDEC Training Department invited the Member Countries to send fishery extension officers to participate in the course. It is regrettable that two were sent who are not directly involved in fishery extension at the present time. Nevertheless, it is hoped that the course will be useful if they become extension officers in the future, even in other fields such as aquaculture. Seventeen out of the nineteen participants benefitted directly from the course in terms of their careers in fishery extension service. It is hoped that in selecting the next batch of participants, the Member Countries will send those who are willing to become better extension officers. It should be emphasized that the sex and age of the participants are irrelevant provided that they are willing to work hard. Several of the instructors commented that some of the participants were not fully equipped to do some of the exercises and a few suffered from language deficiencies and knowledge gaps. However, as a group, they were eager to learn and were willing to participate to the fullest extent. Their views were expressed in the evaluation questionnaire and verbally during the reception which followed the formal closing ceremony on 27 March 1981.

Based on the evaluation of the participants, the SEAFDEC Training Department agrees that there were many subjects to be covered in a short period of time so that they could not be studied in depth. The course will be tailored for the Second Training Course for Extension Officers in Marine Capture Fisheries to be held from 19 October to 11 December 1981. The revised curriculum appears as Annex F. Shorter courses on specific subjects as requested by some Member Countries may also be possible during 1982.

The Training Department can further assist the graduates after they complete the course such as through the Southeast Asian Fisheries Information Service (SAFIS) program of the SEAFDEC Secretariat.

Finally, the SEAFDEC Training Department would like to express its gratitude to the Royal Netherlands Government for making this course possible.

LIST OF PARTICIPANTS AND LECTURERS

A. Participants

MALAYSIA

1. Quek Chong Sang
Fisheries Officer, Fisheries Division
Ministry of Agriculture
Kuala Lumpur, Malaysia
2. Hussain Bin A. Rahman
Fisheries Administrative Officer
Fisheries Division
Jalan Sek, Maarif, KG
Raja Besut, Trengganu, Malaysia
3. Samsimon Bin Mohamed Bojeng
Fisheries Assistant
Marine Fisheries Department
P.O. Box 1375, Kuching
Sarawak, East Malaysia
4. Khatijah Bt. Haji Nordin (Mrs)
Marine Fisheries Extension Officer
Fisheries Division, Ministry of Agriculture
Kuala Lumpur, Malaysia

PHILIPPINES

1. Abraham R. Tanghal
Fish Farm Manager
Bureau of Fisheries and Aquatic Resources
Regional Office No.02
Tucueercae, Cagayan
Pattae, Bugues, Cagayan
Philippines

2. Bayani S. Gallardo
Fisheries Officer
Farro 4 Makati
Manila
Philippines
3. Servando C. Cadion
Jr. Fisheries Technologist
BFAR Regional Office No.8
Tacloban City
Philippines
4. Danilo O. Maputol
Sr. Fisheries Technologist
Regional Office No.10
Cagayan De Oro City
Philippines

SINGAPORE

1. Lim Siang Hiong
Assistant Primary Production Officer
Officer-in-Charge
Jurong Fisheries Port
Primary Production Department
Singapore
2. Koh Cheng Liat
Assistant Primary Production Officer
Fisheries Division Singapore Primary
Production Department
Maxwell Road
Singapore

SRI LANKA

1. H.S.G. Mallawarachchi
Fisheries Inspector
Ministry of Fisheries
Colombo 3
Sri Lanka

2. K.T. Sivagnanam
Fisheries Inspector
Ministry of Fisheries
Colombo 3
Sri Lanka

THAILAND

1. Kian Sinanuwong
Fisheries Officer
Marine Fisheries Division
Department of Fisheries
Bangkok
2. Kwanchai Yoodee
Fisheries Officer
Marine Fisheries Division
Department of Fisheries
Bangkok
3. Utai Singtothong
Fisheries Biologist
Marine Fisheries Laboratory
Department of Fisheries
Yanawa, Bangkok
4. Jitjaroon Tantivala
Fisheries Biologist
Exploratory Fishing Division
Department of Fisheries, Bangkok
5. Suttichai Rittitum
Fisheries Biologist
Department of Fisheries
Bangkok
6. Adul Senakusp
Provincial Fisheries Officer
Office of Fisheries Extension
Narathivas Province., Southern Thailand
7. Kanchit Benjamaparinnyakul
Fisheries Biologist
Office of Fisheries Extension
Satul Province, Southern Thailand

B. Lecturers

Southeast Asian Fisheries Development Center,
Training Department

1. Dr. Shigeaki Shindo
Deputy Secretary-General and
Deputy Chief, Training Department
2. Capt. Vudhi Sudhasaneya, RTN.
Head of Training Division
3. Mr. Tomeyoshi Yamazaki
Head of Fishing Technology and
Navigation Section
4. Mr. Masatake Okawara
Fishing Gear Instructor,
Fishing Technology and Navigation Section,
5. Mr. Prasert Masthawe
Fishing Gear Instructor,
Fishing Technology and Navigation Section,
6. Mr. Somyos Soodhom,
Fishing Gear Instructor,
Fishing Technology and Navigation Section,
7. Mr. Shinzo Yamamoto
Head of Marine Engineering Section, and
Marine Engineering Instructor.
8. Mr. Mikihisa Sekioka,
Marine Engineering Instructor,
9. Mr. Kungwan Juntarashote
Head of Statistics and
Socio-economics
Section, Research Division

Guest Lecturers

10. Mr. David B. Thomson,
Former FAO/SCSP Sr. Fisheries Extension & Training Officer,
Edinburgh,
Scotland

11. Dr. Tadashi Yamamoto,
Professor of Fishery Economics,
College of Economics, Nihon University.
Tokyo, Japan.
12. Mr. Thanoo Veecharungsun
Director of Central Engine Registration Division,
(Chairman of POWER ALCOHOL COMMITTEE)
Ministry of Industry, Thailand
13. Captain Prathom Boontang, RTN,
Royal Thai Naval Officer College
(Special Lecturer on Navigation
and Seamanship)
14. Mrs. Bung-Orn Saisithi,
Director, Fishery Technological
Development Division
Department of Fisheries
Thailand
(Special Lecturer on Fish handling
and processing)

List of Subjects

1. Net Design and Specification: General idea in designing of net and particular specifications of each type of fishing gear. Stress was put on the design and specification of stick held dip net and tuna long line.
2. Fishing Gear and Method: Introduction of various types of fishing gear and methods of operation. Their use, suitability, advantages and disadvantages. Detailed operations were given on various types of angling for small-scale fisheries.
3. Net Making, Rigging, and Mending: Weaving of net, rigging of net to rope and wire, repairing of damaged net by weaving and patching.
4. Seamanship:
 - 4.1 Regulations for Preventing Collisions at Sea.
 - 4.2 Boat handling: practice in caring for, sailing, and motoring boats.
 - 4.3 Marlinspike: Study make up and type of fiber, synthetic, and wire ropes. Care and handling of line. Practice in all knots, splices, bends, and hitches.
5. Wood Work: Types of wood and their uses. Basic wood work and use of hand and machine tools. Types of wood joints. Practicing construction of some common joints used in boat building.
6. Metal Work: Types of metal and their uses. Use of hand and machine tools, gas and electric welding machines. Manual fabrication of outside-inside caliper.
7. Fishery Biology: Fisheries Resources and optimum utilization; economically important marine fishes in the Southeast Asian Waters.
8. Engine Installation: Engine room layout and clearance. Inclination and trim of the vessel. Engine Bed Structure. Ventilation fluid system, controls, vibration and noise isolation. Legal requirements. Practicing shaft alignment and measuring of crankshaft's deflection.
9. Engine Trouble Shooting and Fuel Saving: Poor combustion, overheating, hard start, sudden stoppage, high oil temperature, fluctuation of revolution, low power, and countermeasures.

Fuel Saving: Economic speed, improvement of hull form and fouling, blending of low grade fuels, selection of fuel oil and engine, etc.

Conventional Fuels: Understanding of types of fuel oils and the relating of fuel injection systems, fuel oil's properties, octane and cetane number, etc.

10. Engine Design and Dismantling:

Engine Design: General description and construction of internal combustion engines. Engine classification, engine parts, engine materials. Diesel engine principles, characteristics of Diesel engines, etc.

Dismantling Practice: Complete disassembling and reassembling of an eleven horsepower diesel engine.

11. Engine Repair and Maintenance: How to overhaul an engine, use of tools, safety precautions, maintenance records and data.
12. Refrigeration: Principles, types of machines, cycles, refrigerants, cooling systems, capacity, operation, precaution, care and maintenance.
13. Fish Exploitation and Conservation
14. Fish Handling: Food value of fish (protein, fat, mineral), fish spoilage, changes in appearance, odour and textures, rigor mortis, measurement of spoilage, chemical tests for freshness, proper handling of fish, refrigeration, general appearance of fish surveys.
15. Fish Preservation: Smoking, boiling, drying, salting, freezing, canning, packaging.
16. Fish Processing: Preparation before processing, sorting and treatment. Fermented fish sauce, and fermented shrimp or fish paste in Thailand.
17. Extension Philosophy: The nature of fisheries extension. Objectives of Marine Fisheries Service. Requirements of an extension officer. The future of fisheries extension.
18. Extension Methodology: Marine fisheries problems, social factors and allied primary industries, demonstration and development programmes, extension and appropriate technology, extension and cooperative development.

19. Extension Communication and Flow of Information: From the fishermen to the individual fisherman, the group approach, the use of mass media.
20. Fuel Substitution: Demonstration of oil shale distillat for fuel. Energy from lignite. Alcohol-energy from farms. How to produce fuels from agricultural materials to create a renewable energy source.
21. Socio-Economic Conditions of Small Scale Fisherman: The fishing community socio-economic survey on fishing households. Design and arrangement of survey. Identification and listing of fishing households. Interview with sample fishing household. Data processing and analysis. Fishery Cooperatives.
22. Accounting for Marine Fishing and Management:
How to draw up accounts in a small fishery enterprise. Examples of how to use the results of accounting in conducting a business.

Work Schedule including Field Trips

(Feb. 2 - March 27, 1981)

<u>2nd February, Monday</u>		Opening Ceremony.
1000 - 1200	:	Opening Ceremony, Introduction of TD's staff and Participants, Orientation of TD's Rules and Regulations (Dr. Shindo, Capt. Vudhi).
1300 - 1600	:	Orientation of Fishing Activities in Southeast Asia and Japan, Film and slide show (Mr. Okawara).
<u>3rd February, Tuesday</u>		Net Design and Specification (Mr. Yamazaki)
0850 - 1200	:	General concept of Net Design with essential dimensions of each type of fishing gear.
1300 - 1610	:	Design and Specification of Stick Held Dip Net and Tuna Long Line.
<u>4th February, Wednesday</u>		Fishing Gear and Method (Mr. Okawara)
0850 - 1200	:	Introduction of all types of fishing gears in use at present, together with methods of operation. The suitability, advantages and disadvantages, of each gear.
1300 - 1610	:	Detailed operation on various types of angling for small-scale fisheries.
<u>5th February, Thursday</u>		Seamanship (Capt. Prathom).
0850 - 1200	:	Regulations for Preventing Collision at Sea.
1300 - 1610	:	Marlinspike: Study make up and type of fibre, synthetic, and wire ropes. Care and handling of line.
<u>6th February, Friday</u>		Seamanship (Capt. Prathom).
0850 - 1200	:	Practice work on knots, splices, bends and hitches.
1300 - 1610	:	- ditto -
<u>7th February, Saturday</u>		Study Tour (Mr. Kungwan, Mr. Prasert).
0800 - 1600	:	Weekend study tour of Nakorn Prathom Province for sight seeing, and studying of Thai culture and traditions of the people in the rural area.

<u>8th February, Sunday</u>		Sight seeing (Mr. Punlop).
0800 - 1600	:	Sight seeing of Bangkok.
<u>9th February, Monday</u>		Net Making, Rigging, and Mending (Mr. Prasert and Mr. Somyos).
0850 - 1200	:	Study of knots used in net weaving, and the types of rigging of fishing gears.
1300 - 1610	:	Practice net weaving. (Each participant weaved a sheet of net, size (120 x 150 cm., 6 cm. mesh size).
<u>10th February, Tuesday</u>		Types of wood and their uses. (Training at the Samutprakarn Technical College).
0850 - 1200	:	Lecture on types of wood and their properties, types of tools for woodwork, types of wood joints.
1300 - 1610	:	Practicing the use of tools in slotting, planing, sawing, nailing, livelling, marking, finishing.
<u>11th February, Wednesday</u>		Work assignment on manual fabrication (Technical College).
0850 - 1200	:	Joint making practice.
1300 - 1600	:	Individual construction of a folding stool.
<u>12th February, Thursday</u>		Types of Metal and their uses (Capt. Vudhi).
0850 - 1200	:	Study of metals, shapes, and sizes used in the workshop.
1300 - 1610	:	Study of machine tools used for metal work and how to use them. Practice on filing, sawing, drilling, chieseling, gas and electric welding.
<u>13th February, Friday</u>		Manual Fabrication (Capt. Vudhi).
0850 - 1200	:	Individual fabrication of a stainless steel inside and outside caliper.
1300 -1610	:	- ditto -
<u>14th February, Saturday</u>		Study Tour (Mr. Prasert).
0850 - 1200	:	Visit Net Making Factory in Phrapradaeng.

<u>15th February, Sunday</u>	Rest.
<u>16th February, Monday</u>	Fishery Biology, Engine Design.
0850 - 1200 :	Fishery Biology; Resources, utilization of marine fish (Dr. Shindo).
1300 - 1610 :	Engine Design and Dismantling: Engine classification, principles of diesel engines, engine construction and component parts (Mr. Sekioka).
<u>17th February, Tuesday</u>	Fish Exploitation and Conservation, Engine Design
0850 - 1200 :	Fish Exploitation and Conservation (Dr. Doi).
1300 - 1610 :	Dismantling of an eleven H.P. diesel engine (Mr. Sekioka).
<u>18th February, Wednesday</u>	Study Trip (Mr. Kungwan).
0800 - 1600 :	Field trip to Marine Laboratory and Fish Market in Yanawa District.
<u>19th February, Thursday</u>	Study Trip.
0800 - 1600 :	Visit Fish Marketing Organization in Samutsakorn Province (Mr. Prasert and Mr. Kungwan).
<u>20th February, Friday</u>	Refrigeration (Mr. Sekioka).
0850 - 1200 :	Principles, types of machines, cycles, refrigerants, etc.
1300 - 1610 :	Operation, care and maintenance in Workshop.
<u>21st February, Saturday</u>	Study Trip (Mr. Kungwan).
0800 - 1600 :	Visit small boatyard for steel and fibre glass boats.
<u>22nd February, Sunday</u>	Rest
<u>23rd February, Monday</u>	Fish Handling (Mrs. Bung-Orn).
0850 - 1200 :	Food value, spoilage and measurement, chemical tests.
1300 - 1610 :	Proper handling, refrigeration, fish survey.

<u>24th February, Tuesday</u>		Fish Preservation. (Mrs. Bung-Orn)
0850 - 1200	:	Smoking, boiling, drying fish.
1300 - 1610	:	Salting, freezing, canning and packaging fish.
<u>25th February, Wednesday</u>		Study Trip (Mrs. Bung-Orn and Mr. Kungwan).
0800 - 1600	:	Visiting Fish Processing Companies in Bangkok.
<u>26th February, Thursday</u>		Engine repair and maintenance (Mr. Sekioka).
0850 - 1200	:	How to overhaul an engine and use of tools.
1300 - 1610	:	Safety precautions in overhauling; Records and data for maintenance purposes.
<u>27th February, Friday</u>		Study Trip
0800 - 1600	:	Visit fish processing companies in Samutprakarn Province.
<u>28th February, Saturday</u>		Rest.
<u>1st March, Sunday</u>		
<u>2nd March, Monday</u>		Extension Philosophy (Mr. Thomson)
0850 - 1200	:	Nature of fisheries extension, objectives of marine fisheries service.
1300 - 1610	:	Requirement of an Extension Officer; Future of Fisheries Extension.
<u>3rd March, Tuesday</u>		Extension Methodology (Mr. Thomson).
0850 - 1200	:	Marine fisheries problems, Social factors.
1300 - 1610	:	Appropriate technology and cooperative development.
<u>4th March, Wednesday</u>		Extension Communication (Mr. Thomson)
0850 - 1200	:	From fishermen.
1300 - 1610	:	Group approach and use of mass media.
<u>5th March, Thursday</u>		Fuel Substitution, Operation of Small Boats.
0850 - 1200	:	Fuel substitution (Mr. Tanoo).
1300 - 1610	:	Operation of small boats (Capt. Prathom).

<u>6th March, Friday</u>	Operation of Small boats (Capt. Prathom)
0850 - 1200 :	Boat oaring practice.
1300 - 1610 :	Motor boat manoeuvring practice.
<u>7th March, Saturday</u>	Boat Sailing (Capt. Prathom)
0850 - 1200 :	Sailing theory.
1300 - 1610 :	Sailing practice.
<u>8th March, Sunday</u>	Rest
<u>9th March, Monday</u>	Fishing Communities and Socio Economic Conditions (Dr. Yamamoto)
0850 - 1200 :	Fishing communities.
1300 - 1610 :	Socio-economic conditions of small-scale fisherman.
<u>10th March, Tuesday</u>	Survey Design and Fisheries Cooperatives (Dr. Yamamoto)
0850 - 1200 :	Design of survey and questionnaires for field trips
1300 - 1610 :	Fisheries cooperatives.
<u>11th March, Wednesday</u>	Preliminary Survey of Fishing Household, and Accounting for Marine Fishing and Management (Mr. Kungwan)
0850 - 1200 :	Preliminary survey in Ban Phe (Dr. Yamamoto and Mr. Kungwan)
1300 - 1610 :	Accounting for marine fishing and management (Mr. Kungwan).
<u>12th March, Thursday</u>	Visit fishing communities (Dr. Yamamoto and Mr. Kungwan)
0850 - 1200 :	Visit fisheries cooperatives and fishing communities in Rayong.
1300 - 1610 :	Listing of fishing households and random selection of sample fishing households for an interview.
<u>13th March, Friday</u>	Interview with sample (Dr. Yamamoto and Mr. Kungwan).
0850 - 1610 :	Interview with sample fishing households.

<u>14th March, Saturday</u>		Evaluation (Dr. Yamamoto and Mr. Kungwan).
0850 - 1610	:	Evaluation of data, including data processing and analysis.
<u>15th March, Sunday</u>		Rest
<u>16th March, Monday</u>		Engine Installation (Mr. Yamamoto)
0850 - 1200	:	Engine room layout, inclination and trim of vessel, etc.
1300 - 1610	:	Engine bed structure. Practice in shaft alignment, deflection.
<u>17th March, Tuesday</u>		Engine Trouble Shooting. Conventional Fuels (Mr. Yamamoto)
0850 - 1200	:	Engine trouble shooting, and fuel saving.
1300 - 1610	:	Conventional fuels.
<u>18th March, Wednesday</u>		Sea Trip by M.V. PLATOO (Mr. Okawara, Mr. Prasert, Mr. Somyos).
<u>19th March, Thursday</u>		- ditto -
<u>20th March, Friday</u>		Study Trip (Mr. Kungwan).
0800 - 1600	:	Visit fishing communities in Prachuab Province (Mr. Kungwan).
<u>21st March, Saturday</u>		Visit fishing communities in Petchburi Province (Mr. Kungwan).
<u>22nd to 25th March, Sunday</u>		Study Tour North (Mr. Kungwan).
<u>26th March, Thursday</u>		Completion of reports.
<u>27th March, Friday</u>		Evaluation, Closing Ceremony.
0850 - 1200	:	Evaluation (Capt. Vudhi, Mr. Kungwan).
1600 - 1900	:	Closing Ceremony, Farewell Party.

List of Reference Books and Lecture Notes

- I. Reference Books for all Participants
1. Bureau of Naval Personnel, U.S. Government, 1953. Washington, D.C., 1953, 32 pp.
 2. Korb, Albin Werner, 1978. Technical Training Centers. Manila, July 1978, 111 pp.
 3. H. Lisac, 1979. Some Technical Aspects of Small-Scale Fish Landing Facilities. Manila, March 1979, 38 pp.
 4. National Federation of Fishery Cooperative Association, 1980. Fishery Cooperative Associations in Japan. Tokyo, August 1980, 28 pp.
 5. Report of International Conference on Revision of the International Regulations for Preventing Collisions at Sea 1972. Manila, 1972, 63 pp.
 6. Samutprakarn Technical College, 1981. Basic Woodwork and Use of Tools. Bangkok, 1981, 74 pp.
 7. Shindo, Shigeaki, 1978. Fisheries Resources and Optimum Utilization. SEAFDEC/TD, April 1978, 22 pp.
 8. Shindo, Shigeaki and Somsak Chullasorn, 1980. Economically Important Marine Fishes in the Southeast Asian Waters. SEAFDEC/TD, September 1980, 91 pp.
 9. Thomson, David B., 1978. "Lecture Notes on Fishing Methods, Equipment and Deck Layout of Fishing Vessels." SEAFDEC/TD, October - November 1978, 151 pp.
 10. Thomson, David B., 1979. "Marine Fisheries Extension" (Asean Workshop on Fisheries Extension, Manila, February 18-25, 1979), 43 pp.
 11. Thomson, David B., 1979. Intermediate Technology and Alternative Energy Systems for Small-Scale Fisheries. SEAFDEC/TD, November 1979, 69 pp.
 12. Yamamoto, Tadashi, 1981. Socio-Economic Status, Living Condition and Income Condition of the Marine Fishing Household on the North Coast of Java Island. SEAFDEC/TD, 1981, 31 pp.

II. Lecture Notes for all Participants

1. Okawara, Masatake, 1981. "Angling" SEAFDEC/TD, 1981, 11 pp.
2. Saisithi, Bung-Orn, 1981. "Post-harvest technology, including Fish Handling, Fish Preservation and Fish Products, and Fish Processing." SEAFDEC/TD, 1981, 30 pp.
3. Sudhasaneya, M.R. Vudhi, 1981. "Metal Works and Use of Tools" SEAFDEC/TD, 1981, 36 pp.
4. Yamamoto, Shinzo, and Mikihisa Sekioka, 1981. "Marine Engineering and Refrigeration, including Causes of Engine Trouble and Countermeasures, Engine Installation, Conventional Fuel and Fuel Saving, Diesel Fuel Injection System, Refrigeration, Engine Construction, and Engine Operation, Care and Maintenance, Repair." SEAFDEC/TD, 1981, 200 pp.
5. Yamamoto, Tadashi, 1981. "Fishery Cooperatives, including Fishing Communities and Fishery Cooperative Associations." SEAFDEC/TD, 1981, 10 pp.
6. Yamazaki, Tomeyoshi, 1981. "Stick Held Dip Net" SEAFDEC/TD, 1981, 11 pp.
7. Veecharungsun, Thanoo, 1981. "Fuel Substitution, including Oil Shale Development Project and Alcohol Fuel from Farm." SEAFDEC/TD, 1981, 5 pp.

4. "Are study trips to places related to fisheries beneficial to you?"

Ans. Mostly, the answers are "yes".

5. "Which subjects are most relevant to the extension service in your local area of operation? Please state the location of area(s)."

Ans.

1. Net design and specification.
2. Fishing Gear and Methods.
3. Net making and mending.
4. Fish exploitation and conservation
5. Fish handling.
6. Design of survey and questionnaire for field trips.
7. Socio-economics conditions of small scale fisherman.
8. Fisheries cooperatives.
9. Extension philosophy, methodology and communication.
10. Accounting for marine fishing and management.

6. "Back at home, are you continuing to work in the field of Fishery Extension?"

Ans. Only 2 out of the 19 participants will not be in the field of extension service.

7. "If not, in what field are you expecting to be posted?"

Ans.

1. Mr. Utai Singtothong (Thailand) - not directly concerned with extension work.
2. Mr. Quek Chong Sang (Malaysia) - may be transferred to extension work in future.

8. "What part of the year (month) is most suitable to your home office in dispatching participants to take part in such a course abroad?"

Ans.

1. Thai:	Jan.-April, Oct.-Dec., May - July.
2. Malaysia:	Feb.-March, April - June.
3. Singaporean:	April to October.
4. Sri Lankan:	Feb.-March.
5. Filipino:	March to October.

9. Administration, rules and regulations, friendliness of staff, etc., of SEAFDEC Training Department, are all considered good.
10. "Any suggestion for course improvement:-"
- Ans. 10.1 Classroom desk is too small, no room for holding reference and lecture notes.
- 10.2 Addition of subjects would be useful, e.g., First aid at sea and coastal navigation.
- 10.3 Subjects of primary importance such as fishing gear, net design, net making, fish exploitation, conservation, handling, etc., were allotted shorter periods than those of secondary importance such as engineering subjects.
- 10.4 Better sequence of subject's arrangement during the course should be done.
- 10.5 Many types of fishing gear could be introduced, not just a few of them.
- 10.6 Slides or film shows could be in English.
- 10.7 Woodwork could be related more to boat building, reinforced plastic boats also.
- 10.8 Lecture notes could be given to participants in advance for pre-study.
- 10.9 Too many subjects with little content on each, does not yield substantial benefit to participants. The number of subjects should be reduced, so that available time could be used to study the primary subjects more deeply.
- 10.10 Class lectures could be done in the morning session with practice carried out in the afternoon session only.
- 10.11 Once a week field trip is appropriate. Most participants agreed that field trips were very beneficial to the course.

PROPOSED GENERAL SUBJECTS FOR THE SECOND SEAFDEC TRAINING COURSE
FOR FISHERY EXTENSION OFFICERS, 19 October to 11 December 1981

Fishery in General

Fishery biology, fish stock and abundance

Fishery management and conservation

Fishing vessels and boat building

Trawl net design

Lift net design

Set net design

Purse seine net design

Net making and repair

Fishing method of gill nets

Line fishing method

Purse seining method

* First aid at sea

Basic seamanship (maritime law, prevention of collision at sea)

Marlinspike seamanship (line handling, knots and splices)

Boat handling (motoring, manoeuvring, rigging, sailing)

* Coastal navigation (navigating instruments, chart reading, symbols, distance, bearing, locating ship's position, hand made map of coast line and land marks, etc.)

Refrigeration (principles, types, cycles, refrigerants, operation care and maintenance)

Engine installation, engine construction, assembling and disassembling of a diesel engine

Types of metals and their uses, use of machine and hand tools, manual fabrication.

Fuel substitution (principles, alcohol and blending, demonstration of engines with substitute fuels)

Fish handling, fish preservation and fishery products

Fishing communities

* new course, as suggested by past participants

Survey on socio-economics of fishing households

Extension philosophy

Extension communication

Extension methodology

Field trips are proposed:

to Marine Fisheries Laboratory and fish markets

to Net making factory in Phrapradaeng

to Rayong Fisheries Station

to fisheries cooperative communities and fishing villages in
Southern Thailand

to fish processing plants in Bangkok and Samutprakarn

to conduct a survey on the socio-economics of fishing
households

Sea cruise on board M.V. PLATOO and PRAMONG IX for training on
various fishing gears and fishing operations in the Gulf of
Thailand

Total: 54 days; Weekdays (5 days/week) = 40 days