

REPORT OF
NEEDS ASSESSMENT WORKSHOP

BANGKOK, THAILAND
7-8 JULY 1994



TRAINING DEPARTMENT
SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER

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NEEDS ASSESSMENT WORKSHOP

BANGKOK, THAILAND

7-8 July 1994

INTRODUCTION

1. At the approval of the Twenty-Sixth Council Meeting, the Training Department of the Southeast Asian Fisheries Development Center convened the Workshop on the Assessment of Training Needs in Bangkok, Thailand, from 7 to 8 July 1994. The Workshop was attended by the representatives of the Member Countries: Japan, Malaysia, the Philippines and Thailand; observers from Viet Nam and Kagoshima University, as well as from international organizations, namely the FAO Regional Office for Asia and the Pacific (RAPA), and the Network of Aquaculture Centres in Asia-Pacific (NACA). The list of participants appears as Annex 1.

2. In the opening address, the Secretary-General welcomed the participants and invited them to discuss freely on their requirements and the training needs for fisheries development. He noted that in the future, the countries' requirements might be changing significantly and there would be more new members joining SEAFDEC. Therefore, this would be an appropriate time to assess the needs and requirements for regional cooperation in fisheries matters.

3. The Workshop was an element of the programs of activity of the Center approved by the Twenty-Sixth Meeting of the SEAFDEC Council held from 22 to 25 November 1993. He informed that the SEAFDEC Council had recommended that a Needs Assessment Workshop be conducted in order to formulate the Training Department's three year plan for 1995 to 1997.

4. The Secretary-General added that the recommendations of this Workshop would be submitted to the Program Committee for its endorsement and submission to the SEAFDEC Council for its consideration and approval. The Workshop would consider the results of the Training Needs Questionnaire which was geared towards improving the programs of the Training Department in response to the actual training needs, and promoting cooperation among the region's fishery training institutions.

5. The Workshop was chaired by SEAFDEC Secretary-General Dr. Maitree Duangawasdi.

6. The workshop approved the Agenda as appeared as Annex 2.

REVIEW OF THE TRAINING AND RESEARCH PROGRAMS

7. As background information, the SEAFDEC Training Department reported on the Department's objective, plans of operation and training programs conducted from 1989 to 1994.

8. The main objectives of the Training Department aimed: (1) To develop skilled and experienced manpower for the primary sector of the fishing industry, (2) to develop suitable and economical types of fishing gear and (3) to develop methods for effective harvesting of the fisheries resources. The current Plan of Operation states that the functions of the Training Department as: (1) to train fishery personnel of Member Countries, and other countries in various aspects of modern marine capture fisheries so that available fishery resources will be effectively and rationally utilized; and (2) to undertake research and studies on various aspects related to marine capture fisheries to facilitate management and rational use of fishery resources in the Southeast Asian Waters.

The detailed review of the training activities of the SEAFDEC Training Department from 1989 to 1994 appeared as TD/WS 94/WP 3 in Annex 3. The detailed review of the research activities of the Training Department from 1989 to 1994 appeared as TD/WS 94/WP 6 in Annex 4.

9. The relevant information on the current situation of the former trainees and knowledges used after training was presented by the Training Department. The result appeared as TD/WS 94/WP 5 in Annex 5. The result was based on a questionnaire sent in April 1994 to all former trainees. The questionnaire was designed to collect information and suggestions from the former trainees to be used as a guideline for the improvement and revising the courses' curriculum for 1995-1997.

10. The results of the questionnaire showed that 96 per cent of respondents stated that in the regular course on Marine Fishing Technology the subject of Fishing Gear Technology was most relevant to their present work. In the Marine Engineering Regular Course, 43 per cent of respondents said that the subject of marine engine was most relevant to their present work.

The questionnaire results concerning extension courses showed that 89 per cent of respondents found Fishery Extension Methodology most relevant to their fields of work.

11. The respondents also made suggestions for improvement and noted that the duration of Marine Fishing Technology and Marine Engineering Courses should be extended in the future. The respondents also considered that the duration of the Fisheries Extension Services Course is appropriate.

12. The draft proposal for three year activity plan (1995 to 1997) of Marine Fishery Resources Development and Management Department (MFRDMD) was presented by its Deputy Department Chief. He stated that the proposal might relate to the Training Department's three-year plan (1995 to 1997) such as basic study of stock; gear study and statistics. However MFRDMD's activities would cover training, research and information, but special emphasis would be given to research activity. The MFRDMD has proposed, the collaborative research with the Training Department by using the M.V. SEAFDEC. The Training Department Chief responded that the Training Department is formulating a collaborative research and training with the SEAFDEC Departments and member countries. The detailed proposal of MFRDMD appeared as TD/WS 94/WP 7 in Annex 6.

PERSPECTIVE ON TRAINING NEEDS IN SOUTHEAST ASIA

13. The perspective on the training needs in Southeast Asia was presented by the Training Department. The perspective appeared as TD/WS 94/WP 4 in Annex 7. In the perspective, the Training Department noted the significance of marine capture fisheries for Southeast Asian countries and an overview of recent general fisheries profile in the region for five countries: Brunei Darussalam, Malaysia, the Philippines, Thailand and Viet Nam. The common main problems facing these countries with respect to fishery

resources were (1) over - exploitation of fishery resources in traditional fishing grounds, (2) lack of technology and skilled fishermen to develop new fishing grounds, (3) necessity to expand to distant water fishing, (4) difficulties maintaining a sustainable coastal resource base and upgrading the status of small-scale fishermen and (5) limitations of fishing ground.

14. The Training Department noted what the ~~the~~ Training Department could do in the form of technical assistance and training for the Member Countries. Based on the results of Training Department's survey mission to the Member Countries during July 1993 and "the recommendations" about future directions to be taken for activities of the Training Department, including the availability of M.V. SEAFDEC which could be used as a training laboratory to organise training course in the Member Countries, therefore upon the need, the Training Department would organise and/or modify its training program to suit the request of the Member Countries. The participants from the Philippines, Malaysia and all the participants supported the recommendations as appeared in TD/WS 94/WP 4.

15. In the discussions based on the perspective paper, it was noted that there were other issues, including: (a) the question of how resources could be sustained if countries were expanding their fishing, (b) the issue of shared stocks of some pelagic fisheries, (c) disputes over territory which made expansion difficult and (d) over number of fishing fleets which led to "fish-out syndrome". It was observed that perhaps SEAFDEC's training approach would have to adapt to changes in the general fisheries situation in Southeast Asia and to have closer collaboration with national institution in the Member Countries.

16. The participants made several observations. The participant from Malaysia welcomed the emphasis on pelagic resources and noted that Malaysia would require more assistance on pelagic exploitation. The participant from the Philippines provided up-dated information for 1993 on the fisheries situation and informed muro-ami had been banned in the Philippines.

TRAINING REQUIREMENTS OF MEMBER COUNTRIES

17. The Workshop participants presented their views concerning the training requirements of their countries. The Malaysian participant indicated that his country's scenario would focal on (a) exploitation of pelagic resources in the offshore eastern waters, (b) post-harvest technology in fish handling and quality control, and (c) coastal resource management. Malaysia would still need training related to coastal fishing with respect to resource management and sustainable use, so the Training Department's suggestion to have an integrated module of fishing technology and resource conservation was welcomed. P

Malaysia's emphasis on offshore pelagic resources meant that its training requirements would be in the area of fishing technology and methods like purse seining and long-lining. Malaysia would emphasize equipment and navigation for this type of fishing and refrigerating technology and hydraulic equipment. P

18. The participant from the Philippines reported on the fisheries situation and outlined the thrusts of the Philippines' Medium Term Fisheries Management and Development Program covering the period from 1993 to 1998 in relation to needs in the four sectors namely marine offshore fisheries; marine near shore fisheries; aquaculture and post-harvest handling. In relation to these main thrusts, she then listed the training needs in the fishing technology and the marine engineering.

19. Furthermore, there were six major issues facing the country: (a) aquatic resource depletion, (b) widespread environmental damage, (c) poverty municipal fishermen, (d) low productivity in aquaculture, (e) under-utilized offshore and exclusive economic zone and (f) inefficient utilization of fishery production. X

The participant indicated the need in marine extension expertise covering basic research and relevant training on utilization and management of offshore or commercial fisheries, because marine fisheries resources were abundant, but contributed the least to fish production in the Philippines.

20. The participant from Thailand described the situation in his country's fisheries sector and outlined related training needs. He said that Thailand would need to go into high sea fishing, but this posed problems related to the Law of the Sea, responsible fishing as well as economic and political problems that would require negotiations.

He said Thailand would need to develop personnel for high sea fishing. He said that the Training Department regular courses in modern marine fishing technology were needed immediately in Thailand. Under training topics in Marine Extension Services, the emphasis was on fishing rights and cooperatives system. Under short courses, Thailand was interested in meeting its needs related to high seas fishing for (a) selective fishing gear, (b) hydroacoustic equipment and fishing machinery (c) navigation and modern navigational equipment and (d) cooperative system. He observed that some of these topics could be part of the extension services program as well.

The Thai participant also enquired about training and research concerning selective fishing gear with respect to on-the-job training and co-research related particularly to endangered species such as the sea turtle. He said the study was being done in Malaysia and Thailand and asked whether the Training Department and/or Marine Fisheries Resource Development and Management would be doing training and research on this topic, perhaps on a collaborative basis.

21. The participant from Viet Nam noted that ^{his} their country was being represented for the first time at this Workshop, and Viet Nam looked forward to being a SEAFDEC Member Country. The Vietnamese participant then outline the main features of its fisheries sector. The basic problem faced by the Vietnamese fisheries sector was the need to modernize in order to raise productivity, assure quality sea products and reduce post harvest loss by improving storage and processing. General targets had been set for fisheries yields up to the year 2000 and for the period from 2000 to 2010.

In terms of training needs for Viet Nam, the participant noted the value of past training experiences from SEAFDEC. Future needs would be on a wider scale and would include on-the-job training, learning from other Southeast Asian countries and technological modernization. The participant also asked whether SEAFDEC's regional training activities could include conducting training courses in Viet Nam, under the appropriate conditions.

22. The participant from Japan said that his government recognized the importance of developing Southeast Asian Fisheries and has always seen the value of giving support. He said that now "sustainable assistance" was an important concept for expanding research and training to help Southeast Asia modernize its technology.

23. The representative from the FAO Regional Office for Asia and the Pacific (RAPA) observed that in the international diplomatic and legal context, there was probably no scope for high sea fishing in Southeast Asia and that the more important issue was one of "sea sharing". He said that these larger considerations will affect training needs of all countries. The problems of over-exploited coastal fisheries and the need for proper management were also of concern, but there was some hope in the form of artificial reefs. Proper management would require facing the dilemma of maintaining production while reducing the number of new entries and finding alternative work for fishermen.

He also noted that training was still required at various levels of sophistication, and perhaps the Training Department could focus on training of trainers. Perhaps the M.V. SEAFDEC training vessel could become a floating university to collect data and train on board and help strengthen national training institutes. FAO could provide help in the form of experts, making stock assessments and so forth.

ASSESSMENT OF NEEDS AT THE REGIONAL LEVEL

24. The Training Department presented the results of the training needs identified by Member Countries. The results appeared (in its addendum) in Annex 8., were based on the questionnaire survey for the training course to be conducted by the Training Department. The following subjects were suggested to be continued by the Training Department.

- (a) Marine Fishing Technology
- (b) Marine Engineering
- (c) Integrated programs in Marine Capture Fisheries
- (d) Marine Fisheries Extension Service

25. The topics for the regular course in Marine Fishing Technology were identified, the priority is placed on:

- 1) Fishing Technology and Resource Conservation
- 2) Commercial Fisheries
- 3) Modern Fishing Technology

26. The topics for the regular course in Marine Engineering were identified, the priority is placed on:

- 1) Operation and maintenance of marine engines
- 2) Internal Combustion Engine for Fishing Boats
- 3) Refrigeration and Auxiliary Machinery

27. Training topics for regular training in Marine Fisheries Extension Service were identified, the priority is placed on:

- 1) Extension Methodology
- 2) Extension Methodology and Socio-economics of Small-scale Fisheries
- 3) Extension Methodology and Fishery Resource Conservation

28. Training topics for the short-term training courses in Marine Fisheries are separated into two parts:

1. For Fishing Technology Course, the priority is placed on:

- 1.1 Purse Seine Fisheries
- 1.2 Longline Fisheries
- 1.3 Pelagic Fisheries
- 1.4 Gill Net Fisheries
- 1.5 Selective Fishing Gears
- 1.6 Hydroacoustic Equipment

2. For Marine Engineering Course, the priority is placed on:

- 2.1 Refrigeration systems for fishing boats
- 2.2 Hydraulic Machinery

29. The fishing rights and cooperatives system were proposed as additional subjects in marine fisheries extension service course. The monitoring, control and surveillance (MCS) was also proposed as a additional topic for specific training.

30. The representative from the Training Department also concluded that as the results identified by the Member Countries, it was found that the target groups for manpowers development were officers, operatives and fishermen.

FUTURE TRAINING PROGRAMS

31. Training Department presented the future training programs to be offered by the Training Department as "Draft Proposal for Three-Year Activity Plan (1995 to 1997)" which appeared as Annex 9. The discussion focused on developing a vision of training needs. It was noted that the proposal was based on the training requirements, which were supported by Member Countries.

32. The Malaysian participant said that besides training of trainers, there was a need to have formal training for fishermen in order to have an insight into the pelagic fishing, and they could learn from other member countries. He suggested that principles of entrepreneurship be included in the training modules, especially for training of trainers. Local fishermen also needed to be better prepared with business know-how and the management of a fishing enterprise. He was in favor of adding new modules, as long as the

modules

present training programs were also retained. He further recommended that a number of courses should be offered regularly every year, instead of scheduling them on an ad hoc basis or only every other year.

33. The participant from the Philippines said that certain courses related to Marine Fisheries Resource Conservation Management and Marine Fishing Technology, especially covering resource inventory and stock assessment, were very important in terms of Philippines and priorities. She observed that in the Philippines they needed more than the technical aspects of fishing gear or increasing catches; they needed greater awareness and training on management and conservation to stop over-fishing. Some modules should have longer duration, for example, the module on resource inventory and stock assessment under Marine Fishing Technology.

Furthermore the follow-up after the initial training was also important. Therefore, Marine Extension Services should allow for follow-up three to six months after training to observe re-entry and action planning. It would also be useful to include "emersion work" where trainees go to fishing villages for on-site training as participant-observers to see the situation.

34. The Chairman mentioned that the participants understood their countries' needs as part of a general topic, while the Workshop discussion would cover the details of Training Department's proposal as it would be taken up for further discussion at the Seventeenth Meeting of the Program Committee.

35. The representative from the Network of Aquaculture Centres in Asia-Pacific (NACA) said that some training activities and country requests for training overlap the work of both SEAFDEC and NACA. He noted that NACA could refer and cooperate in identifying country needs. He also said that the mode of training was important to consider and that the existing country expertise already created by the Training Department could play a role in devolving training into the countries. This could help make regional training cost effective and beneficial.

36. The representative from FAO (RAPA) suggested a conceptual and problem analysis in order to develop a vision of training needs. It was noted that technology development was needed in all areas, but there was the question of how to deliver the training, to whom and in what form. There were several alternatives which emerged from the discussion: (a) make greater and more diversified use of M.V. SEAFDEC when possible, (b) use national training institutes and (c) bring in the private sector to give business and management knowledge.

37. The participant from the Philippines suggested that the M.V. SEAFDEC could help the Philippines to do research and explore some location not yet exploited, and perhaps the private sector or institutes could also participate. The Philippines had already classified types of trainees and tabulated data on training needs. The additional efforts at identifying specific needs and finding qualified people to train might also be necessary.

38. The Training Department noted the completely different training needs for conditions in coastal, commercial and aquaculture fisheries and what this might imply for organizing the training program, designing the contents and deciding target participants.

39. The Training Department gave a further elaboration of the draft proposal for the three-year activity plan. The information on course contents could be sent to the participating countries in order to have better selection of trainees. Some activities in the draft proposal came from various suggestions and that work was also being done on research and statistics. The Training Department could provide information on collaboration among SEAFDEC Department and Member Countries for the use of M.V. SEAFDEC.

40. The Training Department also further elaborated on other activities of the Department such as research, seminars and workshops, external training and information activities.

41. The Training Department will continue and conduct the research major activities in three field which are:

1. Fishing gear technology
2. Fishing ground information
3. Socio-economics and Statistics

42. The Training Department proposed to organize the Seminars and Workshops during 1995-1997 as follows:

1. Workshop on the Coastal Fisheries Management in 1996
2. Ninth Regional Workshop on Fishery Statistics in Southeast Asia in 1997
3. Needs Assessment Workshop on Training and Research in Marine Fisheries in 1997

43. The Training Department also stated that it would continue its external training programs and the information and audio-visual programs to strengthen its collaboration with National Institutions of Member Countries.

44. The participant from the Philippines agreed ^{with} the proposal for three-year activity plan of Training Department. However, the coastal fisheries management was a priority, the Workshop should be conducted as soon as possible. The research collaboration with the Member Countries should not be only on technology but also on the manpower needs.

45. The Chairman reported that MFRDMD had been requesting financial assistance from Japan for its projects. This could lead to a good collaborative survey within SEAFDEC departments and member countries. He also clarified the ways in which courses were organized by frequency and the considerations about the availability of M.V. SEAFDEC.

46. The Workshop discussed in more detail the various topics and the priorities expressed by the member countries. The participant from Malaysia observed that some courses might need to be offered on a more regular basis and that some ad hoc courses and short courses should be on a continuous basis, if there was no constraint faced by the Training Department.

47. The discussion and comments concerning training requirements of Member Countries focused on the subjects covered in training courses and the methods of instruction, including lectures, practice and training ^{on board} aboard M.V. SEAFDEC. Most comments were about the duration of training courses and the basic areas for long-term training.

RECOMMENDATIONS AND CONCLUSION OF THE WORKSHOP

48. The recommendations and conclusion of the workshop are as follows:

1. SEAFDEC Training Department should continue to provide the training in fishing technology, marine engineering and extension services.
2. The training needs identified by priority should be used as a basis for planning the training courses to be organized by the SEAFDEC Training Department and other concerned organizations/agencies in the region.
3. SEAFDEC Training Department should consider the integrated training programs to cover current fisheries development in the Exclusive Economic Zone especially for the operatives and other non-governmental bodies and the young executive officers.
4. Short-term training courses on specific subjects, i.e. advance technology in capture fisheries, modern fishing machinery state-of-art in fishing technology, fish handling at sea, fisheries conservation, environmental pollution, modern electronic equipment and hydraulic equipment should be conducted as required.
5. Future training courses should consider ^{integrated} the areas of conservation and management of coastal resources as well as other environmental issues. In this regard, it was suggested that a strong cooperative effort among Member Countries is necessary in the management of resources in the coastal area and the monitoring systems of environmental issue. The Training Department should provide the tailor-made courses in the line of The Training Department activities as requested by its Member Countries.

6. A brief content of each training course should be prepared by the Training Department, and submitted for the consideration of the Member Countries.
 - 7 Training of extension officers should be recognized as they are the key factor in the transferring of technology and the coordination and responsible for marine fishery resource management to the fishermen. The present SEAFDEC Training Department Extension Course should be continued.
 8. Collaborative training, advocation and research with the national institutions in Member Countries and at SEAFDEC Departments should be developed and strengthen.
 9. SEAFDEC Training Department should play the ^{key} role in coordination of marine fishery extension efforts in the region and to lead an information exchange Network.
 10. SEAFDEC Training Department should develop the short-term experts exchanging program with institutions in its Member Countries.
 11. The Training Department should consider the new areas i.e. fishing right, cooperative system and MCS for training proposed by Member Countries. The priority of these new areas may be included in the next study by the Training Department.
 12. The Training Department should clarify the objectives of training course taking into account diversity of trainees and the difference between commercial off-shore fishery and small-scale coastal fishery.
49. The recommendations and conclusion of the Workshop, will be submitted to the Seventeenth Meeting of the Program Committee in August 1994 for endorsement and submission to the SEAFDEC Council for consideration and approval at the Council's next meeting.
50. The Chairman thanked all the participants for their valuable comments and suggestions during the Workshop.

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Need Assessment Workshop
Bangkok, Thailand
7-8 July 1994

Agenda

1. Opening Address by Dr. Maitree Duangawasdi, SEAFDEC Secretary-General,
2. Adoption of Agenda and arrangements for the Workshop.
3. Review of the training programs offered by SEAFDEC Training Department.
4. Perspective of the Training Needs in Southeast Asia.
5. Training Requirements of Member Countries.
6. Assessment of Needs at regional level.
7. Future Training Programs to be offered by SEAFDEC Training Department.
8. Conclusion and recommendations.

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**Needs Assessment Workshop
Bangkok, Thailand
7-8 July 1994**

**Review of the Training Activities of the SEAFDEC Training Department
1989-1994**

REVIEW OF THE TRAINING ACTIVITIES OF THE SEAFDEC TRAINING DEPARTMENT
1989 - 1994

It was generally agreed among the member countries at the inception of the Center that regional cooperation in fisheries should be directed towards coastal and offshore fisheries, with emphasis on offshore fisheries. In the coastal fisheries development of this region, there is need for modernization of vessels and gear, whereas in offshore fisheries more attention should be paid to fishing techniques and the training of technicians. The anticipated contribution of the Center towards regional fisheries development thus includes the development of skilled and experienced manpower for the primary sector of the fishing industry, in particular deep-sea fishing, and the transfer of knowledge concerning the marine fishery resources and fishing grounds in the waters surrounding and adjacent to the Southeast Asian countries, with a view to developing and conserving these resources for the mutual benefit of the countries in the region. Another major contribution of the Training Department is the development of suitable and economical types of fishing gear and methods for effective harvesting of the resources.

The Council agreed at its thirteenth meeting that the plans of operation and working programs of the SEAFDEC Departments should be reviewed every three years in order to adjust them to the current needs of member countries. Subsequently, the Plan of Operation and Working Program of the Training Department were revised in 1980, 1983 and 1992. The present Plan of Operation states the functions of the Department as follows:

- (1) Primarily, to train fishery personnel of Member Countries, and other countries as approved by the Council of the Center, in various aspects of modern marine capture fisheries, particularly commercial and small-scale fisheries, marine fisheries extension services and marine engineering, so that the available fishery resources will be effectively and rationally utilized; and
- (2) Secondly, to undertake research and studies on fishing grounds, fishing gear improvement, statistics and socio-economic aspects related to marine capture fisheries, in order to facilitate the management and rational use of the fishery resources in Southeast Asian waters.

In line with the functions indicated in the Plan of Operation, the Department has implemented training and research activities as approved by the Council of the Center. The Training activities undertaken by the Training Department during 1989-1994 can be summarized under the following categories:

- (1) Regular training programs
- (2) Short-term training programs
- (3) Ad-hoc training programs

1. Regular Training Programs

Initially the regular training courses conducted by TD were two-year courses later, however, the duration was reduced at the request of Member Countries, and more short-term training courses were organized. These changes came about as follows:

(a) As an outcome of the first regional seminar on training requirements, held in 1983, to review the training program, the training curricula were adjusted to meet the needs of Member Countries. However, the two-year training period was retained.

(b) At its seventh meeting in 1984, the Program Committee recommended that the two-year training period be reduced while keeping the same training standards. The recommendation was made because of the difficulty in selecting trainee candidates for longer training period.

In 1986, the 18-month course was introduced, the basic science and English language curricula were shortened and the standard of qualifications required of trainee candidates was raised.

(c) The one-year training course was introduced in 1988, in accordance with the Council's decision in 1987.

A second seminar on training requirements was held in 1988 to discuss the training needs of Member Countries and regional priority was given to each training subject. As most of the countries were in favour of a six-month regular training courses, TD adjusted

the curriculum to provide for more practical training by shortening the basic theory curriculum of both the fishing technology and marine engineering courses. The six-month training course on Marine Engineering was introduced in 1989 on a trial basis and the six-month on both courses were conducted in 1990 and 1991.

The three-year plan of the training program (1989-1991) is shown in Table 1.

2. Short-term Training Programs

In 1991, the seminar on Training Requirements in Fisheries in Southeast Asia was organized by the Training Department to review and assess the recommendations made by the survey mission and the returned questionnaires on the training requirements of the Member Countries.

The priority given to training in the field of marine fisheries development and management, as identified at the seminar, indicates the urgency of upgrading commercial fisheries in Member Countries, followed by the improvement of the technical support for fishery management. Most countries agreed that short-term training programs should be continued in the fields of marine fishing technology, marine engineering and marine fishery extension services as offered by the Training Department.

The three-year plan of the training program (1992-1994) is shown in Table 2.

Thirteen regional short-term training courses were organized by the Training Department during 1992-1994.

3. Ad-hoc Training Programs

The Training Department also provided the ad-hoc training programs upon request of the Member Countries and other Organization concerned with fisheries. During 1989-1994, the ad-hoc training in Fisheries Extension Services, Communication Media Production and Application of long-tail engines boats in shallow waters were offered to 19 trainees from Malaysia, Philippines, Yemen and Nigeria. The table 3 shows the list of trainees having attended the ad-hoc training courses organized by the Department from 1989 to 1994.

Table 1. Training Programs for 1989 to 1991

	<u>1989</u>	<u>1990</u>	<u>1991</u>
1.1 Regional Training Courses:			
(1) One-year course in Marine Fishing Technology	X	-	-
(2) Six-month course in Fishing Technology II: Commercial Fisheries	-	X	-
(3) Six-month course in Fishing Technology I: Small-scale Fisheries	-	-	X
(4) Six-month course in Marine Engineering I:	X	X	-
(5) Six-month course in Marine Engineering II:	-	-	X
(6) Fishery Extension Services (45 days)	X	X	X
(7) Fishfinder and Fishing Accessories (4 weeks)	X	X	-
(8) Purse Seine Fisheries (4 weeks)	-	X	-
(9) Fishery Oceanography (4 weeks)	-	-	X
(10) Fish Population Dynamics	-	X	-

	<u>1989</u>	<u>1990</u>	<u>1991</u>
1.2 National training-cum-demonstration courses:			
(1) Fishing Technology for Fishermen (1 week)	X	-	-
(2) Fishing Technology and Oceanography for University Students (2 weeks)	X	X	X
(3) Navigation for Fishermen (1 week)	-	X	-
(4) Scuba Diving	-	X	-
(5) Navigation (1 month)	-	-	X
Total number of courses per year:	6	9	6

Table 2. Training Programs for 1992 to 1994

1. <u>Regional Training Courses</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>
1.1 Six-month Course in Marine Fishing Technology:			
(1) Modern Fishing Technology	X	X	-
(2) Commercial Fisheries	-	-	X
1.2 Six-month Course in Marine Engineering:			
(1) Operation and Maintenance of Marine Engines	X	-	-
(2) Marine Engines for Fishing Boats	-	X	-
(3) Marine Engines and Auxiliary Machineries	-	-	X
1.3 One-month Specific Training Course:			
(1) Advanced Courses for Fishing Technology Course Graduates	X	-	-
(2) Fishing with Electronic Equipment	-	X	-
(3) Purse-seine Fisheries	-	-	X
(4) Scientific Diving	-	-	X

	<u>1992</u>	<u>1993</u>	<u>1994</u>
1.4 Fishery Extension Services			
(45 days):			
(1) Extension Methodology and Fishery Resources Conservation	-	X	-
(2) Extension Methodology and Coastal Resources Management	-	-	X
2. <u>National Training-cum-Demonstration Courses</u>			
2.1 Fishing Technology and Oceanography for University Students			
(2 weeks x 2)	XX	XX	XX
2.2 Training Courses for Local Fishermen and Local Institutions			
(1) Marine Engineering for Motor- driven Fishing Boats (one month)	X	-	-
(2) Scientific Diving (2 weeks)	-	X	-
(3) Navigation and Seamanship for Fishing-boat Skippers (2 weeks)	-	-	X
Total number of courses per year:	6	7	8

Table 3. Ad-hoc Training Programs for 1989-1994

Year	Period	Duration	Course Title	No. of Trainees	Country
1989	17 July - 2 August 1989	17 Days	- In-Service Training in Video Production for SEAFDEC's Member Countries	2	Malaysia
1990	3 September - 2 October 1990	30 Days	- In-Service Training Course in Video Production for SEAFDEC's Member Countries	2	Philippines
	20 December 1990 - 13 May 1991	5 Months	- In-Service Training Course in Extension Service for Small-scale Fisheries for Non-Member Countries	1	Yemen
1991	15 September - 16 October 1991	1 Month	- In-Service Training in Instructional Aids and Audio-visual Material Preparation for SEAFDEC's Member Countries	2	Philippines
1992	3-4 August 1992	2 Days	- In-Service Training in Application of Longtail Engine Boats in Shallow Waters	6	Nigeria
1993	29 March - 28 June 1993	3 Months	- On the Job Training in Marine Fisheries Extension for Non-member Countries	1	Yemen
1994	21-25 March 1994	5 Days	- In-Service Training in Application of Longtail Engine Boats in Shallow Waters	5	Nigeria

The outline of the past activities of the Training Department during 1970-1994

Table 4. Number of Trainees

Course	Trainees	Remarks
Regular Course	361	6 months - 2 years
Short Term Courses	1,889	4-52 days
Total	2,250	includes 400 women

Table 5. Items of the Short Term Courses

Main Target of Trainees	No. of Trainees	No. of Courses	No. of Days
Local Fishermen	202 (10.7)	9	206 ((22.9))
Students	716 (37.9)	20	263 ((13.2))
Extension Officer	344 (18.2)	14	596 ((42.6))
Others	627 (33.2)	30	589 ((19.6))
Total	1,889 (100.0)	73	1,654 ((22.7))

Note 1. () shows percents.

(()) shows average days per one course.

2. Others includes are Government Officials of Thai and other Member Countries, International Organization Officers, University Instructors and Private Sectors

3. Courses for others include i.e., Course on Stock Assessment and Fisheries Statistics, Fish Handling and Processing, Purse Seining Demonstration, Fishfinder and Fishing Accessories, Fish Population Dynamics, Motor Driven Fishing Boats and so on.

Training Program For 1989-1991

(Annex 1)

Course	1989												1990												1991											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
I. Regional																																				
	1. Marine Fishing Technology	<div style="display: flex; justify-content: space-between;"> <div style="width: 33%;"> <p>3 Marine Fishing Technology</p> <p>3 Operation and Maintenance of Marine Engines</p> </div> <div style="width: 33%;"> <p>4 Commercial Fisheries</p> <p>Internal Combustion Engines</p> </div> <div style="width: 33%;"> <p>Small-scale Fisheries</p> <p>Electrical Engineering & Auxiliary Engines</p> </div> </div>																																		
II. Specific Training																																				
	<div style="display: flex; justify-content: space-between;"> <div style="width: 33%;"> <p>22 Fish finder and Fishing Accessories</p> </div> <div style="width: 33%;"> <p>3 Hydroacoustic Equipment and Fishing Machinery</p> <p>3 Purse Seine Fisheries</p> </div> <div style="width: 33%;"> <p>14 Fish Population Dynamics</p> </div> </div>																																			
III. Fishery Extension																																				
	<div style="display: flex; justify-content: space-between;"> <div style="width: 33%;"> <p>15 Fishery Extension</p> </div> <div style="width: 33%;"> <p>6 Fishery Extension</p> </div> <div style="width: 33%;"> <p>5 Fishery Extension</p> </div> </div>																																			
IV. Local																																				
	<div style="display: flex; justify-content: space-between;"> <div style="width: 33%;"> <p>Fishing Technology and Oceanography</p> <p>Fishing Technology for Siam Bergal Co., Ltd.</p> </div> <div style="width: 33%;"> <p>3 Navigation</p> <p>3 Scuba Diving</p> </div> <div style="width: 33%;"> <p>16 Navigation</p> </div> </div>																																			

(Annex 2)

Course	1992												1993												1994												
	Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
I. Regional 1. Marine Fishing Technology 2. Marine Engineering																																					
II. Specific Training																																					
III. Fishery Extension																																					
IV. Local - University and College Students - Fishermen																																					



SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER (SEAFDEC)
 NUMBER OF TRAINEES AND PARTICIPANTS IN THE REGULAR TRAINING COURSES AND SHORT-TERM TRAINING COURSES
 ORGANIZED BY THE TRAINING DEPARTMENT, 1970 TO PRESENT

Year	Period	Duration	Course Title	NO. of Trainees		Total
				M.	F.	
1970	10 June 1970. - 31 May 1971	1 Year	- Regular Training Course in Fishing Technology and Marine Engineering (Joint Classes)	10	-	10
1971	10 June 1971 - 31 May 1972	1 Year	- Regular Training Course in Fishing Technology and Marine Engineering (Joint Classes)	14	-	14
1972	1 June 1972 - 28 June 1974	2 Years	- Regular Training Course in Fishing Technology and Marine Engineering (Separate Classes)	21	-	21
1973	1 June 1973 - 27 June 1975	2 Years	- Regular Training Course in Fishing Technology and Marine Engineering	17	-	17
1974	1 June 1974 - 9 June 1976	2 Years	- Regular Training Course in Fishing Technology and Marine Engineering	19	-	19
1975	30 April 1975 - 29 December 1977	18 Months	- Regular Training Course in Fishing Technology and Marine Engineering	22	-	22
1977	2 May - 3 June 1977	33 Days	- Short-Term Training Course in Navigation for Thai Local Fishermen	32	-	32

Year	Period	Duration	Course Title	NO. of Trainees		Total
				M.	F.	
1977	4 August - 1 September 1977	28 Days	- Short-Term Training Course in Coastal Navigation for Thai Local fishermen	25	-	25
	1 November 1977 - 25 October 1979	2 Years	- Regular Training Course in Marine Fishing Technology and Marine Engineering	21	-	21
1978	11 December 1978 - 29 October 1980	2 Years	- Regular Training Course in Fishing Technology and Marine Engineering	23	-	23
	21 March - 6 April 1978	16 Days	- Short-Term Training Course in Marine Fisheries Techniques for Thai Universities Students	13	5	18
	15 June - 31 July 1978	46 Days	- The Regional Training Course for Thai Local - Fishermen and SEAFDEC's Staff on Skippers	18	-	18
1979	4 September - 13 October 1978	39 Days	- The Regional Training Course for Thai Local - Fishermen and SEAFDEC's Staff in Skippers	51	-	51
	8-22 January 1979	15 Days	- Short-Term Training Course for Thai Local - Fishermen on Fishing Gear	23	-	23
	2-18 April 1979	17 Days	- Short-Term Training Course in Intensive in Fishing Technology and Fishery Oceanography for Thai Universities Students	23	11	34

DOCUMENTS ARE AVAILABLE SEPARATELY. TO ORDER, CONTACT THE NATIONAL ARCHIVES AND LIBRARY SERVICE FOR THE UNITED STATES OF AMERICA (NARS) AT COLLEGE PARK, MARYLAND 20740.

Year	Period	Duration	Course Title	NO. of Trainees		Total
				M.	F.	
1979	5-30 September 1979	25 Days	- Crash Training Course on Fisheries Extension for FAO/DOF/SEAFDEC's Officers	20	-	20
	5 Nov. 1979 - 31 Oct. 1981	2 Years	- Regular Training Course in Fishing Technology and Marine Engineering	24	-	24
1980	7-21 January 1980	15 Days	- Short-Term Training Course for Thai Local - fishermen on Fishing Gear	16	-	16
	31 March - 18 April 1980	19 Days	- Short-Term Training Course on Fishing Technology and Fisheries Oceanography for Thai Universities Students	21	9	30
	7-25 July 1980	18 Days	- Short-Term Training Course for Thai Custom Officers on Navigation and Seamanship	25	-	25
1981	18-29 August 1980	11 Days	- Short-Term Training Course for Thai Custom Officers on Diesel and Electricity	15	-	15
	5-19 January 1981	15 Days	- Short-Term Training Course for Thai Local - fisherman on Trawling Net	16	-	16
	2 February - 27 March 1981	45 Days	- The Regional Training Course for Fisheries Extension Officers in Marine Capture fisheries	18	1	19

Year	Period	Duration	Course Title	NO. of Trainees		Total
				M.	F.	
1981	30 March - 10 April 1981	12 Days	- Short-Term Training Course in Fishing Methods for Thai Universities Students	36	12	48
	1 September - 9 October 1981	39 Days	- The Regional Training Course on Stock Assessment and Fisheries Statistics for ASDB/SCSP/BOBP SEAFDEC's Officers	58	28	86
1982	2 November 1981 - 31 October 1983	2 Years	- Regular Training Courses in fishing Technology and Marine Engineering	25	-	25
	25 January - 19 March 1982	45 Days	- The Regional Training Course for Fisheries Extension Officers in Marine Capture Fisheries	22	1	23
	22 March - 2 April 1982	12 Days	- Short-Term Training Course in Marine Capture Fisheries for Thai Universities Students	28	12	40
	26 July - 17 September 1982	52 Days	- The Regional Training Course for Fisheries Extension Officers in Marine Capture Fisheries	25	3	28
	18-29 October 1982	12 Days	- Short-Term Training Course for DOF's Staff on Coastal Navigation	31	-	31

Year	Period	Duration	Course Title	NO. of Trainees		Total
				M.	F.	
1983	16-19 March 1983	4 Days	- Short-Term Training Course on fishing Demonstration for Instructors from Chulalongkorn/Teacher-Training Department	29	24	53
	28 March - 8 April 1983	12 Days	- Short-Term Training Course in Marine Fishing Technology for Thai Universities Students	18	9	27
	2 May 1983 - 29 February 1984	10 Months	- On-the-Job Research Training for Fishery Scientists from Member Countries	4	-	4
	1 June - 9 July 1983	38 Days	- The Regional Training Course for Fisheries Extension Officers in Marine fishing Technology	23	-	23
	7 November 1983 - 28 October 1985	2 Years	- Regular Training Course in Fishing Technology and Marine Engineering	22	-	22
1984	19-28 March 1984	10 Days	- Short-Term Training Course in Marine Fishing for Thai Universities Students	18	16	34
	3 April - 9 May 1984	31 Days	- The Regional Training Course for Fisheries Extension Officers in Fishing and Coastal Navigation	22	-	22

Year	Period	Duration	Course Title	NO. of Trainees		Total
				M.	F.	
1984	1-16 October 1984	16 Days	- Short-Term Training Course for DUF's Staff on Marine Engineering	31	-	31
1985	6-30 March 1985	25 Days	- The Regional Training Course in Fish Handling and Processing for ASEAN/CIDA/SEAFDEC's Officers	7	5	12
	6-31 May 1985	26 Days	- The Regional Training Course in fishery Oceanography for IOC/SEAFDEC's Officers	17	7	24
	1 July - 15 August 1985	45 Days	- The Regional Training Course for Fisheries Extension Officers in Extension Methodology and the Socio-economics Aspects of Small-scale	23	2	25
1986	22 April - 2 May 1986	12 Days	- The Regional Training Course in SEAFISH Methodology	9	7	16
	17 April 1986 - 28 September 1987	18 Months	- Regular Training Course in Fishing Technology and Marine Engineering	20	-	20
	5 November - 19 December 1986	45 Days	- The Regional Training Course for Fisheries Extension Officers in Marine Capture fisheries	20	-	20

Year	Period	Duration	Course Title	NO. of Trainees		Total
				M.	F.	
1986	20-26 December 1986	7 Days	- Short-Term Training Course in Purse Seining Demonstration for DOF's Staff	16	-	16
1987	25 March - 5 April 1987	12 Days	- Short-Term Training Course in Marine Fishing Technology for Thai Universities Students	23	17	40
	23-29 June 1987	7 Days	- Training-Cum Demonstration on Line fisheries (Bottom Vertical Longline) for Thai Local fishermen	14	-	14
	5-9 October 1987	3 Days	- Short-Term Training Course for Insulanond fisheries Technical College in Marine Engineering	27	-	27
	12 October - 25 November 1987	45 Days	- The Regional Training Course for Fisheries Extension Officers in Marine Fisheries Extension Methodology	24	4	28
1988	19 April 1988 - 18 Apr. 1989	1 Year	- Regular Training Courses in Fishing Technology and Marine Engineering	21	-	21
	3-5 October 1988	3 Days	- Short-Term Training Course for Insulanond Fisheries Technical College in Marine Engineering	13	-	13

Year	Period	Duration	Course Title	NO. of Trainees		Total
				M.	F.	
1988	17 October - 30 November 1988	45 Days	- The Regional Training Course for Fisheries Extension Officers in Socio-economics of Small-scale fisheries	25	-	25
	19-21 October 1988	3 Days	- Short-Term Training Course for Insular and Fisheries Technical College in Marine Engineering	19	-	19
1989	24 October - 1 November 1988	9 Days	- Short-term Training Course in Marine Fishing Technology for Thai Universities Students	11	-	11
	22 May - 15 June 1989	25 Days	- The Regional Training Course on fish-finder and Fishing Accessories for SEAFDEC's Member Countries	21	-	21
	5 July - 20 December 1989	5 1/2 Months	- Regular Training Course in Marine Engineering	9	-	9
	5 July 1989 - 4 July 1990	1 Year	- Regular Training Course in Fishing Technology	13	-	13
	17 July - 2 August 1989	17 Days	- In-Service Training on Video Production for SEAFDEC's Member Countries	2	-	2
1989	15 August - 28 September 1989	45 Days	- The Regional Training Course for Fisheries Extension Officers in Communication Media for Extension Works	19	7	26


Year	Period	Duration	Course Title	NO. of Trainees		Total
				M.	F.	
1989	2-6 October 1989	5 Days	- Short-Term Training Course for Siam Bengal Fisheries Co., Ltd. in fishing Technology and Navigation	9	-	9
	19-28 October 1989	10 Days	- Short-Term Training Course in Fishing Gear Technology for Thai Universities Students	20	32	52
	6-31 November 1989	8 Days	- Short-Term Training Course for Thai Fishermen in Echo-sounder and Fishery Equipments	7	-	7
1990	3-8 January 1990	6 Days	- Short-Term Training Course on Coastal Navigation for DOF's Staff	37	-	37
	3-27 April 1990	25 Days	- The Regional Training Course for Fishery Officers in Purse-seine Fishery	9	-	9
	3-29 May 1990	27 Days	- The Regional Training Course in Hydro-acoustic Equipments and Fishing Machinery	20	-	20
	30 July - 5 August 1990	30 Days	- Short-Term Training Course on Scuba Diving for DOF's Staff	12	-	12
	14 August - 12 September 1990	30 Days	- The Regional Training Course on Fish Population Dynamics	22	-	22

Year	Period	Duration	Course Title	NO. of Trainees		Total
				M.	F.	
1990	3 September - 2 October 1990	30 Days	- In-Service Training Course in Video Production for SEAFDEC's Member Countries	2	-	2
	2 October 1990 - 28 March 1991	6 Months	- Regular Training Courses in Fishing Technology and Marine Engineering	24	-	24
	16-26 October 1990	11 Days	- Short-Term Training Course for Thai Universities Students	28	23	51
	6 November - 20 December 1990	45 Days	- The Regional Training Course on Fishery Extension Officers in Extension Methodology	25	5	30
	20 December 1990 - 13 May 1991	5 Months	- In-Service Training Course in Extension Service for Small-scale Fisheries for Non-Member Countries (Yemen)	1	-	1
	16 April - 15 May 1991	1 Month	- Short-Term Training Course on Navigation and Seamanship for Fishery Officers, Vocational Department and Songkhlanakarinvirote University	24	-	24
1991	11 June - 4 December 1991	6 Months	- Regular Training Course in Fishing Technology and Marine Engineering	19	3	22

Year	Period	Duration	Course Title	NO. of Trainees		Total
				M.	F.	
1991	8 July - 2 August 1991	45 Days	- The FAO/SEAFDEC/SORP Regional Training Course in fishery Project formulation at the Quality Hotel Pinnacle, Bangkok	32	4	36
	1 August - 12 September 1991	44 Days	- The Regional Training Course on Fishery Oceanography for SEAFDEC's Member Countries	14	6	20
	15 September - 16 October 1991	1 Month	- In-Service Training in Instructional Aids and Audio-visual Material Preparation for SEAFDEC's Member Countries	2	-	2
	15-29 October 1991	15 Days	- Short-Term Training Course for Thai Universities Students on fishing Technology and Navigation	26	29	55
	5 November - 19 December 1991	45 Days	- The 12th Regional Training Course for fishery Extension Officers in Extension Methodology and Socio-economics of Small-scale fisheries	23	6	29
1992	14 January - 13 February 1992	30 Days	- Short-Term Training Course for Motor Driven Fishing Boats in Marine Engineering for DOF's Staff, Suppachoke Fisheries Co., Ltd., SEAFDEC Staff and Others Local Fisheries	24	-	24

Year	Period	Duration	Course Title	NO. of Trainees		Total
				M.	F.	
1992	25 March - 8 April 1992	15 Days	- Short-Term Training Course in fishing Technology for Thai Universities Students	15	28	43
	8 June - 7 July 1992	1 Month	- The 1st Advanced Training Course in Fishing Technology Course Graduates	16	-	16
	3 March - 3 September 1992	6 Months	- The 17th Regional Training Course in Fishing Technology and Marine Engineering	21	-	21
	15-30 October 1992	15 Days	- Short-Term Training Course in Marine Fishing Technology and Oceanography	31	29	60
1993	25 March - 8 April 1993	15 Days	- Short-Term Training Course in Fishing Technology for Thai Universities Students	26	16	42
	18 May - 17 June 1993	30 Days	- Fishing with Electronic Equipment	17	1	18
	22 June - 21 December 1993	6 Months	- The 18th Regional Training Course in Fishing Technology and Marine Engineering	24	-	24
	5-20 October 1993	15 Days	- Short-Term Training Course in Fishing Technology for Thai Universities Students	29	17	46
	27 October - 9 December 1993	45 Days	- The Regional Training Course for Fisheries Extension Officers in Extension Methodology and Fishery Resources Conservation	17	8	25

Year	Period	Duration	Course Title	NO. of Trainees		Total
				M.	F.	
1993	6-17 December 1993	12 Days	- Short-Term Training Course on Scientific Diving for DOF's Staff and Private Company	15	2	17
1994	10-23 January 1994	15 Days	- Short-Term Training Course on Navigation and Seamanship for fishery Officer, Vocational Department and Oceanic Fisheries Association	22	-	22
	15 February - 16 March 1994	1 Month	- The Regional Training Course for Fishery Officers in Purse-seine fishery	14	-	14
	28 March - 8 April 1994	12 Days	- Short-Term Training Course in Fishing Technology for Thai Universities Students	19	11	30
	21 June - 20 December 1994	6 Months	- The 19th Regional Training Course in Fishing Technology and Marine Engineering			

	<p>SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER</p> <p>24th Floor, Unit B Charn Issara Tower II 2922/278 New Petchburi Road, Bangkok 10310, Thailand</p>	<p>TD/WS 94/WP6</p>
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**Needs Assessment Workshop
Bangkok, Thailand
7-8 July 1994**

**Review of the Research Activities of the Training Department
1989-1994**

The Council, at its sixteenth meeting in November 1989, approved the revised Plan of Operation and Working Program of the Department, which included research, training, and the establishment of the Research Division of the Department in 1991. The Training Department therefore formulated its research activities into three major areas, namely:

- a. Stock assessment and fishing grounds survey;
- b. Fishing gear and gear improvement; and
- c. Statistics and socio-economics.

As established by the Council in 1989, the Training Department (TRD) is 1993, the Resource Evaluation Section of the Training Department closed down at the end of 1991. The Training Department therefore conducted its research activities into three major areas, namely:

- a. Resource evaluation;
- b. Fishing gear technology; and
- c. Statistics and socio-economics.

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REVIEW OF THE RESEARCH ACTIVITIES OF THE TRAINING DEPARTMENT
1989 - 1994

The marine fisheries research program of SEAFDEC was first carried out by the Marine Fisheries Research Department (MFRD) of SEAFDEC in Singapore. A number of research projects were implemented and presented at the Seminar on South China Sea Resources in 1973. In 1977, owing to the loss of its research vessel M.V. CHANGI in 1974, MFRD began placing more emphasis on research work in the field of post-harvest technology.

In view of the problem facing the marine fishing industry of the region and recent developments affecting the fishing industry such as those arising from overfishing and the declaration of exclusive economic zone, it is desirable to continue and intensify the research activities of SEAFDEC for the improvement of small-scale fishing gear and for the study of the state of fishery resources in the region. The Training Department therefore initiated research programs on marine fisheries in 1980. The newly organized Research Unit of the Department started preliminary studies on fish stock assessment and fishing ground surveys in the Gulf of Thailand as well as on fishing gear improvement.

At its thirteenth meeting in November 1980, the Council approved the revised Plan of Operation and Working Program of the Department, which included research programs and the establishment of the Research Division of the Department in 1981. The Training Department therefore formulated its research activities into three major areas, namely,

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- b. Fishing gear and craft improvement; and
- c. Statistics and socio-economics.

The Department further revised its research programs when the Council, at its sixteenth meeting in 1983, approved the new Plan of Operation. The research function includes research and studies on fisheries resources and fishing grounds, fishing gear improvement, statistics and socio-economic aspects related to marine capture fisheries in order to facilitate the management and rational use of the fishery resources in Southeast Asian waters. In accordance with its Program of Work, the Department conducted research in three major field, as follows:

- a. Resource evaluation;
- b. Fishing gear technology; and
- c. Statistics and socio-economics.

As establishment of Marine Fishery Resources Development and Management Department (MFRDMD) in 1992, the Resource Evaluation Section of Training Department closed down at the end of 1992. The Training Department therefore conducted its research activities into three major areas, namely,

- a. Fishing gear technology;
- b. Socio-economic; and
- c. Fishery statistics.

The study on fishing gear has been a major research activity of the Training Department since its establishment. During the 1970s, the study on fishing gear concentrated on the applications of modern fishing technology and on traditional fishing gear currently employed by the fisherman in the region. After the establishment of the Research Division in 1981, the study on fishing gear was reoriented towards the improvements of the fishing efficiency of traditional fishing gear and included experiments on new types of fishing gear. Considerable progress was made during the exploratory fishing by using bottom vertical longline and deep sea pot for deep water species, collapsible traps for coastal species and squids fishing with luring lights and lift net. Experiments were also carried out on the design of Tuna longline using in the gulf of Thailand and the Indian ocean and also the study on the behavior of fishes in artificial reefs and suitable fishing gear.

As part of the program on small-scale fisheries development, the research staff of the Department published the surveys on traditional fishing gear by local fisherman in Thailand and Malaysia. A similar survey was carried out in the Philippines and it is hoped that a companion volume on the fishing gear of the Philippines will be issued in the near future.

Regarding statistics and socio-economics, the Department continued to compile the annual fishery statistics supplied by countries bordering the South China Sea for inclusion in the Fishery Statistical Bulletin and the Catch-effort Statistics printed by the SEAFDEC Secretariat. On the socio-economic aspect of small-scale fisheries, several surveys have been carried out since 1981. The role of fishery cooperatives and fishermen's groups in Thailand was also investigated. In addition, since many countries in the region wish to develop coastal aquaculture as an alternative employment for small-scale fishing communities, a study was made on the economic returns of small-scale capture fisheries and coastal aquaculture in Thailand to serve as a guideline in planning fishery development in coastal areas.

RESEARCH PROGRAM

There are two type of research work which complement the training program:

- (i) the Training Department's own projects, which are carried out by the Department's staff; and
- (ii) joint projects which are conducted in cooperation with national, regional and international organizations/agencies within or outside the region.

The Training Department will conduct research in the fields of fishing gear technology and the socio-economics fishing communities as well as compile the fishery statistics for the South China Sea area.

The Training Department will provide training for a limited number of researcher trainees from Member Countries, and other countries as required and approved by Council of the Center. The duration of such training will, in general, be 6 to 12 months.

RESEARCH ACTIVITIES IN 1994

The Training Department will continue to conduct research on the projects, indicated in the Department's three year plan (1992-1994) until their completion at the end of 1994.

1. Fishing Gear Technology

1.1 The experiment on new type of tuna longline will be carried out on board the M.V. SEAFDEC and R.V. Fisheries Research No.4 in the Andaman Sea and the Indian Ocean until April 1994.

1.2 The survey and observation of the behavior of fishes in artificial reefs, which aims at selecting suitable fishing gear to be used in artificial reefs, will continue until April 1994.

1.3 A Monograph of Fishing Gear and Methods in Southeast Asia: III The Philippines, will be issued in the near future.

2. Fishery Socio-economics

The analysis of the socio-economic conditions of small-scale fishing communities will be continued. Field studies will be done in selected small-scale fishing communities.

The literature survey has been done to review and examine the existing methods used in studying the socio-economic conditions of small-scale fishing communities. The questionnaires for data collection are under preparing and the survey will be done in the small-scale fishing community in the eastern part of Thailand. Data processing and analysis will be followed.

3. Fishery Statistics

The Department will compile the Fishery Statistical Bulletin for the South China Sea Area for 1992, the seventeenth volume in this series.

The Fishery Statistical Bulletin for the South China Sea Area, 1991, and the Catch-effort Statistics for the South China Sea Area, 1991, were published by the Department.

The questionnaires and notes on completion of the questionnaires for the Fishery Statistical Bulletin for the South China Sea Area, 1992, were distributed to the countries concerned. The Bulletin is expected to be issued by December 1994.

PUBLICATION OF RESEARCH ACTIVITIES FROM 1989 TO 1994

The summary of research activities to be conducted by the Department during 1989 to 1994 is as follows:

1. Resource Evaluation

- 1.1 ANUNPONGSUK, Suppachai, 1989. Report on Some Offshore Demersal Resource of the Andaman Sea. 30 pp.
(issued: May 1989, TD/RES/20)
- 1.2 SOMMANI, Prichar, 1989. Estimation of Bertalanffy Growth Parameters of Fishes in the Gulf of Thailand by Unweighted and Weighted Least Square Methods. 37 pp.
(issued: May 1989, TD/RES/21)
- 1.3 YANAGAWA, Hiroyuki, 1991. The Biostatistics of Fishery Biology: Calculation Procedures of Fundamental Biostatistic. 66 pp.
(issued: June 1991, TD/TRB/61)
- 1.4 WONGSAGA, Pouchamarn and Hiroyuki Yanagawa, 1992. Fisheries in the South China Sea Area from 1984 to 1988 - Facts and Figures. 65 pp.
(issued: January 1992, TD/SP/16)
- 1.5 YANAGAWA, Hiroyuki, 1992. The Situation of Small Tuna Fishery in the Gulf of Thailand from 1978 to 1988 Based on Multivariate Analysis. 41 pp.
(issued: July 1992, TD/RES/31)
- 1.6 YANAGAWA, Hiroyuki, 1992. Marine Capture Fishery Production in the South China Sea Area from 1984 to 1988 - Facts and Figures. 88 pp.
(issued: September 1992, TD/SP/17)
- 1.7 YANAGAWA, Hiroyuki and Pouchaman wongsanga, 1993. Review of Fishery Production, Provisional Estimation of Potential Yield and the Situation of Fisheries in the Southeast Asian Region - 1976 to 1989. 114 pp.
(issued: July 1993, TD/SP/18)

2. Fishing Gear Technology

- 2.1 FUJISAWA, Wajiro, 1989. Multidisciplinary Evaluation of the Artificial Reef Project in Thailand, A Report. 183 pp.
(issued: August 1989, TD/RES/22)
- 2.2 MUNPRASIT, Aussanee, Yuttana Theparoonrat, Sujin Sae-Ung, Somyos Soodhom, Yutaka Matsunaga, Bundit Chokesanguan and Somboon Siriraksophon, 1989. Fishing Gear and Methods in Southeast Asia: II. Malaysia. 338 pp.
(issued: December 1989, TD/RES/24)


- 2.3 FUJISAWA, Wajiro, 1990. Technical Manual for Resource Enhancement. 120 pp.
(issued: February 1990, TD/RES/25)
- 2.4 SAE-UNG, Sujin, Suppachai Anunpongsuk and Jo Fukui, 1990. A Preliminary Experiment of Deep Sea Pot Fishing in the Andaman Sea. 16 pp.
(issued: April 1990, TD/RES/27)
- 2.5 MUNPRASIT, Aussanee, Suppachai Anunpongsuk, Chitjaroon Tantivala, Supatr Sriphanpaiboon, Pairaj Thaochalee and Thagoon Anugul, 1991. Observation Report on Tuna Longline Fishing Operation and Fishing Ground Survey in the Bay of Bengal on Board the SHINYO-MARU, 9-28 February 1991. 23 pp.
(issued: April 1991, TD/RES/28)
- 2.6 FUJISAWA, Wajiro, 1991. The Artificial Reefs Experiment in Thailand. 78 pp.
(issued: July 1991, TD/RES/29)
- 2.7 MUNPRASIT, Aussanee and Pisanu Siripitrakul, 1992. Observation Report on Tuna Longline Fishing Operations in the Bay of Bengal on Board "R.V. Sumruatpramong 4", 24 February - 16 March 1992. 25 pp.
(issued: July 1992, TD/RES/30)
- 2.8 MUNPRASIT, Aussanee and Issara Chanrachkij, 1993. Observation Report on Tuna Purse Seine Fishing Operations Around Seychelles Waters on Board NIPPON-MARU, 8 November 1992 to 7 January 1993. 31 pp.
(issued: February 1993, TD/RES/32)
- 2.9 INTHUSADE, Pinit, Amphon Khongton and Bundit Chokesanguan, 1993. A preliminary Experiment of Shrimp Pot in the Gulf of Thailand (Samet Island). 14 pp.
(issued: September 1993, TD/RES/34)

3. Fishery Socio-economics

- 3.1 HIRUNRUK, Vorawoot, Kungwan Juntarashote and Pouchaman Wongsanga, 1989. Price Analysis of Some Economically Important Marine Species in Thailand. 183 pp.
(issued: October 1989, TD/RES/23)
- 3.2 YANAGAWA, Hiroyuki and Aussanee Munprasit, 1990. Small-scale Fisheries in the Ko Man Group Area, Eastern Coast of the Gulf of Thailand: Fishing Gear and Marine Catch at Six Fishing Villages with Special Reference to the Ban Krachae-Kungkraben Fishing Villages. 39 pp.
(issued: April 1990, TD/RES/26)
- 3.3 KIKUCHI, Akihiro, 1993. The Development and Associated Problems Intensive Culture in Thailand. 14 pp.
(issued: May 1993, TD/RES/33)

4. Fishery Statistic

- 4.1 Catch-effort Statistics for the South China Sea Area
1986. 22 pp.
(issued: March 1989, SEC/ST/17)
- 4.2 Fishery Statistical Bulletin for the South China Sea Area
1987. 162 pp.
(issued: November 1989, SEC/ST/18)
- 4.3 Catch-effort Statistics for the South China Sea Area
1987. 21 pp.
(issued: January 1990, SEC/ST/19)
- 4.4 Fishery Statistical Bulletin for the South China Sea Area
1988. 183 pp.
(issued: December 1990, SEC/ST/20)
- 4.5 Catch-effort Statistics for the South China Sea Area
1988. 25 pp.
(issued: April 1991, SEC/ST/21)
- 4.6 Fishery Statistical Bulletin for the South China Sea Area
1989. 169 pp.
(issued: February 1992, SEC/ST/22)
- 4.7 Catch-effort Statistics for the South China Sea Area
1989. 24 pp.
(issued: May 1992, SEC/ST/23)
- 4.8 Fishery Statistical Bulletin for the South China Sea Area
1990. 169 pp.
(issued: January 1993, SEC/ST/24)
- 4.9 Catch-effort Statistics for the south China Sea Area
1990. 25 pp.
(issued: July 1993, SEC/ST/25)

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**Needs Assessment Workshop
Bangkok, Thailand
7-8 July 1994**

Table 1. Countries and Number of Questionnaires

Country	Returned Questionnaires (%)	
	Regular Course	Combined Course
1. Bangladesh	100.00	100.00
2. Brunei	100.00	100.00
3. Cambodia	100.00	100.00
4. Hong Kong	100.00	100.00
5. India	100.00	100.00
6. Indonesia	100.00	100.00
7. Malaysia	100.00	100.00
8. Myanmar	100.00	100.00
9. Pakistan	100.00	100.00
10. Philippines	100.00	100.00
11. Singapore	100.00	100.00
12. Sri Lanka	100.00	100.00
13. Thailand	100.00	100.00
14. Viet Nam	100.00	100.00
Total	140 (100%)	140 (100%)

Results of the Returned Questionnaires from Former Trainees

The Training Department has been conducting a number of training courses since 1970. Up to present, there were altogether 654 graduates from 16 countries namely Bangladesh, Brunei, Egypt, Hong Kong, India, Indonesia, Malaysia, Maldives, Myanmar, Nigeria, Pakistan, Philippines, Singapore, Sri Lanka, Thailand and Viet Nam participating in the following three main courses: Marine Fishing Technology, Marine Engineering; and Marine Fisheries Extension. In order to assess future training needs, the Department therefore, set out questionnaires to all those former trainees during April 1994. The questionnaires specifically aimed to use as guidelines for the formulation of the Department's three-year plan covering the period 1995-1997 and the revision of its courses' curriculum. Investigated mainly on the relevance of subjects' scope provided by the Department and the trainees' present fields of work, the returned questionnaires of sixty-four or 9.78% were finally received by the Department.

It was noted that there were at all no responses from the very beginning batch of the trainees.

Table 1. Countries and Number of Questionnaires

Country	Distributed (Response, Percentage)			
	Regular Course		Combined Course	Extension Course
	Fishing	Engineering		
1. Bangladesh	-	-	-	8(2,25.0%)
2. Brunei	1(0,0.0%)	-	-	7(0,0.0%)
3. Egypt	-	-	-	2(0,0.0%)
4. Hong Kong	1(1,100%)	-	-	-
5. India	-	-	-	15(3,20.0%)
6. Indonesia	5(2, 40.0%)	3(0,0.0%)	-	17(1,5.9%)
7. Malaysia	44(5,11.4%)	33(2,6.1%)	3(0,0.0%)	53(5,9.4%)
8. Maldives	-	-	-	9(0,0.0%)
9. Myanmar	-	-	-	2(0,0.0%)
10. Nigeria	-	-	-	5(0,0.0%)
11. Pakistan	-	-	-	3(0,0.0%)
12. Philippines	41(9,22.0%)	31(4,12.9%)	4(0,0.0%)	57(4,7.0%)
13. Singapore	4(0,0.0%)	2(0,0.0%)	4(0,0.0%)	18(0,0.0%)
14. Sri Lanka	-	-	-	26(4,15.4%)
15. Thailand	77(7,9.1%)	68(6,8.8%)	7(0,0.0%)	97(7,7.2%)
16. Viet Nam	4(0,0.0%)	3(2,66.7%)	-	-
Total	177(24,14.0%)	140(14,10.0%)	18(0,0.0%)	319(26,8.0%)

The analysis of the above returned questionnaires resulted as: the Regular Course Trainees who mostly are Fishery Officials, are still carrying on their usual works, while the other trainees who are graduated students become teachers/instructors. However, there are only few who work in other fields which are not relevant to fisheries.

Table 2. Position of Regular Course Trainees before and after the Training

Post	Thailand	Malaysia	Philippines	Hong Kong	Viet Nam	Indonesia	before/after Total
	before/after	before/after	before/after	before/after	before/after	before/after	
1. Fishery Officials	2 / 4	6 / 6	12 / 10	1 / 1	1 / 1	- / -	22(58%) / 22(58%)
2. Technician	- / 1	- / -	1 / -	- / -	- / -	- / -	1(2.6%) / 1(2.6%)
3. Teachers/Instructors	4 / 6	- / 1	- / 2	- / -	1 / 1	2 / 2	7(18.4%) / 12(31.6%)
4. Graduate Students	7 / -	1 / -	- / -	- / -	- / -	- / -	8(21.1%) / 0(0.0%)
5. Not related with fishery	- / 2	- / -	- / 1	- / -	- / -	- / -	0(0.0%) / 3(7.9%)
Total	13 / 13	7 / 7	13 / 13	1 / 1	2 / 2	2 / 2	38(100%) / 38(100%)

Remark : No response from Brunei and Singapore

As for the extension course participants, almost all of the Extension Officers are carrying on their usual work. Although this group of trainees may slightly change their field of work after their training course at the Training Department.

Table 3. Position of Extension Course Trainees before and after the Training

Post	Thailand	Malaysia	Philippines	Bangladesh	India	Indonesia	Sri Lanka	Total
	before/after	before/after	before/after	before/after	before/after	before/after	before/after	before/after
1. Extension Officers	6 / 6	4 / 5	3 / 3	2 / 2	2 / 2	1 / 1	2 / 1	20(76.9%) / 20(76.9%)
2. Technicians	1 / 1	- / -	1 / -	- / -	- / 1	- / -	- / -	2(7.7%) / 2(7.7%)
3. Fisheries Inspectors	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1	2(7.7%) / 1(3.8%)
4. Fisheries Consultants	- / -	- / -	- / -	- / -	- / -	- / -	- / 1	0(0.0%) / 1(3.8%)
5. Production Co-ordinators	- / -	- / -	- / -	- / -	- / -	- / -	- / 1	0(0.0%) / 1(3.8%)
6. Instructors	- / -	- / -	- / 1	- / -	- / -	- / -	- / -	0(0.0%) / 1(3.8%)
7. Graduate Students	- / -	1 / -	- / -	- / -	1 / -	- / -	- / -	2(7.7%) / 0(0.0%)
Total	7 / 7	5 / 5	4 / 4	2 / 2	3 / 3	1 / 1	4 / 4	26(100%) / 26(100%)

Remark: No response from Egypt, Maldives, Myanmar Nigeria, Pakistan and Singapore

From the investigation on the relevance of subjects' scope provided by the Training Department and the trainees' present fields of work, it appears that the trainees of Marine Fishing Technology Course found that the subject on Fishing Gear Technology is most relevant to their present work (95.8%), seconded by the subjects on Electronic Equipment and Fisheries Extension Methodology, respectively, which are equally relevant.

Table 4. Relevance of Subjects to their Present Post of Former for Regular Course Trainees in Fishing Technology

Subjects	Thailand	Malaysia	Philippines	Hong Kong	Indonesia	Total
	Relevance/No	Relevance/No	Relevance/No	Relevance/No	Relevance/No	Relevance/No
1. Fishing Gear Technology	6 / 1	5 / -	9 / -	1 / -	2 / -	23(95.8%) / 1(4.2 %)
2. Electronic Equipment	7 / -	4 / 1	6 / 2	1 / -	1 / 1	19(79.2%) / 4(16.7%)
3. Fisheries Extension Service	6 / 1	3 / 1	7 / 2	1 / -	2 / -	19(79.2%) / 4(16.7%)

As for the trainees of Marine Engineering Course, it shows that three most relevant subjects to their present fields of work are ranging from Marine Engine(42.9%), Marine Electricity(28.6%) and Refrigerator(21.4%), respectively.

Table 5. Relevance of Subjects to their Present Post of Former for Regular Course Trainees in Marine Engineering

Subjects	Thailand	Malaysia	Philippines	Viet Nam	Total
	Relevance/No	Relevance/No	Relevance/No	Relevance/No	Relevance/No
1. Marine Engine	2 / -	1 / -	1 / -	2 / -	6(42.9%) / -
2. Refrigerator	1 / -	- / -	- / -	2 / -	3(21.4%) / -
3. Marine Electricity	1 / -	- / -	1 / -	2 / -	4(28.6%) / -
4. Hydraulic System	- / -	- / -	- / -	2 / -	2(14.3%) / -

And for Extension Course trainees, it appears that the most relevant subjects to their field of works are ranging from Fishery Extension Methodology (88.5%), Fishing Gear Technology (38.5%) as well as some other concerned subjects (46.2%), respectively.

Table 6. Relevance of Subjects to their Present Post of the Ex-participants of Extension Course

Subjects	Thailand	Malaysia	Philippines	Bangladesh	India	Indonesia	Sri Lanka	Total
	Relevance/No	Relevance/No	Relevance/No	Relevance/No	Relevance/No	Relevance/No	Relevance/No	Relevance/No
1. Fisheries Extension Methodology	7 / -	3 / 1	3 / -	2 / -	3 / -	1 / -	4 / -	23(88.5%) / 1(3.8%)
2. Fishing Gear Technology	2 / 5	1 / 4	2 / 2	1 / 1	1 / 2	- / 1	3 / -	10(38.5%) / 13(50.0%)
3. Others	2 / 5	1 / 4	1 / 3	1 / 1	1 / 2	1 / -	5 / -	12(46.2%) / 12(46.2%)

The recommendation for improvement of the future training course in Marine Fishing Technology Course shows that 12.5% recommended to extend the duration of the course to be more than six months. Moreover, the lecture duration of Extension Service, Fishery Management and Fishery Oceanography should be intensified. For Marine Engineering course it shows that 14.3% recommended to extend the course duration to be more than six months. The lecture duration on Electronic Equipment as well as the lecture on Fishing in General should also be intensified. For the Extension course, it shows that the training duration is appropriate. Moreover, the lecture period on Questionnaire Design in Socio-Economics Survey, Extension Methodology and Media Production Practice should also be intensified.



**SOUTHEAST ASIAN FISHERIES
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TD/WS 94/WP 7

Needs Assessment Workshop

Bangkok, Thailand

7-8 July 1994

**DRAFT PROPOSAL FOR
THREE YEAR ACTIVITY PLAN (1995 to 1997)
Marine Fishery Resources Development
and Management Department
SEAFDEC**

DRAFT PROPOSAL FOR

THREE YEAR ACTIVITY PLAN (1995 to 1997)

Marine Fishery Resources Development
and Management Department
SEAFDEC



I. RESEARCH ACTIVITIES

A. FIELD WORK

1. <u>Collection Of Biological Data</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>
- Samplers are stationed at major fish landing sites in the region and collect biological data (length, weight, sex, gonad weight etc.) for selected species every ten days	x	x	x
2. <u>Collaborative Research On Marine Fishery Resources And Oceanography by Research Vessel</u>			
- A 30-days-cruse is made for southwest monsoon season and northeast mosoon season, respectively			
2.1 Survey on distribution and abundance of pelagic and demersal fishes by acoustic technology	x (*i	x *ii	x *iii)
*i off Thailand and Malaysia			
*ii off Philippines			
*iii off Viet Nam			
2.1 Collection of oceanographic data (temperature, salinity, nutrient salts)	x	x	x
2.3 Collection of plankton and larvae	x	x	x
2.4 Monitoring of oil balls and others pollutants	-	-	-
2.5 On-the-job-training of scientists from the member countries	x	x	x

<u>3. Tagging For Selected Shared Stocks</u>		<u>1995</u>	<u>1996</u>	<u>1997</u>
- Tagging will be carried out to obtain data on migration, growth rate and mortality under cooperation with the scientists in relevant countries				
3.1	Tuna tagging	x	x	x
	(*i off Malaysia and Viet Nam	(*i	*ii	*iii)
	*ii off Philippines			
	*iii off Indonesia			
3.2	Squid tagging	x	x	x
3.3	Marine turtle tagging	x	x	x
B. <u>LABORATORY WORK</u>				
1. <u>Stock Assessment Section</u>				
1.1	Establishing computer software system	x	-	-
1.2	Compilation of historical catch and effort data	x	x	x
1.3	Preliminary analysis on stock abundance in the region (based on the acoustic survey by M.V. SEAFDEC)	x	x	x
1.4	Analysis on stock status (base on catch and effort data)	-	x	x
2. <u>Marine Biology Section</u>				
2.1	Compilation and analysis of biological data on shared stock	x	x	x
2.2	Collaborative study on stock identification	x	x	x
2.3	Studies on age and growth of fish	-	-	-
2.4	Spawning/nursary ground survey (based on the larva survey by M.V. SEAFDEC)	x	x	x

<u>3. Oceanography Section</u>		<u>1995</u>	<u>1996</u>	<u>1997</u>
3.1	Compilation and mapping of region oceanographic data (including the data by M.V. SEAFDEC)	x	x	x
3.2	Analysis of oceanographic remote sensing data	x	x	x
3.3	Analysis of plankton and larvae data by M.V. SEAFDEC	-	x	x
<u>4. Resources Exploitation Section</u>				
4.1	Analysis of acoustic data by M.V. SEAFDEC and identification of species	x	x	x
4.2	Study on gear efficiencies applicable for offshore stocks	x	x	x
<u>5. Marine Turtles Section</u>				
5.1	Compilation and dissemination of marine turtle statistics in the region	-	-	-
5.2	Study growth and maturation on major species	-	-	-
5.3	Analysis of tagging data	-	-	-
<u>6. Marine Biology Section</u>				
6.1	Compilation and analysis of biological data in the stock	x	x	x
6.2	Collaborative study of stock identification	x	x	x
6.3	Studies on age and growth of fish	-	-	-
6.4	Spawning survey (based on the larval survey by M.V. SEAFDEC)	x	x	x

II. TRAINING PROGRAM

1. On-boat Research Training


The scientists of the countries covered by the collaborative research mentioned in A,2 will be invited to the on-boat research.

2. Analysis Training

Some of scientists joined the above-mentioned on-boat research training will be invited to analysis training at MFRDMD and analyse their data jointly with MFRDMD staff.

III. INFORMATION

1. Document papers, periodicals, text books and etc. will be printed in a proper form and published.
2. MFRDMD library contacts with as many research organizations as possible and enriches its function of information service.

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**Needs Assessment Workshop
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Perspective of the Training Needs in Southeast Asia

The Southeast Asian Fisheries Development Center has been providing training and technical assistance to fisheries in foreign countries since its establishment in 1962. The Center's training programs have been expanding rapidly in response to the increasing demand for trained personnel in the fisheries sector. The Center has trained more than 5,000 fisheries officers, extension workers, and other personnel in various fisheries-related fields. The Center's training programs are designed to meet the needs of the fisheries sector in Southeast Asia, and to provide a high quality of training to the participants. The Center's training programs are based on the latest developments in fisheries science and technology, and are designed to be practical and applicable to the needs of the fisheries sector in Southeast Asia.

The Training Department of SEAFOC try to identify those problems by compiling of the relevant information on marine capture fisheries of the countries in the region. In order to identify those problems the appropriate training program should be planned. This paper is concerning general situation of the fisheries and problems of those countries in the region. The Training Department of SEAFOC try to identify those problems in the year to come.

The Southeast Asian Countries' Fisheries Profile

The countries in the region under the study for the fisheries situation in general are composed of Brunei Darussalam, Malaysia, Philippines, Singapore, Thailand and Vietnam.

Brunei Darussalam

The fisheries resources in the most developed sector of protein for Brunei. The per capita fish consumption of Brunei is 41 kg which is one of the highest in Southeast Asia. Most of fishermen are full-time and part-time semi-subsistence fishermen. The commercial

PERSPECTIVE OF THE TRAINING NEEDS IN SOUTHEAST ASIA

Introduction

The Marine Capture Fisheries in the Southeast Asian Countries has been playing a significant role both in supplying animal protein to their people, and the contribution of fisheries to foreign exchange earnings has been rapidly increasing. Speedy expansion of the fishing industry is one of the important aim of governments of these countries. To support the growing up of these industries the well trained personnels are needed. The Training Department of the Southeast Asian Fisheries Development Center as a regional training center had trained more than 5,000 of operatives, officers, extension workers as well as instructors to serve the needs of these countries during the past 25 years. However, as the rapid changes in fisheries situation and the expansion of the fishing areas in their EEZs of these countries caused the heavy fishing in the traditional fishing grounds especially in the coastal areas and the needs of modern technology and well trained personnels to develop the deep-sea fishing.

The Training Department of SEAFDEC try to identify those problems by compiling of the relevant information on marine capture fisheries of the countries in the region. In order to alleviate those problems the appropriate training programs should be planned. This paper is concerning general situation of the fisheries and problems of those countries and role of the Training Department on the alleviating of those problems in the years to come.

The Southeast Asian Countries' Fisheries Profile

The countries in the region under the study on the fisheries situation in general are composed of Brunei Darussaram, Malaysia, Philippines, Singapore, Thailand and Vietnam.

Brunei Darussaram

The fisheries resources is the most importance source of protein for Brunei. The per capita fish consumption of Brunei is 42 kg which is one of the highest in Southeast Asian. Most of fishermen are full-time and part-time small-scale fishermen. The commercial

fishing fleet are small, but with the potential to increase in numbers of trawlers and purse-seiners in accordance with the availability of the resources in their waters. Department of Fisheries of Brunei also plans to improve the technology and socio-economic status of the small-scale fishermen. The needs of the well trained personnels in those activities are considerably important for Brunei.

Malaysia

Fisheries is a valuable resource in Malaysia. Historically, these abundant fishery resources have been harvested mainly in inshore and coastal areas with the variety of traditional fishing gears. Modernization and expansion of the fishing fleet began with the introduction of trawl fishing in early 1970's. The heavy fishing intensity are on the coastal area of the west part of Malay Peninsula, and recently the east coast of Malay Peninsula and off East Malaysia as well. Coastal purse seining fleet have also become popular in recent years, contributed a considerable increase of catches of coastal pelagic fish. With regard to the availability of marine resources in the Malaysian's EEZ, it is possible to increase the exploration of the pelagic fish. That Malaysia government would issue more new licences for deep-sea fishing fleet for the East coast of Malay Peninsula and off East Malaysia. Therefore training on coastal fisheries with more emphasise on resources conservation and management, extension services to up lift the socio-economic conditions of small-scale fishermen and the modern technology for deep sea fishing is needed.

Philippines

The fisheries sector has accounted about nearly 5% of the Philippines GDP. The total fisheries production in 1991 was about 2.5 million tons which 75% of this output was from marine fisheries. Municipal or small-scale fisheries production accounted for 64% and the rest 36% from commercial fisheries. The total marine catch is close to its maximum yield. This high growth in fish production was accompanied by massive destruction of coral reefs caused by destructive fishing techniques employing dynamite, cyanide and

muro-ami netting and by increased sedimentation from deforestation, dumping of mine tailing and dredging. It is found that the over-exploitation of nearshore areas possibly lead to the decrease in catches. Requirements to increase in fish production will have to come from exploitation of non-traditional fishing grounds. The training on coastal fisheries emphasizing on marine fisheries conservation and management, fisheries extension services to alleviate of proverty among coastal fishermen, and modern fishing technology for deep-sea and high sea fishing is still needed.

Singapore

The total fresh fish supply to Singapore in 1992 amounted to 114,581 tons, of which 10% was supplied locally and 90% was imported. Due to the limitation of Singapore waters territory, it is very difficult to increase its marine catch. The well-trained fishermen and sophisticated techniques will be needed to maintain its fish supply because of the difficulty to find the fishing crews and skippers. The number of crews per boat will decrease and most of the crews in future should have good knowledge and skills in navigation, engineering and fishing techniques. Fish handling technique also can help to improve the quality and increase the quantity of fish for consumption. So that these kind of training will be useful for Singapore marine fisheries.

Thailand

The marine fishery and fish processing industries have increased the fisheries products supplied to both the domestic and export markets. In 1991 the total fisheries production was 2,967,731 tons, of which 83.5% of the production was from marine capture, 4.6% was from Inland capture fishery and 11.9% was from coastal aquaculture and fresh water culture.

The marine capture fisheries are now experiencing difficulties resulting from limitations in marine resources within territorial sea and the Exclusive Economic Zone (EEZ) of Thailand. Moreover, the excessive fishing effort and gear lead the destruction of small-scale fishing gear causing conflict among the fishermen. In addition, the establishment of EEZs by neighbouring countries starting 1977 has

limited the area of potential fishing grounds. Thai fisherman are facing serious problems. These problems could have considerably impact on future fishery production in the country. Thailand try to strengthen its joint venture efforts with neighbouring countries and also investigate the potential for high seas fishery. The training on coastal fisheries which emphise on marine conservation and management, the extension services to improve the socio-economic status of small-scale fishermen and modern techniques in deep-sea fishing is needed.

Vietnam

The Fisheries Sector plays a significant role in Vietnam's economic and social development. The total fisheries production in 1991 was 877,000 tons, of which 70% was from marine capture. Most of the marine production was from the small-scale fisheries in the coastal areas. The potential to increase the marine production in Vietnam EEZ is still high. The training on new fishing gears and methods for commercial coastal fisheries and deep-sea fishing are needed to improve the quality and quantity of marine catch in Vietnam's waters.

Problems and Constraints

The coastal states in Southeast Asia had extended their jurisdiction over fishery resources two decade ago. The problems occured are the overexploited of the fishery resources in the traditional fishing grounds and lack of technology and skilled fishermen to develop the new fishing grounds in their EEZs and high sea. Thailand, Malaysia and Philippines have the same problems as mentioned above so the development of the distant water fishing is needed to alleviate those problems. The other problems are how to maintain the integrity of the ccastal resource base for sustainable use and how to raise up the socio-economic status of small-scale fishermen which are the majority group of the people involved in fisheries sector. Singapore has the limitation of its sea territory, the problems facing are how to maintain the amount of catch and how to improve the quality of fish handling and add more value on the catch. Vietnam and Brunei still have some more rooms to exploit the fisheries resource in the coastal area, however the improvement of the technology and measure in fisheries conservation should be considered.

Role of SEAFDEC Training Department

The Training Department of Southeast Asian Fisheries Development ^{has} ~~is~~ ^{be} tasked with the technical assistance and training programs to fulfill the needs and requirements for human resources development in marine capture fisheries of the Member Countries. .

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The Training Department has been conducting training courses on Marine Fishing Technology, Marine Engineering, Marine Fisheries Extension and other specific short term training courses for local and regional fisheries personnels during the past 25 years. Since those days until now most of the countries in this region still have the intention to strengthen their fishing fleets so as to be able to operate in coastal and distance waters. For these countries the lack of skilled skippers, engineers, extension officers and fishing instructors was a serious problem. Therefore, the training of the fisheries personnels was one of the most important matters to considered.

As the results of the TD's survey mission to the Member Countries in July to August 1993 and the compilation of the information on Member Countries Fisheries Profile, Training Department will adjust the previous curricula and training programs to serve the needs and also to alleviate the problems of the Member Countries.

These training activities will serve as a means of promoting fisheries development and management in Southeast Asia in the years to come.

1) The Training Department will provide the short and long term training programs in Fishing Technology, Marine Engineering and Marine Fisheries Extension Services to serve specific needs of the member countries.

For the coastal fisheries training courses the emphasis will be placed on fishing gears and method, coastal navigation, fisheries conservation and management, marine fisheries extension services and related subjects and shipboard training.

For marine engineering course, the curriculum will consist of general engineering, marine engineering, intercombustion engines, marine electricity and electronics, refrigeration, workshop technology, seamanship and other related subjects. Trainees will have practice on shore and shipboard training at sea.

For marine fisheries extension services course, the emphasis will be placed on extension methodology, community development, communication media for extension work, socio-economics, fishery cooperatives, marine affairs and other related subjects.

2) For alleviation of the lack of the well-trained personnels for deep-sea fishing ID plan to organize the short and long term integrated training courses on marine capture fisheries. These integrated courses will placed the emphasize on fishing gears and method for coastal and deep-sea fishing, navigation and seamanship, marine engineering, law of the sea and other related subjects. These courses also include the practical experiences in workshop practice on shore and training practice at sea.

The trainees who have been trained from these course will have skills of the skipper engineer and navigator which will be useful for operatives of deep sea fishing fleet as well as officer or young manager. *operatives*

3) The Training Department can also provide the ad-hoc or tailor-made courses in the field of marine capture fisheries, fishing technology, marine engineering and also marine fishery extension services and communication media design and development as requested by the Member Countries.

Conclusion and Recommendation

Based on the countries fisheries profile and the suggestions of the institutions during the visit of ID the survey mission the conclusion and recommendations are as follows:

1. SEAFDEC/TD should continue to provide the training in fishing technology, marine engineering and extension services.

2. SEAFDEC/TD should consider the integrated training programs to cover current fisheries development in Exclusive Economic Zone especially for the operatives and other non-governmental bodies and the young executive officers.
3. Short-term training courses on specific subjects, i.e. advance technology in capture fisheries, modern fishing gadgetry, state-of-art in fishing technology, fish handling at sea, fisheries conservation, environmental pollution, modern electronic equipment and hydraulic equipment should be conducted as required.
4. Training of extension officers should be recognized as they are the key factor in the transferring of technology and the coordination and responsible for marine fishery resource management to the fishermen. The present SEAFDEC/TD Extension course should be continued.
5. Collaborative training, advocation and research with the national institutions in Member Countries should be developed and strengthen.
6. SEAFDEC/TD should play the role in coordination of marine fishery extension efforts in the region and to lead an information exchange Network.
7. SEAFDEC/TD should develop the short-term experts exchanging program with institutions in its Member Countries.
8. SEAFDEC/TD should provide the tailor-made courses in the line of TD activities as requested by its Member Countries.

Annex

To improve the Training Department's programs, in response to actual training needs for fishery and private sector personnel, and to promote cooperation among the region's fishery training institutions in member and neighbouring countries, the Training Department therefore sent mission consisting of Mr. Damrong Silpachai, Head of the Training Division, in charge of all training programs implemented by the Training Department, Mr. Somnuk Pornpatimakorn, Head of Training Aids and Audio-Visual Section, in charge of Fisheries Extension Courses, Audio-Visual Programs and other training aids materials and Mr. Bundit Chokesanguan, Fishing Technology Section Head, in charge of Fishing Technology Course to member and neighbouring Countries from 1-28 July 1993, they visited the institutions in Philippines, Brunei Darrussaram, Sarawak, Singapore and West Malaysia the itinerary and persons met was attached.

Persons Met

Philippines

Department of Agriculture

Mr. Pablo T. Tamesis	Director, Agricultural Training Institute
Mr. Guillermo L. Morales	Director, Bureau of Fisheries and Aquatic Resources
Ms. Anselma S. Legaspi	Chief, Fisheries Development Support Services Division, BFAR

Philippine Fisheries Development Authority

Manila

Mr. Joes Japinoso	Assistant Port Manager
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National Commercial Fisheries Development Center

Naval Complex, Sangley Point, Cavite City, Philippines

Ms. Alma Dickson	Head of the Center
Mr. Adorado C. Cainght	Engineer I, M.V. Maya-Maya (Former SEAFDEC trainee in 1988-89 Marine Engineering course)
Mr. Prospero C. Pastorial	Supervising Aquaculturist, Audio-video Section Head, Fishing Demonstration Section (Former SEAFDEC trainee)
Mr. Reygaldine A. Ramirez	Aquaculturist II, (Former SEAFDEC trainee in 1989 Marine Engineering course)
Ernesto C. Tuzon	Engineer II (Former SEAFDEC trainee in 1989 Marine Engineering course)
Mr. Cleto B. Rafer, Jr.	Electronic Technician II (Former SEAFDEC trainee)

College of Fisheries

University of the Philippines at Visayas

Miag-ao, Iloilo 5023

Dr. Carlos C. Baylon	Associate Professor, Institute of Aquaculture
Dr. Leonar M. Santos	Director, Institute of Fish Processing Technology
Dr. Rex B. Balena	Oceanographer, Institute of Marine Fisheries and Oceanography
Dr. Jose Ingles	Biologist, Institute of Marine Fisheries and Oceanography
Dr. Ricardo Babaran	Fishing Scientist, Institute of Marine Fisheries and Oceanography
Dr. Romeo D. Fortes	Director, Institute of Fisheries Policy & Development Studies

SEAFDEC/Aquaculture Department

Mr. Rene Alger	Head, Finance Division
Mr. Tomas Garbay, Jr.	Head of Liaison Office, Iloilo

Mr. Wichian Yongprapat Marine Finfish Hatchery course
trainee from Thailand
Mr. Shosak Borisut Marine Finfish Hatchery course
trainee from Thailand

Brunei

Ministry of Industry and Primary Resources
Permanent Secretary

Department of Fisheries
Haji Matanan Haji Jaefar Director
Haji Abdul Halidi
bin Moh. Salleh Head of Marine Fisheries Section

Singapore

Primary Production Department
National Development Building
8th Floor, Maxwell Road
Mr. Lee Yuen Tong Director of Fisheries

Malaysia

Marine Fisheries Department
Sarawak
Mr. Jaji Sulaiman Abu Bakar Director
Mr. Haji Suhaili Haji Lee Deputy Director and Head of
Extension & Training Section
Mr. Henry Opang Luhat Head of Fisheries Research Center,
Bintawa

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Wisma Thani, Sultan Salahuddin Road
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Ms. Shahima Abd. Hamid Fisheries Officer
Mr. Gangaram Pursumal Head of Training Branch
Mr. Tan Cheng Kiat Head of Extension Division

Kuala Trengganu Fisheries Training Institute
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21300 Kuala Trengganu
Mr. Junaidi Ayob Head
Mr. Said Sahabudin Senior Assistant Fisheries Officer,
SEAFDEC Chendering, Trengganu

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Dr. Henri de Saram Director

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Dean, Faculty of Fisheries and
Marine Science.

Ministry of Industry and Primary Resources
Department Secretary

Department of Fisheries
Haji Marwan Haji Isahar
Haji Abdul Halidi
Bin. Moh. Salleh

Head of Marine Fisheries Section
Singapore

Primary Production Department
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Director of Fisheries
Malaysia

Marine Fisheries Department
Sarawak
Mr. Haji Sulaiman Abu Bakar
Mr. Haji Sabaili Haji Ise
Mr. Henry Gwand Jabat
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Deputy Director and Head of
Director

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Head of Training Branch
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Director
Dr. Henri de Szarm

Questionnaire on Training Needs

In order to assist SEAFDEC Member Countries in marine capture fisheries development and management, SEAFDEC/TD would continue to formulate relevant training programs to meet the need of its member countries. Special emphasis will firstly be given to its working plan and the operation of the Department. Secondly, the curricula and course content as well as time allocation to all courses will be up date from time to time. This questionnaire aims to assess the common needs and requirements of all member countries. All national delegates are requested to fill in the questionnaire and bring them to the Need Assessment Workshop for further elaboration.

I. Please indicate your training needs and give the priority (in number) of the following subjects:

- 1. Training Programs in Marine Fishing Technology
- 2. Training Programs in Marine Engineering
- 3. Training Programs in Marine Fisheries Extension Service
- 4. Integrated Training Programs in Marine Capture Fisheries
- 5. Training Programs in Navigation and Seamanship
- 6. Others (please specify)
 - a.
 - b.
 - c.

- 1. Operation and Maintenance of Marine Engines (months)
- 2. Internal Combustion Engine for Fishing Boats (months)
- 3. Marine Electricity and Electronics (months)
- 4. Refrigeration and Auxiliary Machinery (months)
- 5. Others (please specify)
 - a. (months)
 - b. (months)
 - c. (months)

IV. In the regular training program in Marine Fisheries Extension Services which always conducting in the period of "45 days" contains variety of course titles. The following are the course titles, would you

- a) please rank the priority of your preference by number in the box and;
- b) please suggest the time required for each course in the parentheses ().

- 1. Extension Methodology (days)
- 2. Extension Methodology and Socio-economic of Small-scale Fisheries (days)
- 3. Extension Methodology and Fishery Cooperatives (days)

4. Extension Methodology and Communication () days)
Media for Extension Work

5. Extension Methodology and Marine Affairs () days)

6. Extension Methodology and Marine () days)
Fisheries Resources Conservation

7. Extension Methodology and Coastal () days)
Resources Management

8. Others (please specify) ()

a. () days)

b. () days)

c. () days)

V. SEAFDEC/TD also plans to organize integrated training programs in deep sea fisheries. These proposed training programs would be relevant to the manpower development of the Member Countries. Would you

a) please rank the priority of the Target Groups of your preference by number in the box and;

b) please indicate the time required for each course in the parentheses ().

1. Operatives () days)

2. Officers () months)

() days)

- 3. Others (please specify)
- a. (months)
- b. (months)
- c. (months)

VI. SEAFDEC/TD also provides the following short-term specific courses. Would you

- a) please rank the priority of your preference by number in the box and;
 - b) please indicate the time required for each course in the parentheses ().
- 1. Purse Seine Fisheries (days)
 - 2. Trawl Fisheries (days)
 - 3. Longline Fisheries (days)
 - 4. Gill Net Fisheries (days)
 - 5. Trap Fisheries (days)
 - 6. Lift Net Fisheries (days)
 - 7. Pelagic Fisheries (days)
(Purse Seine and Longline)
 - 8. Selective Fishing Gears (days)
 - 9. Model Net and It's Experiments (days)
 - 10. Fishing Boat and Their Design (days)

11. Hydroacoustic Equipment and Fishing Machinery () days

12. Navigation and Modern Navigational Equipment () days

13. Fish Detection and Luring Method () days

14. Refrigeration System for Fishing Boat () days

15. Out-Board Engine () days

16. Scientific Diving () days

17. Others (please specify)

a. () days

b. () days

c. () days

d. () days

Assessment of Needs
Identified by Member Countries

Table 1. Main Subjects which SEAFDEC/TD should emphasis
in the field of Marine Fisheries

Subject	Priority identified by				
	Malaysia	Philippines	Singapore	Vietnam	Thailand
1. Marine Fishing Technology	1	1	3	1	3
2. Marine Engineering	2	2	5	2	5
3. Marine Fisheries Extension Services	4	6	1	3	4
4. Integrated Programmes in Marine Capture Fisheries	4	5	2	4	1
5. Navigation and Seamanship	3	4	4	5	2
6. Hydroacoustics	-	3	-	-	-
7. Integrated Training Programs in Small-scale Fisheries	-	-	-	-	6
8. Hydraulics machinery Operation, Repair and Maintenance	-	3	-	-	-
9. Refrigeration and Electronics	-	3	-	-	-
10. Marine Fisheries Resource Conservation, Management and Development	-	3	-	-	-
11. Commercial Fisheries (Deep Sea Fisheries)	-	3	-	-	-

Table 2. Training Topics for Regular Training Course in Fishing Technology

Topics	Priority identified by				
	Malaysia	Philippines	Singapore	Vietnam	Thailand
1. Commercial Fisheries	3	3	1	1	3
2. Small-scale Fisheries	4	4	2	2	4
3. Fishing Technology and Resource Conservation	2	1	3	3	2
4. Modern Fishing Technology	1	2	4	4	1
5. Fish Handling	5	5	-	-	-
6. Typical Fishing Gear	-	-	-	-	5
7. Resource Nursing and Stock Assessment	-	5	-	-	-
8. Practical Navigation and Seamanship	-	5	-	-	-
9. Fishing Boat/Vessel Design, Construction Operation, and Deck Arrangement	-	5	-	-	-
10. Fire fighting and First Aids	-	5	-	-	-
11. Monitoring, Control and Surveillance	-	5	-	-	-
12. Monitoring Food Quality	5	-	-	-	-

Table 3. Training Topics for Regular Training Course in Marine Engineering

Topics	Priority identified by				
	Malaysia	Philippines	Singapore	Vietnam	Thailand
1. Operation and Maintenance of Marine Engines	1	1	1	1	1
2. Internal Combustion Engine for Fishing Boats	2	5	2	2	3
3. Marine Electricity and Electronics	3	4	4	3	4
4. Refrigeration and Auxiliary Machinery	4	2	3	4	2
5. Hydraulic Machinery, Operation, Repair and Maintenance	-	3	-	-	-
6. Out-board Engine for Fishing Boat	-	-	-	-	5
7. Deck Arrangement	-	3	-	-	-
8. Handtools (tools), Equipment	-	3	-	-	-
9. Firefighting, First Aids and Survival at Sea	-	3	-	-	-

Table 4. Training Topics for Regular Training Course in Marine Extension Services

Topics	Priority identified by				
	Malaysia	Philippines	Singapore	Vietnam	Thailand
1. Extension Methodology	1	1	1	3	1
2. Extension Methodology and Socio-economic of Small-scale Fisheries	2	5	2	4	2
3. Extension Methodology and Communication Media for Extension Work	4	6	3	7	3
4. Extension Methodology and Fishery Cooperatives	3	8	4	5	4
5. Extension Methodology and Marine Affairs	4	3	5	6	7
6. Extension Methodology and Fishery Resource Conservation	4	1	7	2	5
7. Extension Methodology and Resource Management	4	4	6	1	6
8. Active Planning	-	7	-	-	-
9. Extension Work for Fishing	-	7	-	-	-
10. Fishing Right and Cooperative System	-	7	-	-	8
11. Extension Program Monitoring and Evaluation	-	7	-	-	-

Table 5. The Target Group of the Integrated Training Programmes in Deep Sea Fisheries

Target group	Priority identified by				
	Malaysia	Philippines	Singapore	Vietnam	Thailand
1. Operatives	2	3	2	2	1
2. Officers	1	2	1	1	2
3. Fishery Technician/ Biologist	-	1	-	-	-
4. Skipper/Masterfishermen	-	1	-	-	-
5. Marine Engineers/ Technician	-	1	-	-	-

10. Fishing Boat and Boat Design	10	8	10	8	10
11. Hydraulic Equipment and Fishing Machinery	11	9	11	9	11
12. Navigation and Modern Navigational Equipment	12	10	12	10	12
13. Fish Detection and Luring Method	13	11	13	11	13
14. Refrigeration System for Fishing Boats	14	12	14	12	14
15. Out-board Engine	15	13	15	13	15
16. Scientific Diving	16	14	16	14	16
17. Hydraulic Equipment	17	15	17	15	17
18. Co-operative System	18	16	18	16	18
19. Law of the Sea	19	17	19	17	19

Table 6. Training Topics for the Short-term Training Course in Marine Fisheries

Topics	Priority identified by				
	Malaysia	Philippines	Singapore	Vietnam	Thailand
1. Purse seine Fisheries	1	2	4	1	7
2. Trawl Fisheries	4	9	1	-	17
3. Longline Fisheries	5	4	2	2	8
4. Gill Net Fisheries	6	5	3	3	9
5. Trap Fisheries	6	6	6	-	12
6. Lift Net Fisheries	6	7	7	-	11
7. Pelagic Fisheries (Purse Seine and Longline)	2	1	5	4	10
8. Selective Fishing Gears	6	3	13	5	11
9. Model Net and It's Experiment	7	8	16	-	15
10. Fishing Boat and Their Design	6	10	8	-	16
11. Hydroacoustic Equipment and Fishing Machinery	3	11	9	6	3
12. Navigation and Modern Navigational Equipment	3	12	10	7	2
13. Fish Detection and Luring Method	3	14	11	8	4
14. Refrigeration Systems for Fishing Boats	3	13	12	10	5
15. Out-Board Engine	-	15	14	-	6
16. Scientific Diving	7	16	15	9	14
17. Hydraulic Equipment	3	3	-	-	-
18. Co-operative System	-	-	-	-	13
19. Law of the Sea	-	-	-	-	13

Table 7. Main Subjects which SEAFDEC/TD should Continue to Conduct as Regular Course in the Field of Marine Fisheries

Priority	Subjects	Weighted Score
1	Marine Fishing Technology	26
2	Marine Engineering	19
3	Integrated Programs in Marine Capture Fisheries	19
4	Marine Fisheries Extension Services	17
5	Hydroacoustics	4
6	Hydraulics Machinery Operation Repair and Maintenance	4
7	Refrigeration and Electronics	4
8	Marine Fishery Resource Conservation Management and Development	4
9	Integrated Training Programs in Small-scale Fisheries	1

Table 8. Training Topics for Regular Training Course
in Fishing Technology

Priority	Subjects	Weighted Score
1	Fishing Technology and Resource Conservation	19
2	Commercial Fisheries	19
3	Modern Fishing Technology	18
4	Small-scale Fisheries	14
5	Fish Handling	4
6	Typical Fishing Gear	1
7	Practical Navigation and Seamanship	1
8	Fishing Boat/Vessel Design Construction/ Operation and Deck Arrangement	1
9	Firefighting First Aids, Survival at Sea	1
10	Resource Management and Stock Assessment	1

Table 9. Training Topics for Regular Training Course in Marine Engineering

Priority	Subjects	Weighted Score
1	Operation and Maintenance of Marine Engines	25
2	Internal Combustion Engine for Fishing Boats	16
3	Refrigeration and Auxiliary Machinery	15
4	Marine Electricity and Electronics	12
5	Hydraulic Machinery Operation, Repair and Maintenance	3
6	Out-Board Engine for Marine Engines	1
7	Deck Arrangement	1
8	Handtools (tools), Equipment	1
9	Firefighting, First Aids Survival at Sea and Damage Control	1

Table 10. Training Topics for Regular Training Course
in Marine Fisheries Extension Services

Priority	Subjects	Weighted Score
1	Extension Methodology	38
2	Extension Methodology and Socio-economic of Small-scale Fisheries	30
3	Extension Methodology and Fishery Resources Conservation	26
4	Extension and Fishery Resource Management	24
5	Extension Methodology and Communication Media for Extension Work	22
6	Extension Methodology and Fisheries Cooperatives	21
7	Extension and Marine Affairs	20
8	Fishing Right and Cooperative System	3
9	Extension Work for Fishing	2
10	Extension Program Monitoring and Evaluation	2
11	Action Planning	2

Table 11. Training Topics for Short-term Training Course
Marine Fisheries

Priority	Subjects	Weighted Score
1	Purse-seine Fisheries	75
2	Longline Fisheries	69
3	Pelagic Fisheries (Purse seine and Longline)	65
4	Gill Net Fisheries	64
5	Selective Fishing Gears	62
6	Hydroacoustic Equipment and Deck Machinery	58
7	Navigation and Modern Navigational Equipments	56
8	Fish Detection and Luring Method	50
9	Refrigeration System for Fishing Boat	47
10	Lift Net Fisheries	44
11	Trap Fisheries	42
12	Trawl Fisheries	41
13	Hydraulic Machinery	35
14	Fishing Boat and Their Design	32
15	Scientific Diving	29
16	Model Net and it's Experiment	26
17	Out-Board Engine	19
18	Law of the Sea	5
19	Co-operative System	5

**DRAFT PROPOSAL FOR
THREE YEAR ACTIVITY PLAN (1995 to 1997)
Training Department
SEAFDEC**

<u>1. Regional Training Courses</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>
1.1 Regular Training Programs in Fishing Technology:			
(1) Fishing Technology and Resources Conservation	X	-	-
(2) Commercial Fisheries	-	X	-
(3) Modern Fishing Technology	-	-	X
1.2 Regular Training Programs in Marine Engineering:			
(1) Operation and Maintenance of Marine Engines	X	-	-
(2) Internal Combustion Engine for Fishing Boats	-	X	-
(3) Refrigeration and Auxiliary Machinery	-	-	X
1.3 Regular Training Programs in Marine Extension Services:			
(1) Extension Methodology	X	-	-
(2) Extension Methodology and Socio-economic of Small-scale Fisheries	-	X	-
(3) Extension Methodology and Fisheries Resources Conservation	-	-	X
1.4 Specific Training Course in Marine Fisheries			
(1) Purse Seine Fisheries	X	-	-
(2) Pelagic Fisheries	-	X	-
(3) Hydro Acoustic Equipment and Fishing Machinery	-	-	X
(4) Hydraulic Machinery	X	-	-
(5) Refrigeration System for Fishing Boat	-	X	-
(6) Out-board Engine	-	-	X

2. National Training-cum-Demonstration Courses

	1995	1996	1997
2.1 Fishing Technology and Oceanography for University Students (2 weeks x 2)	XX	XX	XX
2.2 Training Course for Local Fishermen and Local Institutions	X	X	X
1.1 Regular Training Programs in Marine Technology			
(1) Fishing Technology and Resources Conservation	X		
(2) Commercial Fisheries	X		
(3) Modern Fishing Technology	X		
1.2 Regular Training Programs in Marine Engineering			
(1) Operation and Maintenance of Marine Engines	X		
(2) Internal Combustion Engines for Fishing Boats	X		
(3) Refrigeration and Auxiliary Machinery	X		
1.3 Regular Training Programs in Marine Extension Services			
(1) Extension Methodology	X		
(2) Extension Methodology and Socio-economic of Small-scale Fisheries	X		
(3) Extension Methodology and Fisheries Resources Conservation	X		
1.4 Specific Training Course in Marine Fisheries			
(1) Pure Marine Fisheries	X		
(2) Pelagic Fisheries	X		
(3) Hydro Acoustic Equipment and Fishing Machinery	X		
(4) Hydraulic Machinery	X		
(5) Refrigeration System for Fishing Boat	X		
(6) Out-board Engine	X		