

REPORT OF
THE POST-GRADUATE SEMINAR
ON FISHERY TRAINING REQUIREMENTS

Bangkok, Thailand
15-18 November 1983

Training Department
Southeast Asian Fisheries Development Center

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ON FISHERY TRAINING REQUIREMENTS

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I. BACKGROUND AND PURPOSE

1. Following the approval of the Council at its Fourteenth Meeting, the Training Department of the Southeast Asian Fisheries Development Center (SEAFDEC) invited government officers who had graduated from its regular two-year course, as well as officials connected with fishery planning in the countries in the region, to participate in the Post-graduate Seminar on Fishery Training Requirements. The Seminar was held at the New Amarin Hotel, Bangkok, from 15 to 18 November 1983.

2. The Seminar appraised the status of the training activities being undertaken by the SEAFDEC Training Department, with a view to assessing the training requirements for regional fisheries development. It likewise reviewed existing curricula of the regular two-year course and programs for short-term training of fisheries personnel organized by the Training Department.

3. The scope of the Seminar included the following matters:

- (1) Training requirements in Southeast Asia;
- (2) Evaluation of the usefulness of the two-year training program as experienced by the graduates of the Training Department;
- (3) Discussion on the present curricula and methods of training of the Training Department; and
- (4) Ways and means to improve the training efficiency.

II. ORGANIZATION OF THE MEETING

4. Dr. Veravat Hongskul, Secretary-General of the Center and concurrently Chief of the Training Department, welcomed the participants to the Seminar. He noted that the Training Department had entered its fifteenth year of operation in 1983. Dr. Veravat commented that, since 1968, the development of the Department's educational facilities has steadily grown, just as the scope of the knowledge bestowed upon the

trainees has been adapted to meet the challenge of the times. He pointed out that, to truly develop fisheries, there is always a need to improve the quality, capability and competency of the operatives of the fishing industry in Southeast Asia.

5. Dr. Veravat referred to the recommendations of the Consultative Meeting on Fisheries Education and Training in May 1979, on which follow-up action has been taken by SEAFDEC. This includes (1) the task force which visited various fisheries training institutes in the region in November 1980 to assess the specific training needs; (2) the series of two-month courses on fisheries extension held by the Department since 1981; and (3) the implementation of the Secretariat's Southeast Asian Fisheries Information Service (SAFIS) project, which covers fisheries extension literature.

6. Dr. Veravat concluded his address by reiterating that the main objectives of the Seminar are to review the training requirements consequential to the extended marine jurisdictions in the region and to assist the Training Department in identifying the needs and improving its training programs in order to meet the regional requirement more effectively. His address appears as Annex 1.

7. Former trainees and officials connected with fisheries planning from Indonesia, Malaysia, the Philippines and Thailand, as well as senior officers of the Training Department were invited to attend. The list of participants appears as Annex 2. The Agenda was adopted and appears as Annex 3.

8. Dr. Veravat Hongskul and Dr. Shigeaki Shindo, Deputy Secretary-General of the Center and concurrently Deputy Chief of the Training Department, served as Chairmen. Capt. M.R. Vudhi Sudhasaneya, RTN, and Mr. Prasert Masthawe of the Training Department served as Discussion Leaders for the respective topics of Marine Engineering and Fishing Technology.

III. ASSESSMENT OF TRAINING REQUIREMENTS IN SOUTHEAST ASIA

9. The Chairman opened the session by presenting a background paper entitled "Fishery Training Requirements in Southeast Asia" (Annex 4). It was noted that the need for training is urgently felt in most developing countries because of the extended maritime jurisdictions. The need for self-reliance in fisheries and cooperation in training among developing countries were both emphasized at the FAO World Conference on Fisheries Management and Development (Rome, 10-19 October 1983). However, self-reliance in fisheries management and development is not possible without appropriate training of technicians, administrative personnel, extension workers and small-scale fishing operatives. Especially

relevant are programs which train personnel to train others (i.e. training the trainers). Equally important are in situ demonstrations and 'on-the-job' training courses.

10. It was recalled that, as a result of the Consultative Meeting on Fisheries Education and Training in Southeast Asia (Bangkok, 14-18 May 1979), the Training Department modified its schedule for training fisheries personnel by enrolling the candidates for the regular course every two years. This permitted the Training Department to provide a series of two-month courses on fisheries extension which have been held since 1981. The fifth course will commence in February 1984.

11. It was noted that there are in general two groups which require training, namely, the officers employed by the fisheries departments and the operatives of the fishing industry. Emphasis in Malaysia has been laid upon training extension officers who serve as a link between the government policy makers and the small-scale fishermen at the village level, particularly as regards coastal fishing. As a result of an evaluation undertaken by the Fisheries Training Institute in Penang in 1982, emphasis is now given to upgrading the skills of the existing coastal fishermen for deep-sea operations rather than training new operatives.

12. A participant from Thailand indicated that, even though many Thai trainees receive a good basic background in fisheries at the Training Department, some do not work in the field after graduation but are placed in office jobs and work in an administrative capacity.

13. The participants in the Seminar divided the categories in which training is required as follows: technology, research, administration and extension.

14. The priority subjects in the technical category include: fishing technology, navigation, small marine engines, fish handling on board and fish processing (all covered by the SEAFDEC Departments), as well as electronic data processing (EDP).

15. Under research, the items cited were: statistics and stock assessment (both covered by the SEAFDEC Training Department) and fishery biology (partly covered by a Unesco project in Tegal, Indonesia), with special relevance to multi-species problems.

16. The need for training in both fishery administration and information services was stressed.

17. As regards extension services, training for extension workers is provided by both the SEAFDEC Training Department and most

of the national training centers in the region. Similar training programs are provided for members of the Management Committee of Fishermen's Cooperatives in Malaysia. Small-scale fishermen are trained at the Fisheries Training Institute at Cavite, Philippines, and Penang, Malaysia. The Bay of Bengal Programme (BOBP) has a project concerning small-scale fishermen's families (especially women in fisheries).

18. It was recalled that the key personnel for fisheries development were the extension officers. Each extension worker provides a link with a tripartite grouping of the policy makers (government level) sector, the scientists/technologists (academic research level) sector, and the fishermen/private industry sector. The extension officer follows the policy of the government by utilizing information acquired from the scientists/technologists, and transfers this to the operatives. It was considered easier to train the extension officers on the long-term in order to train the operatives directly (in addition to providing short-term in situ demonstration-cum-training programs).

19. There was a general consensus that extension workers should be given more comprehensive training, in order to perform their tasks more effectively. Various views were expressed on a desirable extension system and the nature of the training to be given to such personnel, which should range from technical to socio-cultural subjects.

IV. EVALUATION OF THE TRAINING PROGRAMS OF THE SEAFDEC TRAINING DEPARTMENT

20. The former trainees and officials connected with fisheries planning presented their comments on the enrolment of trainees, the duration of the regular courses, suggestions for course improvement and communication between former trainees and the Training Department (Annexes 5-7).

21. It was the general consensus that ideally the trainees should be between the ages of 25 and 35 and that, in addition to being high school graduates or of equivalent level, the nominees should have a basic knowledge of fisheries. The participants suggested that, while the selection of candidates for training at the Department should be left to the discretion of the governments, officers employed by the departments of fisheries should be given priority.

22. The participants were requested to consider the curricula of the two-year training program as presently offered by the SEAFDEC Training Department with a view to improving future courses as regards subject content and credits.

23. It was suggested that training in the following subjects should be expanded.

1. Electronic equipment
2. Small engine operation/maintenance (outboard petrol/ kerosene/diesel engines)
3. Post-harvest management (fish handling)
4. Extension services/methods
5. Deck machinery
6. Fishery oceanography
7. Data collection and survey method

24. There was some discussion on the possibility of offering training in the operation of mid-water trawl, especially in the Andaman Sea. It was noted that specialized equipment such as net-sonde, echosounder, etc., were required for its successful operation. Likewise, training has to be provided to develop the skills in handling the gear. However, it was felt that, prior to launching a program in mid-water trawl fishing, an investigation of the density of the fish schools in tropical waters is a prerequisite to ensure its success.

25. Most participants were of the opinion that, if the current levels of curricula and of the trainees are maintained, then a two-year program is required to ensure adequate training. However, if it is proposed that the duration of training be reduced to one year, then the task of training the candidates during the first two semesters (including both basic background subjects and experience in fishery) should be provided by the national training centers.

26. Member Governments are encouraged to ensure that nominees with adequate fisheries background and motivation be sent to the Training Department so that they could reap the full benefit of the training.

27. The importance of giving trainees ample opportunity to participate in the operation of equipment, fishing gear, and machinery aboard the vessels was stressed. In addition, owing to the fact that the emphasis in Southeast Asia is upon small-scale fisheries, some of the participants suggested that shipboard training should be done on small fishing boats as well as on commercial fishing vessels. This would make it easier for the graduates to apply their expertise in the handling of small fishing vessels in their home countries.

28. The participant from Indonesia suggested that there should be greater frequency of short distance cruises, so that the trainees could be given more practice in fishing operations, which would increase training efficiency.

29. It was suggested that closer cooperation between national training centers and the Training Department should be developed in order that all parties concerned are informed about the respective content of their courses and training activities. It was also suggested that selected instructors from the national training centers should be given the opportunity to visit other training institutions in Southeast Asia. However, funding from external sources would be required for this purpose.

30. In order to strengthen collaboration between various fisheries training institutions, the Chief of the Training Department stated that M.V. PAKNAM could be sent to neighbouring countries to facilitate ad hoc training programs of the national training centers where and when appropriate.

31. Finally, the usefulness of training aids such as audio-visual programs, especially on video cassettes, was emphasized. The Training Department was encouraged to accelerate its audio-visual program in order to provide relevant fishing demonstration tapes to other training centers in the region.

V. OTHER MATTERS

32. The participants unanimously endorsed the establishment of an alumni association of SEAFDEC Training Department graduates in each Member Country. The purposes of these alumni associations would be:

- (1) to maintain a close contact between former trainees and the Department after their graduation;
- (2) to serve as focal points in receiving, through the Department's publications, updated information relating to the former trainees' fields of study;
- (3) to facilitate closer contact among the former trainees not only in their home country, but also in other Member Countries in the region.

33. It was suggested that a national coordinator for the alumni association be chosen by former trainees in each Member Country. The national coordinator should endeavour to establish contact with all former trainees in his country and communicate their current addresses to other trainees as well as to the Training Department for further exchange of information.

VI. SUMMARY OF CONCLUSIONS

34. The participants expressed the following opinions:

- (1) Nominees for the Training Department's regular courses should have an adequate background knowledge of fisheries so that they could fully benefit from the training.
- (2) Emphasis should be placed on practical training, especially as regards shipboard training.
- (3) Owing to the fact that the emphasis in fishery development in Southeast Asia is on the small-scale fisheries sector, a greater portion of shipboard training should be done on board small fishing boats, including commercial vessels.
- (4) In order to perform their tasks effectively, extension workers should be given more comprehensive training, to include topics ranging from technical to socio-cultural matters.
- (5) Training opportunities should be provided in both fishery administration and information services.
- (6) Closer cooperation between the national training centers and the Training Department should be developed in order that all parties concerned are informed about the respective content of their courses and training activities.
- (7) To improve training efficiency, training aids should be developed further, especially video cassettes. Therefore, the Training Department is encouraged to accelerate its audio-visual program in order to provide relevant fishing demonstration tapes to other training centers in the region.

(8) An alumni association should be set up and a national coordinator should be chosen for each Member Country to promote contacts among former trainees and with the Training Department.

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- (4) In order to perform their tasks effectively, extension workers should be given more comprehensive training to include topics ranging from technical to socio-cultural matters.
- (5) Training opportunities should be provided in both fishery administration and information services.
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- (7) To improve training efficiency, training aids should be developed further, especially video cassettes. Therefore, the Training Department is encouraged to accelerate its audio-visual program in order to provide relevant fishing demonstration tapes to other training centers in the region.

OPENING ADDRESS

of

DR. VERAVAT HONGSKUL*

Distinguished Colleagues, Graduates, Ladies and Gentlemen:

As Secretary-General of SEAFDEC, I am pleased to welcome you to Bangkok and to preside over the opening of the Post-Graduate Seminar on Training Requirements organized by the SEAFDEC Training Department.

This year, 1983, the Training Department has entered its fifteenth year of operation. Since 1968, the development of the Department's educational facilities has steadily grown, just as the scope of the knowledge bestowed upon the trainees has been adapted to meet the challenge of the times.

In order to appraise its training programs, the Department is holding this Seminar on Training Requirements, in the course of which we will listen to the presentation of country reports and exchange experiences with former trainees. The outcome of this Seminar will help the Department to determine whether its programs are adequate to meet the fishery training needs of the Southeast Asian countries.

In implementing our training programs, in order to achieve the primary objective of SEAFDEC, that is, to promote fisheries development in Southeast Asia, the Training Department has always attached great importance to fisheries education and training. This is because we consider fisheries education and training as an integral part of fisheries development, which can progress only if there is a sufficient number of skilled manpower available at all levels. Thus, there is always a need to improve the quality, capability and competency of the operatives of the fishing industry in Southeast Asia. It is wise to remember that without the appropriate "software", the elaborate "hardware" acquired at high cost becomes useless.

As some of you may be aware, the Department conducted a Consultative Meeting on Fisheries Education and Training in May 1979. Several recommendations made at that meeting have since been implemented.

* Secretary-General of the Southeast Asian Fisheries Development Center (SEAFDEC) and concurrently Chief of the Training Department.

Firstly, a task force from SEAFDEC/TD visited various fisheries training institutes in the region in November 1980 to assess the specific training needs. Based on the recommendations of the SEAFDEC task force, the curricula of the Training Department have been refined and upgraded to meet the requirements.

Secondly, because of the emphasis on fisheries extension, a series of two-month courses on this topic have been held since 1981. At present, the Department is preparing the fifth regional course of this type to commence in February 1984.

On the other hand, the Southeast Asian Fisheries Information Service (SAFIS) which covers in particular the fisheries extension literature, has collected over 500 extension manuals and other texts directly related to fisheries extension work in the field. SAFIS is printing translations of appropriate literature into local languages to be used at the grass-roots level. Some of these publications are on the display table.

Distinguished participants, may I reiterate that the main objectives of this Seminar are, firstly, to review the training requirements consequential to the extended maritime jurisdictions in the region and, secondly, to assist the Training Department in identifying the needs and improving its programs in order to meet regional requirements more effectively. In other words, we look to you for guidance in enhancing the efficiency of the training offered by the Training Department.

As some of you may be aware, the Department conducted a Consultative Meeting on Fisheries Education and Training in May 1979. Several recommendations made at that meeting have since been implemented.

Secretary-General of the Southeast Asian Fisheries Development Center (SEAFDEC) and Coordinator of the Training Department

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AGENDA

1. Opening address by the Secretary-General of the Southeast Asian Fisheries Development Center
2. Adoption of the Agenda
3. Training requirements in Southeast Asia
4. Presentation of reports by former trainees
5. Discussion on the present curricula and methods of training of the Training Department
6. Discussion on how to improve the training efficiency
7. Other matters
8. Adoption of summary of recommendations

FISHERY TRAINING REQUIREMENTS IN SOUTHEAST ASIA

1. The new international Convention on the Law of the Sea gives coastal states the right and responsibilities for the management, conservation and rational utilization of the fishery resources in their exclusive economic zones (EEZs). However, many of these resources, as well as inland fishery resources, including many of those harvested by small-scale fishermen of Southeast Asian countries, are already fully exploited or over-exploited and in need of a revised approach to management.

2. At the recent FAO World Conference on Fisheries Management and Development (Rome, 10-19 October 1983), it was recognized that many countries are experiencing difficulties in managing their fisheries. It was suggested that there should be a specific action program dealing with management covering marine and inland fisheries, both large-scale and small-scale (COFI/83/12, Add. 2). This program might have inter alia five elements:

- technical assistance
- training
- research
- statistics
- regional cooperation, particularly with regard to shared stocks.

3. In his opening address to the World Conference, the Director-General of FAO stated that:

"Training provides fertile ground for cooperation. It is the seed of development. Without training, without access to facilities and skilled instructors, without extension support for 'on the job' experience, any sustained effort to raise fisheries productivity is, in my view, destined to fail...."

An important feature and the one that I believe is directly relevant here is our encouragement of self-reliance and cooperation in training among developing countries. We have modified that old Chinese adage 'Give a man a fish and he will eat for a day, but teach a man to fish and he will eat every day'. Even more can be gained, in our view, by first teaching a man to fish, then helping him to pass that experience on to others".

4. In fact, a central objective of all developing countries is greater self-reliance in skills required for fisheries management and development. Therefore, the time has now come to seek a more systematic approach in planning and implementing training programs and their integration with development planning. It is also recognized that the responsibility for large-scale training must lie at national level, with international assistance supplementing this as necessary but being mainly used to assist in advanced-level training. Training must also be associated with social development where necessary. There must be greater participation at community level in determining training needs, particularly in small-scale fisheries and aquaculture.

5. A number of training activities were discussed at the World Conference, including the following:

- assessment of manpower needs and planning of fisheries education and training activities at both national and regional levels;
- management-level training at advanced level in all disciplines concerned with the protection, catching and utilization of the resources;
- strengthening existing training institutes through training of training and extension staff in proven training techniques and methodologies;
- training of senior-level national staff to strengthen the national aquaculture programs;
- assistance to improve teaching and training methodologies of national development and extension staff, as well as the design and monitoring of on-the-job training programs for selected fishing communities in marine and inland small-scale fisheries; and
- training of senior and intermediate level fisheries staff in improving utilization of fish, as well as the "in plant" training for industry operatives.

6. For the Southeast Asian region, Thomson (1979) reviewed the training requirements in the field of fisheries. He identified four target groups, namely:

- (1) Government personal, i.e. scientists, researchers, technical officers, instructors, administrators and extension workers;

- (2) Large investment companies, i.e. vessel captains, engineers, fleet managers, plant managers, ships' husbandmen, fish processors, plant engineers;
- (3) Small-scale and traditional fisheries, i.e. small-boat fishermen, their sons and families, fishing cooperatives, small fish farmers;
- (4) Workers in allied industries, i.e. fish curers, salt producers, boat builders, net makers, fish transport and retail workers.

7. In terms of numbers involved and training requirements, there are enormous differences between the various groups. The small-scale fisheries and allied support industries are the sectors with by far the greatest numbers involved. From the socio-economic point of view, these are the sectors which merit most support for training and development.

8. The subject matter of fisheries training programs also varies with the level of training and the particular needs of the industry. Thomson suggested that emphasis should be placed on building up few centers of competence for higher fisheries education, and concentrate other resources on making the remaining fisheries schools into practical or vocational training institutes. In addition, new subjects related to the present problems that affected the fisheries, such as pollution, energy crisis, rural development and modern technology, should be added to the training curricula in order to equip fishermen and fishery officers with technical and socio-economic solutions.

9. At present, there are 11 national fishery training institutions and one regional training center in Southeast Asia (SEAFDEC 1979, p. 227). All the institutions are government supported, while some of them have been established with international or bilateral assistance. At the Consultative Meeting on Fisheries Education and Training in Southeast Asia (Bangkok, 14-18 May 1979), organized by the SEAFDEC Training Department, the participants identified the training requirements as follows:

- (a) training of operatives for deep sea, offshore, coastal and inland fishing;
- (b) training of administrators and managers;
- (c) training of extension workers; and
- (d) training of instructors (SEAFDEC, 1979, Para. 12).

10. The Meeting also recognized the need for the training programs to be an integral part of the country's fishery development plan. The Meeting agreed that components necessary for the success should be adequate duration of training, equipment, competent instructors and commitment of trainees (Para. 44).

11. The Meeting agreed that the fisheries of Southeast Asia would face many formidable problems in the future. The situation in rural fishing villages involves complex interwoven factors of a technical, social and economic nature. The need to develop post-harvest technology at the grass-roots level to raise the income of these communities was also recognized. Training by demonstration in the villages is much needed. The merits and demerits of institutional and non-institutional training were discussed and the Meeting agreed that a combined approach was necessary to deal with different circumstances in terms of the level of training required and the needs of the clientele (Para. 20, 60-61).

12. The Meeting recommended that, among others, priority should be given to the training of instructors, extension workers, administrators, managers and selected fishermen (Recommendation No. 10, Para. 62).

13. The Meeting also recommended that a further meeting (on fisheries education and training in Southeast Asia) should be convened in the region in order to ascertain the progress made in this field (Recommendation No. 12, Para. 62).

14. Since 1979, a large number of technical training programs were organized by many international/regional/national agencies in the region. Reviews of these programs were published by ICLARM in late 1982 (Maclean 1982).

15. In reviewing the training in tropical fisheries science, Munro (1982) noted that: "throughout the tropics, fisheries departments or administrations are faced with problems of development, assessment and management of fisheries... [This is due to] the fact that educational machineries have been unable to keep pace with specialized demand for highly trained fisheries scientists... Nevertheless, it is time that national and international agencies recognize that no amount of international training programs overseas will ever contribute significantly to development unless the recipients are themselves given the opportunity to become scientists or educators at home".

16. It should also be noted that the termination of the UNDP/FAO South China Sea Fisheries Development and Coordinating Programme (SCSP) at the end of 1983 will undoubtedly affect the training programs in this region. During 1975-1983, SCSP organized 27 training

courses and 31 workshops/seminars in the region which provided opportunities for the fisheries scientists/officers in the region to exchange their experiences and thus upgrade their technical know how. Future arrangements for similar training/workshops can only be assessed after consultation with all the parties concerned.

17. As for SEAFDEC's role in fisheries training programs, Matics (1982) provided a summary of SEAFDEC's activities for training in the fields of marine fishing technology, marine engineering, extension services, fish post-harvest technology and aquaculture. In addition, the SEAFDEC Training Department also organized training courses in fishery statistics, stock assessment methodology, coastal navigation and seamanship, marine electricity and in situ training-cum-demonstration on modern purse-seining for local fishermen in order to serve the immediate needs of the Member Countries.

18. Although the needs to train skilled workers for the fishing industry and small-scale operatives are generally accepted, the difficulties in providing institutional training were also recognized. A more practical approach is needed to train fishermen and fishery industry personnel, such as on-board training-cum-demonstration as now provided by the Training Department or direct technical advice to commercial fish processors as conducted by the Marine Fisheries Research Department in Singapore. The Aquaculture Department of SEAFDEC also conducts training and extension programs for local fishfarmers in close collaboration with the Bureau of Fisheries and Aquatic Resources (BFAR) of the Philippines.

19. The present Seminar is directed to assess the fisheries training requirements in Southeast Asia. The participants to the Seminar are invited to discuss the subject matters required, the level of trainees, the duration of training, and the expected outcome of the training courses. Specific recommendations should be made to guide the institutions concerned, at both national and regional levels, for further modification of their training programs in order to better serve the immediate and urgent needs of the SEAFDEC Member Countries in Southeast Asia.

20. Finally, the participants are requested to consider:

"Are existing training programs provided by the Training Department adequate or should we be seeking to change them or introduce new emphases?"

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COMMENTS ON THE TRAINING PROGRAMS OF THE
SEAFDEC TRAINING DEPARTMENT
BY THE PARTICIPANT FROM INDONESIA

Mr. Abdullah Syahrhan Aidid

Former trainee - 1978 to 1980

Let me express my thanks to the Secretary-General of SEAFDEC as the Chief of the Training Department of the Southeast Asian Fisheries Development Center to give me this opportunity to participate as a representative of my government in this seminar conducted by the Training Department of the Southeast Asian Fisheries Development Center in this city.

As a former trainee from the years 1978 to 1980 (Fishing Technology course), and after I completed my course of training, which gave me useful and practical experiences, I was appointed by my Regional Government of South Sulawesi Province as Chief of the Fishing Development Unit of the South Sulawesi Fisheries Services. In this position, I have had the opportunity to render service of improving fisheries development under our Government's national economic development program.

In my opinion, I think it can be concluded that I gained experiences from the course conducted by SEAFDEC and that it was useful since I have been successful in achieving several results. However, some goals still need to be attained, and continued upgrading is needed according to the general programs offered by the Training Department to SEAFDEC.

Now, therefore, permit me to thank whole-heartedly the Secretary-General of SEAFDEC as Chief of the Training Department for the highly skillful planning of the scheduled programs.

In connection with the tentative curriculum forwarded to us by SEAFDEC for general review by the participants, I consider that there is no need for any significant changes. However there is a need for improvement in the age of enrolment of the trainees. The most suitable ages are 20 to 25 years, that is after the trainees have completed High School or Fishery High School.

As regards Navigation and Seamanship this subject should not be included, because all participants are not seamen/fishermen. On the other hand, as a government official, I suggest that Marine Fisheries Extension Services and Cooperatives should be given emphasis.

In addition, I would like to suggest that the course duration is too long and it would be better to reduce it to one year.

Furthermore, the actual fishing conditions of each country are different. In Indonesia, fishing activities are still dominated by small-scale fisheries, so I consider that not only a big boat (M.V. PAKNAM) should be used for shipboard training, but also small fishing boats, because training on these can easily be applied in the field of fishing development after participants return to their home country.

Also I would like to suggest that SEAFDEC publications should be sent speedily to every subscriber if there are any new achievements in fishery techniques in order to improve our fisheries development.

Concerning the desirability of an alumni association proposed by the Chief of the Training Department, I suggest the establishment of such an association in each Member Country, and moreover that members of the Alumni Association should correspond with each other, especially as regards fishing techniques and engineering techniques.

My above opinions are given as a contribution to this Seminar to achieve our goals successfully. During our formal or informal discussions at this meeting I can perhaps make further or suggestions for improving the Training Department's programs.

Permit me once more to convey my congratulations to the Chairman and all participants from the Members Countries who are attending this Seminar.

Comments by Mr. B. S. Sathyanarayanan
Director, Fisheries Training Institute, Pondicherry

The information for the Seminar is reported from graduates of SEAFDEC, my comments will be confined to the present syllabus and suggestions with a view to improving the training program.

Trainees' age and background education for effective training

The trainees from Malaysia are selected from the category of Fisheries Assistants serving in the various sections of the Fisheries Department, i.e., extension service, management and protection, statistics and research.

The selected trainees should preferably be 27 years old and above and have completed a period of five years. This is to ensure that they have a fairly good knowledge of the fishing industry so as to enable him to relate what he is taught to his own experience while he was in the field.

COMMENTS ON THE TRAINING PROGRAMS OF THE SEAFDEC TRAINING DEPARTMENT

THE PARTICIPANTS FROM MALAYSIA

It is also suggested that the trainees should preferably have undergone a basic course at the Fisheries Training Institute in Penang during his first five years of service. In fact, this should be made a prerequisite for future trainees before proceeding to such courses overseas.

Course duration

The duration of two years, while appearing to be lengthy, is adequate. It is unlikely that the subjects contained in the syllabus can be taught over a shorter period.

The duration of six months' sea-training is adequate.

Subjects offered

The course covers a wide range of subjects that are relevant to the industry. Appropriately, the subject on fishing gear and methods is given sufficient emphasis in fishing technology.

The subjects taught in Marine Engineering are also adequate and well balanced.

A. Comments by Mr. B. Balachandran
Director, Fisheries Training Institute, Penang

As the information for the Seminar is required from graduates of SEAFDEC, my comments will be confined to the present curricula and suggestions with a view to improving the training program.

1. Trainees' age and background education for effective training

The trainees from Malaysia are selected from the category of Fisheries Assistants serving in the various sections of the Fisheries Department, i.e.,: extension service, management and protection, statistics and research.

The selected trainee should preferably be 25 years old and above and must have served in the field for a minimum period of five years. This is to ensure that the person sent for training will be of some maturity and have a fairly good knowledge of the fishing industry so as to enable him to follow the course intelligently. At the same time, it will enable him to relate what he is taught to his own experience while he was in the field.

It is also suggested that the trainee should preferably have undergone a basic course at the Fisheries Training Institute in Penang during his first five years of service. In fact, this should be made a prerequisite for future trainees before proceeding to such courses overseas.

2. Course duration

The duration of two years, while appearing to be lengthy, is adequate. It is unlikely that the subjects contained in the syllabus can be taught over a shorter period.

The duration of six months' sea-training is adequate.

3. Subjects offered

The course covers a wide range of subjects that are relevant to the industry. Appropriately, the subject on fishing gear and methods is given sufficient emphasis in Fishing Technology.

The subjects taught in Marine Engineering are also adequate and well balanced.

4. Relevance of present curricula to actual work requirements

As the subjects taught are relevant to marine fishing, it should equip the graduate with sufficient knowledge to carry out his duties effectively and efficiently.

The problem of relevancy arises when the graduate is assigned to do jobs where he is unable to put into practice and apply his knowledge.

5. Proposals for modification

The seminar might consider the following modifications with a view to improving the curricula:

- (a) the subjects on deck machinery, particularly those on winch and crane, windlass and mooring gear to be taught to trainees attending the Fishing Technology course;
- (b) the subject on steam engine and turbine to be included in the Marine Engineering course. This need not be in detail and a 0.5L credit should be adequate;
- (c) the subject of Marine Engineering practice to be included in the Marine Engineering course. This includes rules and regulations pertaining to vessels and safety on board. This again need not be in detail;
- (d) the subject on design and construction of otter boards be included in the Fishing Technology course.

B. Comments by Mr. Abu Hassan Bin Yassin

Former trainee - 1972 to 1974

As required, the followings is the basic information on my activities as a former engineering trainee of SEAFDEC:-

1. Activities after Leaving SEAFDEC

Before joining SEAFDEC for a two year's course, I was only a Fisheries Assistant (Timescale) and I started serving the Fisheries Department in 1965. When the course was offered (in 1972) I was serving as an Extension Fisheries Assistant at Kuala Trengganu, Trengganu. Kuala Trengganu is one of the busy fishing bases in Peninsular Malaysia.

Since joining the Fisheries Department of Malaysia, I was entrusted with various responsibilities such as:-

- Collecting State and Federal Revenues from the licensing of fishing gears and crafts.
- Enforcing the Fisheries Act 1963 and M.S.O. of 1952. For this purpose I was gazetted as the Deputy Port Officer and Deputy Maritime Fisheries Officer.
- Collecting statistics on fish landings, gears and boats and conducting the various surveys as directed by the headquarters in Kuala Lumpur.
- To monitor the state affairs of the local fishing industry for future development.

Upon my return after attending the two year's course in 1974, I was transferred to the Extension and Training Section of the Division at Kuala Lumpur Headquarters as a Fisheries Assistant of the Training Unit.

From May 1975 until now I have been appointed to the post of a Fisheries Administrative Officer and attached to the same unit. Even though the post is semi-professional in nature, the job entrusted to me is of a highly technical nature whereby I have to conduct "Operations and Maintenance Course" of inboard fishing boats engines ranging from 4 H.P. - 45 H.P.

Since appointed to this unit in 1974, my main task is to assist the Fisheries Officer (gears) in establishing the Training and Gear Demonstrations Unit as well as implementing all its programs. This unit now has four sub-units comprising:

1. Mobile Workshop Service (Training)

Manned by one Fisheries Assistant (sub-unit head), four Junior Engineering Instructors, four drivers and possessing four vans, this sub-unit is responsible for carrying out short courses on the Operation and Maintenance of Inboard Diesel Engine (6 days) and Outboard engines (2 days) at the various fishing bases in Peninsular Malaysia.

Each of the vans is fully equipped with the necessary training aids, especially a unit of the actual diesel engine and outboard engines similar to the make and model that is being used by the participants of that course. This is planned so as to enable the classroom knowledge to be transferred to the fishing boats to the optimum.

The response to this course is very encouraging and each year an average of 750 - 1,000 fishermen participated in this program.

2. Mobile Service Workshop

This service was started around 1982 as a back-up to the fishermen's training. The main activity of this workshop is to guide the fishermen in repairing their boats' engines.

This sub-unit is headed by a fisheries assistant and four fitters. At present only one fitter is recruited on a trial basis.

However, about 500 fishermen have benefited during 1982. Apart from coaching the fishermen in repairing their engines' breakdowns, this mobile service unit is also responsible for selling spare parts to the fishermen whose boats are being serviced or repaired or to those who are staying in the remote fishing villages that are on the unit's visits schedule. These spare parts are obtained 'on consignment' basis. They are genuine and sold at wholesalers' prices as already decided by the suppliers.

3. Dissemination of Technical Know-how on Post Technology

This sub-unit was established to handle post-harvest technology, especially on preservation and processing of catches.

The aim of this dissemination is to enable the fishermen to get maximum returns from the catches they obtain daily, especially in the case of the small-scale fishermen.

In Malaysia, the expertise on each type of food preservation and processing is only known to the people where it originates. Thus some people may regard it as a traditional heritage. As an example, the processing of fish cake is only known to the people of Kelantan and Trengganu, Prawn Sauce and paste to the people of Malacca and fish satay which is only known to the people of Pangkor Island. The same is true of other skills and knowledge.

So in conjunction with this, it is the main duty of this sub-section to work out how this knowledge could be transferred to other fishing communities so as to enable them to make a high profit from their daily catches.

It is found that the best possible way is to select the fishermen from one fishing community and attach them to the factory which is producing the delicacies such as fish cakes, prawn paste, etc. for 4-6 days. Until now 10 such courses for each type of product are arranged every year and about 200 - 250 fishermen have benefited from this program annually.

Apart from the above main activities, this unit is also responsible for finding out the possibility of introducing any new courses which are of some benefit to the local fisherfolks. The courses are meant to be "an eye-opener" in order to create interest in other means of increasing their family income.

As such, visits are being made to the Malaysian Institute of Fisheries at Pulau Pinang where the fishermen are explained about the usage of any new fishing aids such as echo-sounder, fish finder and sonar. This is merely to create interest so that they might be interested to adapt the said technology or at least to let them know that we are all set to develop the industry for their purposes.

4. Trial and Demonstration of Fishing Gears and Fishing Aids

This is one of the most important sub-units which is responsible for the trial and demonstration of fishing gears, aids or techniques. These programs are sometimes very complicated and thus demand skills and dedications in order to make the trial a success to the unit as a whole and to the industry in particular.

Thus the main task of this sub-unit is to find out what are the modern technologies that should be introduced to the fishermen in our effort to increase their income either by increasing their investments or by sustaining the yield to the optimum by minimizing the production and maintenance costs.

Also in line with the Department's policy of encouraging deep sea fishing, this sub-unit again plays an important role in gearing the local entrepreneurs towards commercial fisheries. However the status of the small-scale fishermen should not be forgotten. Light fishing technologies will be disseminated to them continuously.

By now 13 trial projects have been planned to be developed and in fact a few have been completed. The projects are:-

- (i) Mini Net Haulers for Drift Netters
- (ii) Outboard Diesel (Long Shaft) for small-scale fishermen.
- (iii) Fish Finders for Trawlers, Purse Seiners and Long Liners.
- (iv) Mechanizing the fish cake making cottage industry.
- (v) Mini slipways for Fishermen (only a survey).
- (vi) New Fishing gears, and technologies.
- (vii) Stickheld Dip Net for Squid.
- (viii) Outboard Kerosene Engines (only a survey).
- (ix) Trial and usage of fish cake slicer.
- (x) Bottom Vertical Long Lines.
- (xi) Trammel Nets.
- (xii) Fish smoking/drying techniques.
- (xiii) Solar Dryers (based on the Philippines' design and technology).

The responsibilities that I have to undertake while attached to the Training and Fishing Gear Demonstration Unit are as shown in Appendix 1.

My position in the Unit's organization as a Fisheries Administrative Officer is as can be seen from the chart in Appendix 2

Starting from the middle of this year, this unit has been entrusted with the most difficult task that is to establish Fisheries Extension Centres at the state level and most probably they will be sited at major fishing bases in Peninsular Malaysia.

The aim of these Fisheries Extension Centres is to provide technical back-up to the Fisheries Development Centre of the Fisheries Development Authority of Malaysia by boosting the dissemination of technical know-how at the state and district levels.

2. Present Curricula (Marine Engineering Course)

2.1 Trainees' Age and Background Education for Effective Training

The trainees' age at the year of enrolment should be standardized and it is suggested that the age limit should be not more than 30 years old. This age limit is based on the following factors:-

- They left secondary school only 8 -9 years ago (for candidates from Malaysia who are all Fisheries Assistant of the department). They are still young and can still remember their basic subjects taught in school such as mathematics, and basic science (physics, chemistry & biology).
- They still possess strong thinking and retaining powers and thus their ability to follow the subjects taught during the 2-year course is unquestionable.
- They are still strong, healthy, agile and energetic and thus can carry out all assignments easily.

Concerning their academic and background education, it is suggested that each trainee should at least:

- Have completed his secondary schooling.
- Have at least served the Fisheries Department of the member country for a period of 5-8 years.
- Be hardworking and have at least showed good performance in his routine work.

- Be able to read and write English. This is the only means to foster good relationship between the trainees of each member country. Misunderstanding of the common language of the Centre, as in the past, might lead the trainees to keep to their own group only.
- Have the basic experience in the type of course that they are going to undertake. This will make the transfer of knowledge by the instructors to their trainees more effective and easier.

2.2 Course Duration

The period of two years is just enough to cover all the essential topics concerning the aspects of Marine Engineering. Semester holidays given 14 days a year to the trainees may have at least killed the boredom of dormitory life because it is during these holidays, that the trainees of neighbouring countries can go back to their country at their own expense. This will cure the longing for parents or family.

2.3 Subjects offered

In my opinion the subjects offered are relevant to the type of training (Marine Engineering or Fishing Technology) that each trainee is going to pursue at this Centre. Also the subjects are in line with the requirements of the local trainees to sit for the respective examinations. Then, armed with this certificate or tickets, they would be able to seek employment in the local fishing industry or shipping companies.

To illustrate this, SEAFDEC itself had employed three former SEAFDEC trainees i.e. 1 for the ship's engineering section, 1 for the ship's navigation and 1 for fishing.

2.4 Relevancy of Present Curricula to my actual work requirements

This is the most delicate and difficult topic to express and answer because:-

- The post and nature of duties of each participant are not the same. Some are attached to the fisheries departments of each country maybe as administrators, enforcement officers of the department, collectors of fisheries data and statistics and so on. In fact there are those who have just left school or are the sons of successful fishing entrepreneurs.

- If wrongly interpreted, the aims of this Center might give the following impressions:-

- (a) As an institute that is capable of producing "experts" in the field of Marine Engineering or Fishing Technology solely for the trainees benefit to seek better employment status whether with the government or private shipping or fishing entrepreneurs.
- or (b) As a centre of learning to enable the trainees to qualify for the various examinations conducted by the Port Authority or Harbour Department of each country.

For me as one of the trainees sponsored by the Malaysian Government, my field of study really helped me very much in my present work requirements. In fact it is this knowledge that shaped me to the present position. My most sincere thanks to the Malaysian Government for their kind and great appreciation.

Besides me there is another colleague of mine who also benefited. After graduating from SEAFDEC in Fisheries Technology, he is now employed as a fishing gear technologist at the Malaysian Institute of Fisheries, Penang.

As for others it is a regret to say that, on coming back to Malaysia, they are again posted to their former assignments where they could not put into practice all the knowledge they had obtained from their 2-year training at SEAFDEC. No one is to be blamed for this, but the present state of the Malaysian Fishing Industry demands them to be placed in their initial profession.

With the indispensable knowledge I gained during my training at this Centre, I am now able to:-

- plan and implement the non-residential courses at the fishing village itself whether on the operation and maintenance of inboard/outboard boat engines, diesel or petrol. Also to make the dissemination of technical know-how a success;
- study and choose the relevant fishing aids for the fishermen under the present demonstration program;
- make modifications on imported technologies to suit the pattern of the local fishing industry as in the case of the mini-net haulers for the drift net fishery;

- prepare the necessary lesson plans and hand-outs for my four instructors;
- choose the correct and suitable spare parts to be carried by the mobile service workshops to each of the fishing villages they visit;
- answer all problems raised up by my four instructors and fitters which they come across during the execution of their routine jobs.

With regard to the above factors, that is why I said at the beginning that this is the most delicate and interesting topic to discuss.

2.5 Proposals for Modification

With regard to this, I wish to make the following suggestions for the modification to the present curricula so that the knowledge learnt at this Centre could be applied to the trainees' nature of work and also to make the Centre achieve the main objective of its establishment.

However before I turn to the subject of modifications, please allow me to make the following suggestions concerning the general pattern of the Centre's present curricula:-

- the Board of Directors should make a careful and intensive study on the patterns and status of the fishing industry of each member country. This survey should cover the pre-harvest and post-harvest status of the industry;
- From the above surveys, the Board of Directors should decide what stage of the industry should be more emphasized for development and to give full attention;
- to formulate ways and means of solving the problems whether by direct participation or giving intensive special training to the officers of that country in that particular field;
- to review the types of technologies that should be introduced to each of the member country after making a complete study on the progress of the fisheries development of that particular country.

Again in line with the above factors, I now wish to make a few suggestions to modify the present curricula of the SEAFDEC Training Department:-

(i) Internal Combustion Engines (ICE)

Under this subject, the trainees are given expertise on the operation and maintenance of big diesel engines only, that is from 110 - 1,000 H.P. This is in line with the requirements of ocean-going vessels only. But what about those small-time fishermen who can manage to have only 8-45 H.P. engines and 4-40 H.P. outboards? They also need our guidance and instruction concerning the operation, maintenance and repairs of their respective engines.

Thus two new topics should be included under this subject, namely:-

(a) Small and Medium Sized Inboard Diesel Engines

For this 3L - 3P should be considered.

(b) Outboard Petrol/Kerosene/Diesel Engines

For this 2L - 2P should be considered.

Under these two new topics, emphasis should be

given to:-

- learn and understand the functions of the various systems found on each engine,
- know and study the functions of all components found in each of the systems,
- be able to trace and overcome each of the causes of engine failure and breakdowns,
- the repair, operation and maintenance of the engines,
- disassembling and assembling techniques,
- top overhaul,
- major overhaul,
- ordering of appropriate parts and knowing their quality.

(ii) Fish Detection and Luring Methods

The above topic which at present is F-1 under the Curriculum should be treated as a common subject to both courses and be renamed subject C-6.

This is suggested so that the engineering course trainees could learn the various fish detection devices, especially as regards their care and maintenance. If possible the fault findings and repairing of the sets should be taught. This is stressed because upon their return to their respective country, the ex-trainees may be asked to take care of the sets, especially if they are employed on medium-sized vessel or small trawler boats where this expertise becomes invaluable.

(iii) Post Harvest Management I & II

This subject also should be made common to both courses. Initially treated as F-3, it should now be changed to C-7.

This is suggested so that the engineering trainees could know more of the industry and in fact this post-harvest management is an important topic for the fishing industry. It may help them to study the various possible technologies that might be employed to develop the post-harvest stage, especially on processing and preservation of catches.

(iv) Marine Fisheries Extension Services

As has been emphasised earlier, the majority of the ex-trainees might not be able to make use of their engineering expertise due to some inevitable reasons within the industry itself. They might be engaged in the task of extension work, whereby they have to be responsible for the technical dissemination for the promotion of the existing fishing industry.

Thus this important subject, which under the present curriculum is known as F-11, should now be treated as C-8.

In order to accommodate the four additional topics above, the present credits for Lectures and Practices which totalled up to 80-L and 26-P should be reviewed. As for this, I can see there are only three alternatives, i.e.:-

- to increase the number of training days, that is by increasing the present duration of the Marine Engineering Course;

- to decrease the present semester holidays;
- to minimize or delete some of the minor topics of study without prejudicing the present duration of the course as well as the overall coverage of each subject taught.

3. Suggestions for Course Improvement

In order to maintain the prominent status of SEAFDEC, the following suggestions are made so that the course could be improved from time to time:-

(i) Detail instructions on particular subjects

During my 2-year course at SEAFDEC, I found that some topics were not taught thoroughly, which made it sometimes difficult for us to understand them. It is not the language that matters but it is the instructors who tried to beat time in order to enable them to cover as much as possible. The instructors sometimes did not take into consideration whether the trainees had been given the necessary coverage of the topics being lectured on or not.

For example, in the case of "Refrigeration". The trainees could be fully instructed through lectures in the classroom, especially on the basics of the refrigeration system. In the practices that soon followed, the trainees were only taught how to start the system, how to take care of it, and how to check leakage.

The true aspects of maintenance and repair were overlooked. We were not taught how to repair leakages, how to re-gas the system, what should be done to ensure good cooling and so on. Even though we were taught in class about compressors, it is regrettable that we were not shown what the various components in the compressor look like, for example the reed valves and so forth.

We should also have been taught about the following during the workshop practices:-

- various sizes and capacities of the refrigeration plant;
- how to construct a small refrigeration system on board a small fishing boat;
- how to treat leakages in the H.P. and L.P. side of the system;
- how to recharge the refrigerant;

- fault finding in the compressors, cooling water pump, thermostatic valve and so on;
- the procedures to be observed when overhauling a compressor;
- disassembling and assembling the compressors.

The same drawbacks were faced when we were taught about Internal Combustion Engines. More credits were given to lecture hours than to the practical aspect. As an example, in the case of "High Pressure Fuel Oil Pump", we were taught only about the functions of the pump but were not taught how to overhaul or repair the pump. Disassembling and assembling of the said pump were not taught either. When the course ended we still did not know how to test the plunger and its barrel.

It was the same with the electronics subject. We were only introduced to the various electronic components and, for practice, we were guided in how to assemble a simple A.M. Radio. By right we should have been taught about:-

- how to identify each type of transistor, their functions in the circuit and their amplifying values;
- the techniques of checking the transistor;
- fault finding and how to remedy the faults by the process of "Signal Isolation Techniques";
- power Supply, AF Stage, IF Stage, and its associated circuits should be taught in detail;
- alignment of the various sets, for example transistor radios, fish finder/echo sounders and so on.

These are the drawbacks of the present curricula, just to mention a few. These are emphasized because it is felt that, if any knowledge or skill is taught only halfway or partially, the little knowledge gained will lead the trainees nowhere. The trainees should know the A B C of the trade for their own benefit or for dissemination. Also through the total coverage of the topics taught, the trainees could at least make good use of the knowledge they gained even though they were not given a chance to practice it in their professions.

(ii) Duration of Practice and Shipboard Training

The majority of the workshop practices were carried out successfully as planned. But it is different with seaboard training whereby we were taught as if we were just care-takers or spectators only. The idea of the seaboard training is undeniably good because we were trained to stay together, work together and familiarize ourselves with the exact environment of a trawler fishing vessel.

We should at least have been given the chance of participating and trying our skills in checking the nozzle injection pressure of M.V.PAKNAM when the 1000 HP Nigata engine was checked during one of our cruises.

(iii) Other Relevant Matters

Other than (i) and (ii) above, the courses at this Centre should be well planned so that they could be implemented accordingly.

The Board of Directors and Committee on Policy should review the suitability of the various topics and course duration in order to avoid the instruction rushing against time. If not, the instructors will conduct their lessons in a disorderly manner such as trying to rush against time or skip some of the important items that ought to be taught. In the end the trainees will be on the losing side and, as such, the training program may still not meet its purpose.

Apart from that, the conditions of the lecture room and the dormitory also have considerable influence on the trainees' ability to absorb the knowledge taught to them. When I was there, the lecture room was very hot in the afternoons, causing us to sweat profusely and in the end some of us fell to sleep. There is no proper water supply to the dormitory and all we did was to rely on the frequency of the downpours. At night the whole dormitory was infested with green flies whose bite leaves an itchy and uncomfortable feeling.

The above conditions create an uncomfortable learning and dwelling atmosphere which I hope have been overcome by now.

4. Improvement of Communication between the Training Department and former trainees, and exchange of publications

Upon returning to our home country, it seems that our communication "broke" from that moment. This may be due to the fact that communications broke when there was no prolonged interest between the two parties. If there was any, it may have been between the trainees and one or two of the staff members of this Centre who had a common interest, whoever they might be.

As for my case, besides the SEAFDEC Newsletter, I did not receive any other form of publication from SEAFDEC whether an original or a reproduced article.

Thus in future it is suggested:-

- to send any articles printed by SEAFDEC (besides the Newsletter) to all ex-trainees. These could be articles on research, training or aquaculture development.
- to launch a staff exchange program between the fisheries departments of all member countries. This program should be on a 6-month basis so as to let the ex-trainees concerned understand the pattern of the fishing industry of that particular country. For example, a few ex-trainees on fishing technology should be sent to the Philippines for a purse seine study.
- to compile all information on the new discoveries in the member countries in conjunction with any breakthrough in fishing or engineering technology. After having reprinted them (after approval of course), this information should be circulated to all ex-trainees in that particular subject.

I do believe that this is the only way to foster an effective and prolonged relationship between the Training Department and the ex-trainees in particular and between ex-trainees themselves.

5. Desirability of Setting up an Alumni Association

I really support this suggestion in order to unite all ex-trainees of SEAFDEC, for the ease of exchanging views and thoughts on individual professions with the common intention of promoting the existing fishing industry.

For example, an ex-trainee who has set up his own fishing unit successfully and now intends to enlarge his fleet to do deep-sea fishing, he needs advice on the management of such an enterprise. So what he needs to do is to write to this alumni association and it will in turn provide him with the necessary particulars or organize a visit for him to any proven fishing enterprise in any one of the member countries other than his country of origin.

Besides organizing the study tour, the alumni association could also refer our colleague's need to any of the "subject matter officers" of SEAFDEC for further guidance or information.

As for membership, it is suggested that all staff of SEAFDEC and all ex-trainees of SEAFDEC should automatically qualify as members of this association, which would have branch offices in each of the member countries.

I believe that apart from the above, such an alumni association might also foster ties with other international organizations with the same interests.

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Besides organizing the study tour, the alumni association could also refer our colleagues' need to any of the "subject matter" of SEAFDEC for further guidance or information.

DUTY LIST

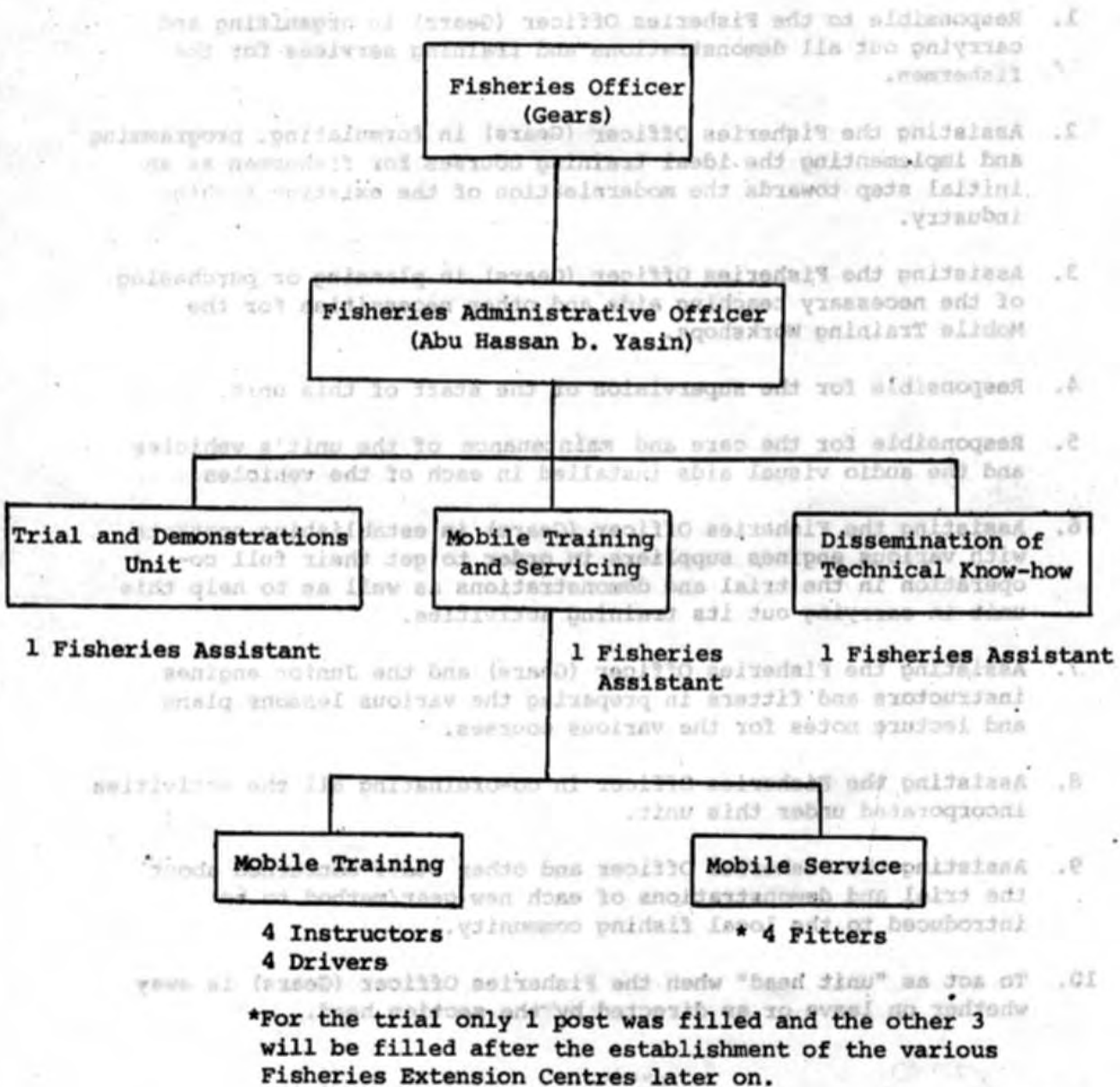
FISHERIES ADMINISTRATIVE OFFICER
(January, 1983 - Abu Hassan b. Yasin)

1. Responsible to the Fisheries Officer (Gears) in organizing and carrying out all demonstrations and training services for the fishermen.
2. Assisting the Fisheries Officer (Gears) in formulating, programming and implementing the ideal training courses for fishermen as an initial step towards the modernisation of the existing fishing industry.
3. Assisting the Fisheries Officer (Gears) in planning or purchasing of the necessary teaching aids and other necessities for the Mobile Training Workshops.
4. Responsible for the supervision of the staff of this unit.
5. Responsible for the care and maintenance of the unit's vehicles and the audio visual aids installed in each of the vehicles.
6. Assisting the Fisheries Officer (Gears) in establishing contacts with various engines suppliers in order to get their full co-operation in the trial and demonstrations as well as to help this unit in carrying out its training activities.
7. Assisting the Fisheries Officer (Gears) and the Junior engines instructors and fitters in preparing the various lessons plans and lecture notes for the various courses.
8. Assisting the Fisheries Officer in co-ordinating all the activities incorporated under this unit.
9. Assisting the Fisheries Officer and other staff concerned about the trial and demonstrations of each new gear/method to be introduced to the local fishing community.
10. To act as "unit head" when the Fisheries Officer (Gears) is away whether on leave or as directed by the section head.

AHY/ZHY.

ORGANIZATION CHART OF THE
TRAINING AND GEAR DEMONSTRATION UNIT

FISHERIES ADMINISTRATIVE OFFICER
(January, 1983 - Abu Hassan b. Yasin)



C. Comments by Mr. Wan Abdul Fatah bin Wan Omar

Former trainee - 1974 to 1976

1. Activities since Graduation from the Training Department

Upon returning to my home country in July 1976, I was assigned to an integrated Pilot Project on the Social Economic Improvement of the Artisanal Fishing Community. This project was a Joint Project between the Fisheries Department of Malaysia and the South China Sea Fisheries Development and Co-ordinating Programme, which was funded by FAO/UNDP.

I was required to work as counterpart to masterfishermen and work hand in hand with the expert. Since I was still inexperienced and had just graduated from the SEAFDEC, I considered the job challenging. The activities that I had to undertake with the expert were:

- i) introduce and demonstrate improved fishing equipment and techniques; and
- ii) introduce new fishing methods adaptable to local boats.

We began our project in Kuala Besut, which was found to be a fairly typical fishing community, along the East Coast of Malaysia. This so called Kuala Besut Fishery is primarily an artisanal/traditional/inshore type fishery, where the gears are designed not from plans but following designs handed down by their forefathers. Similarly this applies to fishing boats where no plans are needed. They are constructed by simple calculation. This is their beauty. The fishermen concentrate on the inshore areas and we called them daily fishermen.

First, we introduced the prototype of 45-footer fishing boats specially fitted with accessories such as drum winch, net, mini gallow, hauler, echo sounder, auxiliary engine, i.e., the generator. This multipurpose fishing boat was meant for fishing for a duration of 4-5 days per trip.

Having the fishing boat, we constructed the shrimp trawls, the fish trawls, the gill nets, trolling gears and stick held dip net. All these gears are constructed in such a way as to improve the local ones whereby new materials and techniques were introduced. These were said to be successful and were later adapted by the local fishermen.

I was very happy with the project because of what I had learned from SEAFDEC was fully utilized. After 1½ years with the project I had to leave due to promotion in my job. But I was proud to have achieved the objectives of SEAFDEC since the concept of training had been transferred into reality.

As present, I am in the Management and Protection of Fishery. The technology which I had acquired still applies, in fact to an even greater extent. Being an enforcement officer, I still need to know the various new methods of fishing being introduced into my country. For example there are now Moro Ami gears operated in Malaysian waters. Similarly to other types of gear such as trawl net and purse seine, these gears, according to our studies, if not controlled will destroy the fishery resources in a short time. We have implemented the mesh size of 1½ inch/38 mm of trawl net so as not to destroy the small fish, as well as the fry and eggs. Similarly, it applies to fish purse seine where they are allowed to operate in waters beyond five miles from the shore. This control would represent a historic change in the development and utilization of the living resources in the sea. And SEAFDEC is one the appropriate bodies in the region which plays a very important part in all aspects of fishery. Personally, I acknowledged this because what I learned in two years from SEAFDEC has increased my achievements in the course of my work.

2. Present Curricula

2.1 Trainees' age and background education for effective training

As to age requirements, I would say the best age would be from 23 - 35 years old. I consider this because of the stage of development in each individual. Furthermore, fitness comes during the critical period of a growing man.

At this stage, there will be no difficulty in training in terms of theory, practicals and discipline. The trainees can think wisely and they can foster relationships with the other trainees and staff and use their abilities fully.

As regards the background education for effective training, trainees should have basic knowledge relating to the fishing industry. As for Malaysian, they are confirmed in jobs with qualifications equivalent to 'O' Levels of the Overseas School Certificate and are able to speak and write English. The officers about to be trained are energetic young men to whom the most experienced knowledge in fishing industry can be given.

2.2 Course duration

The duration of the course given at present, that is two years, is sufficient including the shipboard training of 180 days. The subjects are fully covered and enough practical training is given. Furthermore, this course is rather an introduction and semi-advanced training in fishing technology. So it is best to maintain this duration.

2.3 Subjects offered

Considering the subjects offered, it is considered that all subjects are valuable and important in fishing production. There are some additional subjects which were during my time were not given such as Acoustic Equipment and Fisheries Economics, Fisheries Biology, Post-Harvest Management, and Health and First Aid at Sea. The credit hours are well balanced to suit the two-year course.

2.4 Relevance of present curricula to my actual work requirements

My actual work is closely related to fishing gear technology & navigation and I fully utilize the knowledge acquired in SEAFDEC. Navigation helps me to sail my patrol craft of which I am the head and at the same time I teach my men proper navigation. Similarly when arresting fishermen committing an offence, I have to determine the gear used and know the various types of fish caught by any particular type of gear. Our patrol crafts are fitted with sophisticated equipment such as radar and echo sounders.

Having trained at SEAFDEC I make full use of my knowledge, apply it and then pass it on to my men.

So, there is no question of my not utilizing what have been taught. Other subjects apply to my work when an opinion is needed to improve the fishing industry.

3. Suggestion for Course Improvement

As far as I can see the course has given a wide scope of knowledge of the fishing industry. As I said earlier, there are some basic and some advanced subjects which I am going to touch upon for the sake of improvement and the benefit of trainees, i.e. I would suggest much practical training emphasizing construction and operation of various fishing gears. This sort of training is a real need and would be of use to the improvement of fishing gear technology. As it is now, the fishermen are eager for the new technology so as to get high catches and fast returns. Once we establish the most effective

5. Desirability of setting up an Alumni Association

Ever since I left the SEAFDEC, I have been thinking how to set up an alumni association. Therefore, this is an appropriate time to officially establish such an association. Every former trainee should be made aware of the importance of the association as a common goal, that is to achieve development of fisheries in this region. Every trainee should play his role by contributing morally, academically and in the form of expertise so as to fulfil these objectives.

Through this Alumni Association the trainees and SEAFDEC as a whole will benefit in every respect.

Conclusion

As a former trainee, I am deeply touched to be attending this Seminar to set up an Alumni Association and to be given the first chance to present my paper for the sake of promoting development of the fishing industry in this region. Not only my two-year course but also my participation in this Seminar will help me a lot in my actual work, besides contributing directly or indirectly to fishing development and cooperation in the interest and to the benefit of all peoples in this region.

COMMENTS ON THE TRAINING PROGRAMS OF THE
SEAFDEC TRAINING DEPARTMENT

by

THE PARTICIPANTS FROM THAILAND

A. Comments by Mr. Udom Somchaiwong

Former trainee - 1975 to 1977

1. After graduation from the Training Department, the former trainees can get the "Extra class engine driver of motor vessel" certificate from the Harbour Department by examination. They can work on commercial oil cargo vessels and the fishery vessels of the Government as oiler No.1.

2. Present curricula

2.1 Trainees' age and background education

25 - 40 years old, High-school only

2.2 Course duration

two years

2.3 Subjects offered

marine engineering course

2.4 Relevance of present curricula to my actual work requirements

The present curricula are relevant to my actual work requirements because they are suitable for work on fishery research vessels.

2.5 Proposals for modifications

No suggestion

3. Suggestions for course improvement

I think that the trainees should be taught all aspects of the main engine and refrigerator at the workshop. When they have understood everything clearly, they should practise main engine, generator, refrigerator and main switch board on M.V. PAKNAM at the pier. When they have had a practice program on board M.V. PAKNAM at sea, they will have experience in operating the engine by themselves.

4. Improvement of communication between the Training Department and former trainees and exchange of publications

Communication between the Training Department and former trainees by mail or telephone is already very good; it is not necessary to improve it. If any former trainee has a problem, he will come himself to SEAFDEC. Former trainees do not, I believe, receive technical papers or publications from SEAFDEC and they would like to receive them.

5. Desirability of setting up an alumni association

It is a very good idea to set up an alumni association so that all former trainees would have a center for exchange of knowledge and information, and as a place for meeting.

2.2 Course duration

Two years

2.3 Subjects offered

marine engineering courses

2.4 Relevance of present curricula to actual work requirements

The present curricula are relevant to the actual work requirements because they are suitable for work on research vessels.

2.5 Proposals for modification

No suggestion

Suggestions for course improvement

I think that the trainees should be taught all aspects of the main engine and refrigerator as the workshop. When they have finished everything clearly they should practice main engine, refrigerator and main switch board on N.V. FARMER at the level. They have had a practice program on board M.V. FARMER of the main engine have experience in operating the engine by themselves.

B. Comments by Mr. Yuttana Kongsawasdi

Former trainee - 1975 to 1977

1. Activities since graduation from the Training Department

Since I left SEAFDEC I have joined the Department of Fisheries, Fishery Conservation and Extension Division, and assumed the position in Chief Engineer. I am responsible for checking the engine condition of 15 marine patrol boats.

2. Present Curricula

2.1 Trainees' age and background education for effective training

Age not over 30. Trainees should have graduated from High School or Ms. 5.

2.2 Course duration

Three-year training duration.

2.3 Subjects offered

Good and found satisfactory.

2.4 Relevance of present curricula to my actual work requirements

Marine Engineering and workshop Technology

2.5 Proposals for modifications

Boat designing and a fibreglass making course should be included in the curriculum.

3. Suggestions for course improvement

The Marine Engineering Course should have new models of engine and instruments for training purposes. Regulations should be stricter during practice and shipboard training.

4. Improvement of communication between the Training Department and former trainees and exchange of publications

The Training Department should have a Center for communication between the Training Department and former trainees, and for the exchange of technical publications.

5. Desirability of setting up an alumni association

The Training Department should have an alumni association.

C. Comments by Mr. Kitti Sathanontha

Former trainee - 1977 to 1979

1. Activities since graduation from the Training Department

Since graduation from the Training Department, I have been working with the Extension Division of the Fisheries Department. My activities are as follows:

- 1.1 Planning of extension in Thailand.
- 1.2 Extension and training in aquaculture. We have a plan for extension to fishfarmers in at least 40 provinces.
- 1.3 Evaluation of extension and training in aquaculture.

2. Present curricula

2.1 Trainees' age and background education for effective training

The trainees' age should be between 25 and 30 years old and, as regards background education, the trainees should have graduated in fisheries or an engineering subject.

2.2 Course duration

The course duration of two years is suitable for lecture subjects and practicals.

2.3 Subjects offered

The trainees should receive training in marine diving because marine diving is necessary for fishing.

The subjects taught should include Fisheries Biology such as, General Botany, Ichthyology, Invertebrate Zoology I, II, Principles of Aquatic Ecology, Primary Production (Zooplankton, phytoplankton), Phycology & Advanced Phycology, since these subjects are necessary in the study of fishing technology.

2.4 Relevance of present curricula to my actual work requirements

The present curricula are relevant to my actual work requirements, because my activities comprise extension and training in aquaculture such as, how to make a floating-cage for fish culture and, also, I will become navigator of the Fisheries Department.

2.5 Proposals for modifications

During the last two years I have been an assistant instructor of the fishing course. Proposals for modifications are that shipboard training in bottom trawl should be changed to mid-water trawl, and the fishing grounds should be changed from the Gulf of Thailand to the Andaman Sea, because in the Inner Gulf of Thailand there are only few fish and many countries have extended their Exclusive Economic Zone to 200 miles. In mid-water trawl to catch pelagic fish, middle layers usually mean water layers in-between the first few metres below the surface and the first few metres above the seabed. Usually mid-water trawl is carried out in the deep sea. The boats are quite big, their engines are high powered (200-400 H.P.). For fishing at high speed, mid-water trawls can be subdivided into one boat, or two boats. As for fishing grounds and season, good fishing grounds are usually found in an upwelling area near the shoulder of a continental slope and near reefs. The depth considered preferable is within a range of 60-130 m, and above 3 in the water colour scale would be moderate.

3. Suggestions for course improvement

Work during practice and shipboard training should be more strictly supervised and there should be an instructor who can teach fisheries oceanography on board.

4. Improvement of communication between the Training Department and former trainees and exchange of publications.

Former trainees should give their names and addresses to the Training Department and inform the Department every time they are transferred so as to maintain contact after they have returned to their home countries. Thus they will receive the various publications such as the SEAFDEC Newsletter and technical papers.

5. Desirability of setting up an alumni association

An alumni association should be set for the exchange ideas and new fisheries technologies to promote fisheries development and cooperation among the Member Countries. An alumni association will be a center for contact between former and new trainees.

Present Curricula

1.1 Trainees' age and background education for education training

Age not over 30. At least N.S. 2 or equivalent.

1.2 Course duration

Two-year training duration.

1.3 Subjects offered

Data collection and sampling surveys.

1.4 Relevance of present curricula to my actual work requirements

Fishing gear and methods.

1.5 Proposals for modifications

(None)

Suggestions for course improvement

- Instruction should include more details, particularly coastal, radar and echo-sounder operation and gear.

- How to make a survey and data collection for research, e.g. landing and cruise surveys.

D. Comments by Mr. Pirochana Saikliang

Former trainee - 1978 to 1980

1. Activities since graduation from the Training Department

Since I left SEAFDEC, I have joined Marine Fisheries Division of the Fisheries Department and assumed a position responsible for stock assessment. Since then, I have done research on fishing gear (mesh size selectivity and preliminary study on estimating effective light intensity for purse seine fisheries) and sonar equipment, which purse seiners use. Now the papers are being prepared.

2. Present Curricula

2.1 Trainees' age and background education for effective training

Age not over 30. At least M.S. 5 or equivalent.

2.2 Course duration

Two-year training duration.

2.3 Subjects offered

Data collection and sampling surveys (Statistics).

2.4 Relevance of present curricula to my actual work requirements

Fishing gear and methods.

2.5 Proposals for modifications

(None)

3. Suggestions for course improvement

- Instruction should include more details, particularly on sonar, radar and echo-sounder operation and general repairs.
- How to make a survey and data collection for fishery research, e.g. Landing and cruise surveys.

- Shipboard training should not be less than 90 days a year and there should be more practice on board, particularly plankton sampling and fish larvae collection.

4. Improvement of communication between the Training Department and former trainees and exchange of publications

List of the trainees' addresses and functions.

5. Desirability of setting up an alumni association

An alumni association should be set up.

MODIFIED CURRICULA OF THE REGULAR TRAINING COURSE
AS PROPOSED BY THE SEMINAR

I. Fishing Technology

<u>First Year</u>	<u>Course No.</u>	<u>Subjects</u>	<u>Credits</u>	
			<u>Lecture</u>	<u>Practice</u>
	F.1	Fishing gear and Method I	15	8
	F.2	Fishery Biology I	1	-
	F.3	Post-Harvest Management I	3	-
	F.4	Fisheries Economics I	2	-
	F.5	Navigation I (Coastal Navigation)	5	1
	F.7	Fisheries Oceanography	2	0.5
	F.9	Seamanship I	2	1
	F.10	Basic Science I	6	-
	C.1	Fishery in General	1	-
	C.2	Fishing Boats	2	-
	C.3	Electronics I	3	1
	C.4	Health and first aid at sea	1	0.5
	C.5	English I	-	2
		Total	<u>43</u>	<u>14</u>

MODIFIED CURRICULA ON THE HIGHER TRAINING COURSE

<u>Second Year</u>		<u>Credits</u>	
<u>Course No.</u>	<u>Subjects</u>	<u>Lecture</u>	<u>Practice</u>
F.1	Fishing gear and Method II	16	7
F.2	Fishery Biology II	2	-
F.3	Post-Harvest Management II	2	0.5
F.4	Fisheries Economics II	2	-
F.5	Navigation II, Celestial and Radio Navigation	7	1.5
F.6	Acoustic Equipment	2	1
F.8	Marine Meteorology	2	1
F.9	Seamanship II	1	1
C.5	English II	-	1
C.6	Marine Fisheries Extension Service	3	-
	Total	37	12

Note: Field trip for Fisheries Economics 5 days

TOTAL

II. Marine Engineering

First Year

<u>Course No.</u>	<u>Subjects</u>	<u>Credits</u>	
		<u>Lecture</u>	<u>Practice</u>
E.1	General Engineering I	6	2
E.2	Marine Engine I	6	2
E.3	Internal Combustion Engine I	8	3
E.4	Marine Electricity I	4	1
E.6	Refrigeration I	3	1
E.7	Workshop Technology I	2	1.5
E.8	Basic Science II	7	-
C.1	Fisheries in General	1	-
C.2	Fishing Boats	2	-
C.3	Electronics I	3	1
C.4	Health and First Aid at Sea	1	0.5
C.5	English I	-	2
	Total	<u>43</u>	<u>14</u>

Second Year

<u>Course No.</u>	<u>Subjects</u>	<u>Credits</u>	
		<u>Lecture</u>	<u>Practice</u>
E.1	General Engineering II	5	1
E.2	Marine Engines II	4	2
E.3	Internal Combustion Engine II	5	3
E.4	Marine Electricity II	4	1
E.5	Electronics II	4	1
E.6	Refrigeration II	2	1
E.7	Workshop Technology II	2	2
E.8	Basic Science III	6	-
E.9	Seamanship III	2	-
C.5	English II	-	1
C.6	Marine Fisheries Extension Services	3	-
	Total	<u>37</u>	<u>12</u>
	Total two-year credits	<u>80</u>	<u>26</u>