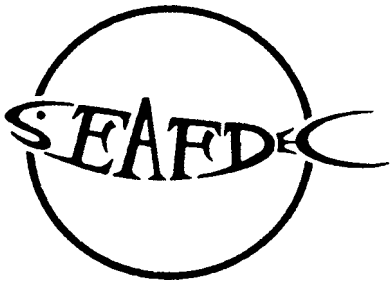
REPORT OF
THE FIFTH MEETING OF THE ASEAN-SEAFDEC FISHERIES CONSULTATIVE GROUP (FCG)

Manila, the Philippines
10 March 2003



THE SECRETARIAT
SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER

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PREPARATION AND DISTRIBUTION OF THIS DOCUMENT

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EXECUTIVE SUMMARY

The Fifth Meeting of the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) was held in Manila, the Philippines on 10 March 2003. The Meeting was attended by representatives of the ASEAN and SEAFDEC Member Countries as well as representatives from the ASEAN Secretariat, the SEAFDEC Secretariat and the Departments. The major issues discussed at the Meeting include cooperation between ASEAN and SEAFDEC, review of the progress and proposed future activities of existing ASEAN-SEAFDEC FCG programs, and proposed new programs of activities.

COOPERATION BETWEEN ASEAN AND SEAFDEC

The Meeting was briefed of outcome of the ASEAN-SEAFDEC Senior Officials Meeting on Sustainability of SEAFDEC held in February 2003 emphasizing on the closer cooperation between ASEAN and SEAFDEC through the appointment of SEAFDEC as executing agency of the ASEAN regional fisheries programs and to assist the ASEAN Secretariat in technical secretariat functions of ASEAN fisheries programs. After discussion on the proposed cooperation, the Meeting agreed as follow:

1. The Meeting recognized the need to further enhance closer cooperation between ASEAN and SEAFDEC in the fisheries sector and agreed that experts from the ASEAN Secretariat and the SEAFDEC Secretariat should have further consultations in order to consider the formulation of the appropriate mechanism and procedure for such cooperation. The outcome of these consultations should be circulated to all ASEAN and SEAFDEC Member Countries for their comments to finalize this exercise. The Meeting also agreed to submit this FCG's proposal to the 35th Meeting of SEAFDEC Council and the 11th Meeting of ASEAN Sectoral Working Group on Fisheries (ASWGFi) for their consideration.

2. The Meeting supported the importance to coordinate and develop ASEAN common positions on fish trade in international fora such as FAO Committee on Fisheries (COFI), WTO, CITES, and so on. The Meeting endorsed suggestion that ASEAN common policy or proposals on the proposed agenda of those international meetings should be discussed prior to the meetings in order to ensure the ASEAN coordinated intervention on the concerned agenda to safeguard the ASEAN interest.

PROGRESS AND PROPOSED FUTURE ACTIVITIES OF EXISTING PROGRAMS

After reviewed the progress and proposed future activities of the existing programs under the FCG Mechanism, the Meeting endorsed the following eight programs:

1) Promotion of Mangrove-friendly Aquaculture in Southeast Asian Countries;
2) Conservation and Management of Sea Turtles in Southeast Asian Countries;
3) Regionalization of the Code of Conduct for Responsible Fisheries;
4) Development of Fish Diseases Inspection Methodologies for Artificially-bred Seeds;
5) Fish Trade and Environment;
6) Coastal Resource Management;

7) Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region; and
8) Information Collection for Sustainable Pelagic Fisheries in the South China Sea

The Meeting provided recommendations to ensure effective implementation of programs and close collaboration among ASEAN and SEAFDEC Member Countries:

1. In response to the Meeting's suggestion for AQD to look into impact studies of shrimp farms to environment as part of the program on Promotion of Mangrove-friendly Aquaculture in the Southeast Asian Countries, AQD clarified that studies were conducted to monitor negative impact of effluent from shrimp farms of which the result was insignificant. Studies of nutritional dynamic in shrimp farms were also conducted as part of the program to monitor the effluent in order to identify ways to reduce impact of effluent from shrimp farm to environment. The Meeting also requested AQD to investigate the issues of introduction of exotic species in the project site as well as high production cost of mangrove-friendly shrimp culture.

2. With respect to the program on Conservation and Management of Sea Turtles in Southeast Asian Countries, the Meeting suggested MFRDMD to conduct further studies on sex balancing ratio in sea turtle hatchery to increase survival rate of sea turtles of which temperature was currently investigated. The Meeting also took note of clarification made by MFRDMD that the Department has incorporated activities on information gathering for sea turtles conservation and resource enhancement in order to collect and disseminate available information through an ASEAN-SEAFDEC regional network. The expanded activities would also cover public information programs to demonstrate seriousness of the ASEAN Member Countries on the issue.

3. As for activities under the program on Regionalization of the Code of Conduct for Responsible Fisheries (RCCRF), the SEAFDEC Secretariat explained that translation of the available regional guidelines on responsible fisheries into national languages has been put into planning. The activities would be promoted in consultation with respective Member Countries to conduct appropriate translation exercises, which the production cost for the translated regional guidelines would be borne by SEAFDEC.

4. With respect to conservation and management of coral reef, the Meeting supported by the Philippines suggested SEAFDEC Secretariat to develop a project proposal for consideration at the next meeting of SEAFDEC Program Committee. The Meeting also supported the development of ASEAN common stands to promote conservation and management of coral reef, which could be led to the development of an International Plan of Action (IPOA) on conservation and management of coral reefs. With support from Malaysia, the Meeting requested SEAFDEC to coordinate with all Member Countries and WorldFish Center (ICLARM) in development of this issue, which Malaysia offered to share her experience in conservation and management of coral reefs in marine protected areas (MPAs).

5. The Meeting suggested AQD to expand activities under the program on Development of Fish Diseases Inspection Methodologies for Artificially-bred Seeds to various national and regional institutions on the issue in response to the rapid expansion of the industry to ensure good quality seeds for aquaculture.

6. With respect to the program on Fish Trade and Environment, the Meeting supported the view to develop a common stand on fish and fishery products for discussion at WTO, which could be developed on a regular basis through existing mechanism of ASWGFi.

7. With respect to the program on Coastal Resource Management, the Meeting requested TD to expand activities to other project sites. Thailand added that TD should look into carrying capacity of the project site to develop appropriate coastal management framework particularly setting up demarcated zones as well as the needs for base line information to support coastal fisheries management including resource enhancement activities.

8. As for the project on Responsible Fishing Technologies and Practices under the Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN region, Thailand informed the Meeting that the country conducted studies on escapement ratio in shrimp trawls using TEDs and requested TD to collaborate with his country when conducting training and demonstration on the topic in the future.

9. In response to the inquiry on toxicity studies on puffer fish MFRD clarified that there were a number of studies already conducted in Japan. MFRD would therefore incorporate the requirement into the relevant project particularly on information compilation and dissemination. However, MFRD stressed that utilization of puffer fish should not be promoted particularly for direct human consumption due to high level of toxic substances in the fish and limited awareness of proper handling of this kind of fish.

10. In term of further promotion of activities dealing with the issue of chemical residues, especially chloramphenical and nitrofuran, MFRD has incorporated activities into the project on Fish Quality and Safety Management Systems under the Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN region. As for the Meeting's request to MFRD in assisting the Member Countries in laboratory validation and accreditation, MFRD expressed its willingness to extend technical assistance to train laboratory officer once the laboratory and facilities are in place.

PROPOSED NEW PROGRAMS OF ACTIVITIES

The Meeting discussed and endorsed the following four new programs of activities to be placed under the FCG mechanism starting in the year 2003:

1) Digitized Atlas;
2) Application of HACCP in the Fish Processing Industry in Southeast Asia;
3) Management of Shark Fisheries in ASEAN-SEAFDEC Member Countries; and
4) Establishment of Disease Surveillance System of Aquatic Animals

In this connection, the recommendation was also provided as follows:

1. The Meeting took note of a planned training course on fisheries resource assessment and management to be jointly conducted by Malaysia and MFRDMD from August to September 2003 at MFRDMD under the sponsorship of Malaysia Technical Cooperation Programme.

2. While noting outcome of the Regional Seminar on Harmonization of Quarantine Procedures for Live Fish among ASEAN Member Countries, which was held in Penang from 24 to 26 February 2003, the Meeting suggested Malaysia to circulate the draft guidelines for harmonization of quarantine procedures of live fish for further consideration by all Member Countries prior to the 11th Meeting of ASWGFi.

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ANNEXES

REPORT OF THE FIFTH MEETING OF THE ASEAN-SEAFDEC FISHERIES CONSULTATIVE GROUP (FCG)

Manila, the Philippines
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I. INTRODUCTION

1. The Fifth Meeting of the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) was held in Manila, the Philippines on 10 March 2003.

2. The Meeting was attended by representatives from the ASEAN and SEAFDEC Member Countries, the ASEAN Secretariat as well as the SEAFDEC Secretariat and the Departments. The list of participants appears as Annex 1.

II. OPENING OF THE MEETING

3. The Meeting was co-chaired by the SEAFDEC Deputy Secretary-General, Mr. Junichiro Okamoto and the current Chairman of the ASEAN Sectoral Working Group on Fisheries (ASWGFi), Mr. Nao Thuok.

4. The Co-chairman for SEAFDEC welcomed the participants to the Meeting. He stressed on the importance of the ASEAN-SEAFDEC FCG collaborative mechanism and its programs in the promotion of sustainable fisheries in the ASEAN region. He then declared the Meeting open.

III. ADOPTION OF THE AGENDA

5. The Agenda, which appears as Annex 2 was adopted.

IV. CONCEPTUAL WORKING PAPERS ON COOPERATION BETWEEN ASEAN AND SEAFDEC

6. In his capacity as Chairman of the ASEAN-SEAFDEC Senior Officials Meeting, Mr. Boey Chee Cheong informed the Meeting on the outcome of the ASEAN-SEAFDEC Senior Officials Meeting on the Sustainability of SEAFDEC held from 13 to 14 February 2003 in Bangkok, Thailand. He particularly stressed on the proposed closer cooperation among Japan, ASEAN and SEAFDEC, which would appoint SEAFDEC as the executing agency for ASEAN regional fisheries programs and would assist the ASWGFi in technical secretariat functions.

7. The Meeting took note of the briefing made by the Chairman of the Senior Officials Meeting and continued to discuss the cooperation between ASEAN and SEAFDEC, taking into account the conceptual working paper prepared by the SEAFDEC Secretariat (Annex 3).

8. In developing such cooperation, the Meeting deliberated on the procedural process and legal implication of the cooperation arrangement, financial implication, specific areas of cooperation, timeframe, focal points of cooperation of the two organizations, and other relevant issues.

9. As a result of the discussion on the above issue, the Meeting recognized the need to further enhance the closer cooperation between ASEAN and SEAFDEC in the fisheries sector. The Meeting agreed and proposed that experts from the ASEAN Secretariat and the SEAFDEC Secretariat should conduct further consultations in order to consider the formulation of the appropriate mechanism and procedure for such cooperation. The outcome of these consultations should be circulated to all ASEAN and SEAFDEC Member Countries for comments in order to finalize the exercise. The Meeting considered submitting this FCG's proposal to the 35th Meeting of SEAFDEC Council and the 11th Meeting of ASWGFi for their consideration.

10. The Chairman of the Senior Officials Meeting also informed the Meeting about the issue on fish trade and environment related to shark fishery brought up for discussion at the ASEAN-SEAFDEC Senior Officials Meeting. The SEAFDEC Secretariat emphasized on the importance to coordinate and develop ASEAN common positions on important issues including fish trade in international fora to safeguard the interests and priority of the ASEAN Member Countries as stated in the Resolution and Plan of Action adopted at the November 2001 Millennium Conference.

11. The Meeting recognized that a coordinated intervention with clear proposals of ASEAN and SEAFDEC Member Countries is required, instead of focusing only on national interests if such common policy or position is going to form part of international policy or initiatives at important international meetings such as the FAO Committee on Fisheries (COFI), WTO, CITES, etc. The Meeting endorsed the suggestion that ASEAN and SEAFDEC Member Countries discuss issues related to relevant agenda items prior to international meetings to ensure that such ASEAN common positions and proposals are recognized during these important international meetings.

V. REVIEW OF THE PROGRESS AND PROPOSED FUTURE PROGRAM OF ACTIVITIES UNDER FCG MECHANISM

12. The Meeting was informed on the current program of activities under the FCG collaborative mechanism. Subsequently, the responsible SEAFDEC Lead Departments presented the review of the progress and proposed future plan of activities of the following projects:

1. Promotion of Mangrove-Friendly Aquaculture in Southeast Asia (Annex 4);
2. Conservation and Management of Sea Turtles in Southeast Asian Countries (Annex 5);
3. Regionalization of the Code of Conduct for Responsible Fisheries (Annex 6);
4. Development of Fish Diseases Inspection Methodologies for Artificially-Bred Seeds (Annex 7);
5. Fish Trade and Environment (Annex 8);
6. Coastal Fisheries Management (Annex 9);

7. Follow-up Program of the Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region (Annex 10)
    7.1 Component I: Fisheries Management
    7.2 Component II: Aquaculture
    7.3 Component III: Utilization of Fish and Fishery Products; and
8. Information Collection for Sustainable Fisheries of Pelagic Fishes in the South China Sea (Annex 11).

13. In response to the inquiry on the impact studies of shrimp farms to the environment as part of the program on Promotion of Mangrove-Friendly Aquaculture in Southeast Asia, AQD explained that an impact assessment of intensive shrimp pond effluents subjected to treatment in a study site with seawater irrigation facility in Kung Krabaen Bay in Thailand, showed no significant negative impact on the mangroves. Moreover, basic nutrient dynamic studies are also conducted in shrimp ponds to enable refinement of effluent treatment.

14. With regards to the comments on the introduction of exotic species P. vannamei in a project site as well as high production cost of mangrove-friendly shrimp culture, AQD explained that results from verification and demonstration activities showed a wide variation in the levels of profitability depending on the stocking density. Since the project develops and disseminates shrimp culture technology that promotes sustainability, it is at the option of an individual country to adopt its preferred level of investment and corresponding profitability. AQD also informed the Meeting that the issue of introduction of non-indigenous shrimp species would be addressed in the forthcoming seminar-workshop scheduled in May as part of the evaluation and planning exercise for the mangrove-friendly shrimp culture project.

15. On the inquiry about the balance of sex ratio in sea turtle hatchery under the program on Conservation and Management of Sea Turtles in Southeast Asian Countries, MFRDMD clarified that the Department currently considers the use of temperature as the control parameter since it is believed to influence sex balance ratio. However, further studies on the topic need to be conducted at various localities to find the effective methods that would ensure a balanced sex ratio.

16. Regarding the proposed conduct of the sea turtle workshop and training in 2003, Malaysia offered to be the workshop and training venue, and suggested that MFRDMD discuss this further with Malaysia to elaborate on the necessary arrangements.

17. In response to the suggestion to expand efforts in addressing the issues that may have adverse effect on the ASEAN fish trade and fishing industry, MFRDMD clarified that the Department has incorporated some activities on information gathering for sea turtles conservation and resource enhancement in order to collect and disseminate available information through an ASEAN-SEAFDEC regional network. The expanded activities would also cover public information programs to demonstrate the ASEAN and SEAFDEC seriousness and commitment with regards to marine turtle conservation in the region.

18. As for the activities under the program on Regionalization of the Code of Conduct for Responsible Fisheries (RCCRF), the SEAFDEC Secretariat explained that translation of the available regional guidelines on responsible fisheries into national languages has been planned. However, due to its limited competence in translation, the SEAFDEC Secretariat would further consult with respective Member Countries to conduct appropriate translation

exercises, the production cost for the translated regional guidelines of which would be borne by SEAFDEC.

19. The Philippines suggested that the SEAFDEC Secretariat incorporates conservation and management of coral reefs as part of the regional guidelines concerning Articles 7 and 10 of the original CCRF. The Philippines also supported the development of ASEAN common stands to promote conservation and management of coral reefs, which could lead to the development of an International Plan of Action (IPOA) on conservation and management of coral reefs. Japan pointed out that the proposed activities should be carried out along the principles of ensuring sustainable fisheries in the region. The SEAFDEC Secretariat clarified that the issue should be taken up for consideration and developed into a project proposal for consideration at the next meeting of SEAFDEC Program Committee. The Meeting requested the SEAFDEC Secretariat to coordinate the participation of the Member Countries in the Seminar in Recent Advances in Coral Reef Science and Management organized by the WorldFish Center (ICLARM) to be held in Penang, Malaysia on 11 April 2003. In this regard, Malaysia offered to share their experience in conservation and management of coral reefs in marine protected areas (MPAs).

20. The Meeting was informed by Indonesia that the regional guidelines on responsible fisheries have been disseminated at the national level. In addition, the translation of the FAO CCRF and regional guidelines on responsible aquaculture into Bahasa Indonesia has been conducted and disseminated. In this connection, Indonesia offered to share the translated outcome with other countries in the region using similar language.

21. In relation to the program on Development of Fish Diseases Inspection Methodologies for Artificially-Bred Seeds, the Meeting requested AQD to expand its collaboration to various national and regional institutions in view of the rapid expansion of the industry to ensure good quality seeds for aquaculture. In response, AQD clarified that the Department has prepared a follow-up program on the establishment of disease surveillance system, which could accommodate such concerns raised at this Meeting.

22. On the program on Fish Trade and Environment, the Meeting supported the view to develop a common stand on fish and fishery products for discussion at the WTO. The ASEAN Secretariat explained that the 9th Meeting of ASWGFi concluded that a joint ASEAN position on fisheries issue should be conducted on a regular basis. In line with the existing mechanism, the ASEAN Secretariat suggested that the issue would be brought up for discussion at the next meeting of the ASWGFi.

23. With regards to the program on Coastal Resource Management, the Meeting requested TD to expand the activities to other project sites. Thailand added that TD should look into the carrying capacity of the project site taking into consideration oceanographic and fisheries resources information, in the development of appropriate coastal management framework particularly in the setting up of demarcated zones. He also pointed out that there is a need for baseline information to support coastal fisheries management including resource enhancement activities.

24. Regarding the Special 5-year Program, Thailand informed the Meeting on the country's progress in developing a pilot project related to indicators for shrimp trawl fisheries. As for the project on Responsible Fishing Technology and Practices, Thailand informed the Meeting that the country conducted studies on the escapement ratio in shrimp

trawls using TEDs and requested TD to collaborate with Thailand in conducting training and demonstration on the topic in the future. In response, TD informed the Meeting that the Department is in the process of collaborating with the FAO Global Environmental Facility (GEF) project and would further consult the Member Countries when conducting relevant training and demonstration activities in the near future.

25. As regards the project on Fish Quality and Safety Management Systems, Thailand sought clarification on the suggestion to conduct toxicity studies on puffer fish, which was raised at the last meeting of SEAFDEC Program Committee. MFRD clarified that a number of studies on puffer fish have already been conducted in Japan, and the Department will incorporate toxicity studies on local puffer fish species in its proposed project on Seafood Safety of Fish and Fish Products. However, MFRD stressed that the utilization of puffer fish should not be promoted particularly for direct human consumption due to the high level of toxin in the fish and the limited awareness of the proper handling of this kind of fish.

26. In relation to Thailand's comments on the importance of the identification of chemical residues in fish and fish products, especially chloramphenicol and nitrofuran, MFRD informed the Meeting that this will also be incorporated in the activities under the proposed project on Seafood Safety of Fish and Fish Products. As for the request that MFRD assists the Member Countries in their laboratory validation and accreditation, MFRD expressed its willingness to extend technical assistance to train laboratory officers once their laboratory and facilities are in place.

27. The Meeting expressed the appreciation and congratulated SEAFDEC for the success in the implementation of the existing FCG programs of activities in the year 2002. The Meeting urged the Member Countries and SEAFDEC to exert efforts in further promoting these activities for the benefit of the ASEAN region.

VI. PROPOSED NEW PROGRAM OF ACTIVITIES

28. The Meeting was informed on four proposed new programs of activities under the FCG collaborative mechanism. Subsequently, the responsible SEAFDEC Lead Departments presented the corresponding proposals of the following program of activities:

1. Digitized Atlas (Annex 12);
2. Application of HACCP in the Fish Processing Industry in Southeast Asia (Annex 13);
3. Management of Fisheries and Utilization of Sharks in Southeast Asia (Annex 14); and
4. Establishment of Disease Surveillance System of Aquatic Animals (Annex 15).

29. During the discussion, the Meeting was informed that Malaysia in collaboration with MFRDMD will organize a training course on fisheries resource assessment and management from August to September 2003 at MFRDMD under the sponsorship of the Malaysian Technical Cooperation Programme. Applications for the said training can be made through the Malaysian Embassy or Mission in the respective ASEAN Member Countries.

30. Regarding the program on the Establishment of Disease Surveillance System of Aquatic Animals, the Meeting was informed by Malaysia that the Regional Seminar on Harmonization of Quarantine Procedures for Live Fish among ASEAN Member Countries, was conducted in Penang, Malaysia from 24 to 26 February 2003. During that Seminar, the

draft guidelines for harmonization of quarantine procedures of live fish among ASEAN Member Countries was produced. However, this was not considered a consensus among the ASEAN Member Countries, since only four Member Countries were represented at the Seminar. In this connection, Malaysia took note of the suggestion made at this Meeting to circulate the draft guidelines for the harmonization of quarantine procedures of live fish, for consideration by the other Member Countries prior to the 11th Meeting of ASWGFi.

VII. CONCLUSION AND RECOMMENDATIONS

31. After the deliberation, the Meeting endorsed the reports on the current and proposed new programs of activities, and agreed to include the four new programs in the Programs under the ASEAN-SEAFDEC FCG Collaborative Mechanism. Based on the usual procedure, the Meeting requested the SEAFDEC Secretariat to submit this FCG report to the SEAFDEC Council, and for the Co-chairman for the ASEAN to report the outcome of the Meeting to the ASWGFi for subsequent consideration and endorsement.

VIII. CLOSING OF THE MEETING

32. In his closing remarks, the Co-chairman for the ASEAN summarized the issues and programs discussed at this Meeting and expressed his appreciation to the participants for their active participation and contributions to the Meeting. He extended his gratitude to the host country, the Philippines for the hospitality and arrangement for the Meeting, as well as to the ASEAN Secretariat and to SEAFDEC for the services of the Meeting secretariat. He then declared the Meeting closed.

Annex 1

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Evelyn L. Vargas (Ms.)	In-charge of food and accommodation
Loida Cainglit (Ms.)	In-charge of transportation
Philip Sta Maria	In-charge of airport reception
Saowanee Wanothayarnchai (Ms.)	Member
Narumol Thapthim (Ms.)	Member
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Cesar Valdez	Driver
Noel Claudio	Driver
Nestor de la Cruz	Driver
Wilson Panoy	Driver
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Annex 2

AGENDA

1. Opening of the Meeting

2. Adoption of the Agenda

3. Conceptual Working Papers on Cooperation between ASEAN and SEAFDEC

4. Review of the Progress and Proposed Future Program of Activities under FCG Mechanism
   - 4.1 Promotion of Mangrove-friendly Aquaculture in Southeast Asian Countries
   - 4.2 Conservation and Management of Sea Turtles in Southeast Asian Countries
   - 4.3 Regionalization of the Code of Conduct for Responsible Fisheries
   - 4.4 Development of Fish Disease Inspection Methodologies for Artificially-bred Seeds
   - 4.5 Fish Trade and Environment
   - 4.6 Coastal Resource Management
   - 4.7 Follow-up Program of the Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region
   - 4.8 Information Collection for Sustainable Fisheries of Pelagic Fishes in the South China Sea

5. Proposed New Program of Activities
   - 5.1 Digitized Atlas
   - 5.2 Application of HACCP in the Fish Processing Industry in Southeast Asia
   - 5.3 Management of Shark Fisheries in ASEAN-SEAFDEC Member Countries
   - 5.4 Establishment of Disease Surveillance System of Aquatic Animals

6. Other Matters

7. Conclusion and Recommendations

8. Closing of the Meeting

Annex 3

CONCEPTUAL WORKING PAPERS ON COOPERATION BETWEEN ASEAN AND SEAFDEC

The Association of the Southeast Asian Nations (ASEAN) and the Southeast Asian Fisheries Development Center (SEAFDEC) hereinafter referred to as "the Parties";

RECOGNIZING technical competence in fisheries of SEAFDEC and its active role in the development of sustainable fisheries in the ASEAN region;

RECONFIRMING the existing cooperation in sustainable fisheries development in the ASEAN region through the programs of the SEAFDEC;

RECOGNIZING the needs to further enhance closer collaboration between ASEAN and SEAFDEC in the various fisheries programs to harmonize with globalisation of the fisheries issues and in promoting sustainable fisheries;

RECALLING the successful conclusion of the "ASEAN-SEAFDEC Ministerial Conference on Sustainable Fisheries for the Food Security in the New Millennium, 'Fish for the People', and the implementation of its ASEAN-SEAFDEC priority programs;
Have reached an understanding on the following:

I. OBJECTIVE

1.1 The Parties agree to appoint SEAFDEC as the ASEAN Fisheries Executing Agency for ASEAN regional fisheries programs, in addition to the existing ASEAN-SEAFDEC priority programs. The appointment will provide for greater integration of ASEAN and SEAFDEC fisheries programs thereby avoid duplication and better utilization of resources.

II. ROLES OF THE EXECUTING AGENCY

2.1 While the regional fisheries programs shall be conducted based on "the Principles, Rules and Regulations of ASEAN" and "the Agreement Establishing SEAFDEC", the following modalities shall be pursued:

2.1.1 SEAFDEC and ASEAN shall develop and implement regional fisheries programs in accordance with the ASEAN priorities;

2.1.2 SEAFDEC shall be entrusted as the Executing Agency of ASEAN regional fisheries programs, in addition to the existing ASEAN-SEAFDEC fisheries programs;

2.1.3 SEAFDEC shall also serve as the technical secretariat for the ASEAN Sectoral Working Group on Fisheries (ASWGFi) to assist in the promotion, implementation and monitoring of ASEAN regional fisheries programs;

2.1.4 SEAFDEC shall collaborate with the ASEAN Secretariat, through the ASWGFi or other designated subsidiary bodies, to assist in coordination/implementation work of these regional fisheries programs;

2.1.5 To promote the close coordination on the issues to be developed by SEAFDEC and ASEAN, the following mechanism shall be initiated;

a) SEAFDEC Secretariat shall participate in meetings of the ASWGFi and its subsidiary bodies.

b) SEAFDEC shall invite ASEAN Secretariat to annual meetings of the SEAFDEC Council and its subsidiary bodies.

c) SEAFDEC shall include discussion on ASEAN regional fisheries programs in annual meetings of the SEAFDEC Council and its subsidiary bodies.

Annex 4

PROMOTION OF MANGROVE-FRIENDLY AQUACULTURE IN THE SOUTHEAST ASIAN COUNTRIES: MANGROVE-FRIENDLY SHRIMP CULTURE PROJECT

OVERALL REVIEW OF THE PROPOSED PROGRAM

For the remaining four months of the Project in 2003, AQD will continue to coordinate the four verification and pilot demonstration activities and the two research studies, as well as intensify the dissemination of information on mangrove-friendly shrimp culture techniques in the region. In addition, the Regional Seminar-Workshop on Mangrove-Friendly Shrimp Aquaculture will be convened in May 2003, which shall also serve as the End-of-the Project Activity.

1. VERIFICATION AND PILOT DEMONSTRATION

Four activities have been implemented under the Project, in four project sites: in the Philippines (Dumangas Brackishwater Station (DBS) of AQD), Thailand, Vietnam, and in Myanmar.

1.1 Verification and refinement of intensive shrimp culture techniques (Philippines)

The activity at AQD's DBS in the Philippines aims to develop strategies for mangrove-friendly shrimp culture that include crop rotation; use of partial and/or zero discharge system; use of probiotics; bio-augmentation or microbial inoculants; and use of low salinity levels for shrimp culture. These are based on results of verification studies conducted by AQD earlier and which need to be refined further for packaging and dissemination.

Following the AQD's system that was successfully implemented in 2001, the activity which was started in mid-2002 and will continue in 2003, makes use of stocking densities between 15 to 25 pcs/m2. This is almost half the density used during the successful runs in 2001. The objective is to further improve the quality and size at harvest, which is expected to be twice as much (at >30 to 40 g). This 2002-2003 activity will make use of a common reservoir and sedimentation pond.

1.2 Verification and refinement of intensive shrimp culture techniques (Thailand)

Three activities have been implemented in three project sites in Thailand: (1) Integrated Physical and Biological Technologies for Recycling in Shrimp Farming in Songkhla; (2) Mitigation Measures of Effluents from Shrimp Farming on Mangroves and Coastal Resources in Phuket; and (3) Evaluation of Seawater Irrigation for Intensive Marine Shrimp Farming at Kung Krabaen Bay, Chantaburi.

1.2.1 Integrated physical and biological technologies for water recycling in shrimp farming

Phase I of this study, conducted at the Marine Shrimp Research and Development Center, Department of Fisheries in Songkhla, Thailand, was completed in 2001. Phase II, which was started in early 2002 and will go on until 2003, aims to evaluate the efficiency of oyster

(*Crassostrea lugubris*), green mussel (*Perna viridis*), and seaweeds (*Gracilaria fisheri*) on quality improvement of effluents from shrimp ponds. This study was designed to understand the efficiency of the aquatic organisms (i.e., oysters, mussels, and seaweeds) used in the biological treatment, on water quality improvement.

1.2.2 Mitigation measures of effluents from shrimp farming on mangroves and coastal resources

This activity, which is implemented at the Andaman Marine Shrimp Research and Development Center, Phuket, Thailand, aims to assess the mitigation measures of effluents from shrimp ponds in order to make shrimp aquaculture friendly to the mangroves and coastal areas. The pond effluents are released to discharged canals planted with marine algae (*Caulerpa* sp.) and stocked with mollusks. Water samples are collected every 10-15 days from the shrimp ponds, discharged canals, and sedimentation pond. Water samples in the bay fronting the project site is being collected once a month. Construction of grow-out ponds and water canals has just been completed in mid-2002. Culture ponds have been prepared for shrimp fry stocking during the third quarter of 2002. This activity will continue in 2003.

1.2.3 Evaluation of seawater irrigation for intensive shrimp farming

This activity, which is implemented at the Kung Krabaen Royal Development Study Center in Chantaburi, Thailand, has four sub-studies, namely: (a) Impact assessment of the intensive shrimp farming under seawater irrigation facility on the sediment and water qualities of Kung Krabaen Bay; (b) Variation of sediment and water qualities in intensive marine shrimp farm drainage canals; (c) Use of mangrove forests as wetland treatment unit for shrimp farm effluents; and (d) Variation of mangrove forests at Kung Krabaen Bay.

1.2.3.1 Impact assessment of intensive shrimp farming under seawater irrigation facility on the sediment and water qualities of Kung Krabaen Bay

Partial results of the study in 2000-2002 indicated that the nutrients of the effluents from shrimp farms near the Bay have not shown any impact on the water of the Bay. However, the sediments in the surface bottom soil of the Bay had higher accumulated nutrients in the inner part of the Bay (canals and shoreline) than at the outer area (middle area of the Bay). Data on the water qualities of the Bay and treatment canals did not show any effect from the effluents from shrimp farms. Monitoring of the parameters will be ongoing until 2003.

1.2.3.2 Variation of sediment and water qualities in intensive marine shrimp farm drainage canals

Results in 2001 from 5 stations in water treatment canals (drainage canals), indicated that: the 2001 data on the thickness of settled sediments was higher than in 2000; and hydrogen sulfide has been recorded in higher amount. The quantities of hydrogen sulfide found in water treatment canals could affect the meiofauna, microfauna, benthos and aquatic animals in the bottom surface. From these results, it would be necessary that every 2-3 years, the water treatment canals or drainage canals should be properly managed (i.e., digging up to clean the bottom of the canals). Monitoring of the parameters in the drainage canals used for this study, will continue until 2003.

1.2.3.3 Use of mangrove forest as wetland treatment unit for shrimp pond effluents

Results from 2000-2001 showed that *Avicennia alba* has the highest growth rate among the other mangrove species. The study on the efficiency of mangrove forest

on water treatment was carried out using low nutrient wastes and high nutrient wastes coming from shrimp farms. Partial results in 2002 indicated that there was no significant difference in the control and treatments using low and high nutrient loading system. *Avicennia alba* and *Bruguiera gymnorrhiza* had the best performance among four mangrove species used.

It should be noted however that mangrove species have low nutrient requirements from the soil as they are able to get CO2 from the air. Monitoring of the parameters will continue until 2003.

1.2.3.4 Variation of mangrove forests at Kung Krabaen Bay

Since the growth and survival of mangroves around Kung Krabaen Bay remains the same as in 2000 and 2001, it could be concluded that the wastewater from shrimp farms had no negative effect on the natural mangrove area. Monitoring of the growth parameters will however continue in 2003.

1.3 Verification of semi-intensive shrimp culture techniques (Vietnam)

This activity is being implemented in Phu Long, Cat Hai District, Hai Phong, Vietnam. Two 0.8 ha ponds were constructed in 2000 for this activity, where a series of verification runs of *P. monodon* culture were conducted in 2000 and 2001.

For 2002, one pond was used for *P. monodon* production while the other pond for *P. vanamei*, applying the semi-intensive culture systems. The big pond with mangroves is used as water settlement and bio-filter pond to avoid the entry of disease carriers from outside sources. This activity will continue in 2003.

1.4 Verification of semi-intensive shrimp culture techniques (Myanmar)

The pond area used for the two verification runs in 2001-2002 is owned by the Department of Fisheries-Myanmar located in Kyauktan near Yangon, Myanmar. The 2001-2002 runs were successful with an average production of more than 7.0 tons/ha/crop, considering that many ponds near the project site have been devastated by WSSV. Another project site outside Yangon will be developed under the Project in the later part of 2002. Verification runs in this new site as well as in the original site, will continue in 2003.

2. RESEARCH

Two research activities are being carried out under the Project: (1) Nutrient cycles; and (2) Capacity of mangroves to absorb nutrients.

2.1 Nutrient cycles

Phase I of the activity was completed in 2001. Phase II, which was started in 2002, intends to evaluate the environmental impact of intensive shrimp culture, based on actual conditions with the integration of green water techniques with seaweed and bivalves as biofilters in a closed recirculating pond system. Result of the second run in August 2002 has identified further areas for improvement, and a third run has been planned from the later part of 2002 until 2003.

2.2 Capacity of mangroves to absorb nutrients

This activity has two components: the constructed mangrove wetland at AQD's DBS; and impounded mangrove wetlands in Ibajay, Aklan (northern Panay). Runs are still ongoing and will continue through 2003.

3. PRODUCTION OF INSTRUCTIONAL MATERIALS (INFORMATION DISSEMINATION)

Instructional materials such as State-of-the-Art Compilation on Mangrove-Friendly Shrimp Culture Techniques were produced in 2001. The Manual as final output of the Project has been prepared for printing in the later part of 2002. Translation of the Manual into five major languages, i.e., Thai, Vietnamese, Filipino, Burmese, and Malay (Bahasa Indonesia), has also been started. Publication of the translated versions and their dissemination will continue in 2003. Distribution of the other information materials including the Project Video Production will also continue until 2003.

4. REGIONAL SEMINAR-WORKSHOP ON MANGROVE-FRIENDLY SHRIMP AQUACULTURE: END-OF-PROJECT WORKSHOP

This Workshop will be conducted in Iloilo City, Philippines in May 2003. The main objective of the Workshop is to assess the output of the Project activities, and compare this with experiences from other countries in the region. The Workshop will also initiate the preparation of the regional guidelines for the responsible use of mangroves for aquaculture, as indicated in the Regional Guidelines for Responsible Aquaculture as adopted during the 2001 Government Consultation on the Regionalization of the Code of Conduct for Responsible Fisheries; Aquaculture Development. The expected output of the Workshop shall therefore include: a compendium of successful mangrove-friendly shrimp culture practices within the region; and position paper on responsible mangrove-friendly shrimp aquaculture to serve as basis for policy formulation by the Southeast Asian countries.

LIST OF THE PROGRAMS PROPOSED FOR THE YEAR 2003

Program/Project/Activity	Duration	Remarks
Promotion of Mangrove-friendly Aquaculture in the Southeast Asian Countries		
1. Verification and Pilot Demonstration		
1.1 Verification and refinement of intensive shrimp culture techniques (AQD, Philippines)	Jan-Mar 2003	
1.2 Verification and refinement of intensive shrimp culture techniques (Thailand)	Jan-Mar 2003	
1.3 Verification and refinement of semi-intensive shrimp culture techniques (Vietnam)	Jan-Mar 2003	
1.4 Verification and refinement of semi-intensive shrimp culture techniques (Myanmar)	Jan-Mar 2003	
2. Research		
2.1 Nutrient cycles	Jan-Mar 2003	
2.2 Capacity of mangroves to absorb nutrients	Jan-Mar 2003	
3. Information Dissemination		
3.1 Dissemination of the Manual including its translated versions, and other information materials	Jan-Mar 2003	
3.2 Regional Conference on Mangrove-Friendly Aquaculture: End-of-Project Workshop	May 2003	

Annex 5

CONSERVATION AND MANAGEMENT OF SEA TURTLES IN SOUTHEAST ASIAN COUNTRIES

OVERALL REVIEW OF THE PROPOSED PROGRAM

Project 1: Sea Turtle Tagging Survey

Activity 1.1: PIT tagging

Passive Integrated Transponder tags, or PIT tags are small microchips (about the size of a grain of rice) that are injected into a turtle's shoulder muscle using hand-held applicator gun. PIT tags are now popularly used in turtle ecological studies for permanent identification of individual animal. In order to have a comprehensive tag and recover data, PIT tags will be used to supplement existing flipper tagging. PIT tags, applicators and readers will be purchased and distributed to all member countries. In addition, the PIT tagging manual will also be produced and distributed to member countries with the aims to provide guidelines for a proper tagging technique and to standardize tagging work in the region.

Activity 1.2: Satellite tagging

This activity aims to develop a number of satellite tagging or satellite telemetry to determine the migratory and distribution patterns of sea turtles in the region. Present pressure and threats to all turtle species in the region deserve quick data acquisition and the findings of satellite tagging have a strong management implication. This activity will be conducted in collaboration with existing SEASTAR (Southeast Asia Sea Turtle Cooperative Research) project, led by Kyoto University.

Project 2: Sea Turtle Hatchery Management Studies

Activity 2.1: Field study on green turtle in Malaysia

The field study on green turtle (*Chelonia mydas*) in Malaysia will be carried out from Apr. to Sep. at the following turtle beaches: Redang Island, Perhentian Island, Geliga, Chendor and Segari. Specific studies to be conducted will include: (i) field incubation (hatch success, emergence success and other relevant parameters), (ii) field sand and nest temperatures (natural and artificial incubation), (iii) field experiments to improve incubation success, (iv) sex ratio, (v) hatchling performance, (vi) hatchling dispersal and mortality. Data derived from the above studies will be analyzed from Sep to Dec. 2003.

Activity 2.2: Field study on green turtle in Thailand

The field study on green turtle (*Chelonia mydas*) in Thailand will be carried out from May to Sep. at the following turtle beaches: Khram Island and Kra Island. Basic data derived from (i) field study on incubation biology (hatch success, emergence success and other relevant parameters), (ii) field study on profiling sand and nest temperature (natural and artificial incubation), (iii) field experiments to improve incubation success, (iv) sex ratio study will be analyzed from Sept. to Dec.

Activity 2.3: Sea Turtle workshop / training

The Workshop on Southeast Asia Sea Turtle Associative Research (SEASTAR) is a current platform where sea turtle scientists meet and discuss their research findings. The fourth

annual workshop will most probably be held in one of the member countries in December 2003. One officer from each member country: Cambodia, Myanmar, Vietnam, Indonesia, Brunei Darussalam, Philippines, and Malaysia will be sponsored for the participation. Relevant training course will also be conducted during the workshop.

Project 3: Study on the Conservation and Enhancement of Sea Turtle Resources

Activity 3.1: Assessment of Threats on Sea Turtles

The study will be conducted by field visits to selected turtle harvest areas, nesting and foraging habitats, and preparing questionnaires that are distributed to all ASEAN-SEAFDEC member countries. The data will be analysed and the result will be used as basis to improve the current measures on sea turtle conservation and resources enhancement in this region.

Activity 3.2: Information gathering for Sea Turtles Conservation and Resources Enhancement

This activity will be focused on the collection of available information on the research, conservation, enhancement and management of sea turtle resources in ASEAN-SEAFDEC member countries. In this connection, a regional network of sea turtles on the various activities will be built up. All information will be compiling and publish for the international distribution.

ENVISAGED OUTCOMES OF THE PROPOSED PROGRAM

Once the initiation of tagging (external flipper tagging) work for all countries in the region completed, then the next step is to introduce the other new tagging methods. PIT tagging can supplement flipper tagging. The former has advantage over the latter as the PIT tags have low rate of tag loss. There is an urgent need for protection of critical sea turtle habitats. Satellite tagging can help provide quick information as compared to both external and internal tagging.

Hatchery program as a common tool in conserving sea turtle resources in the region is most likely producing an imbalanced sex ratio and reduced hatch success. There is an urgent need for the development of a proper conservation strategy in hatchery management. Information gained about the best methods for maximizing production of hatchlings of a balanced sex ratio and high hatch success will be directly applied at all hatcheries in the region subject to local condition.

The assessment study on threats on sea turtles will clarify the status of incidental capture of sea turtles by fishing gears, habitat loss and degradation and other potential threats (land development, pollution, debris, artificial lighting, and etc.). Information gathering and exchange through the network will promote a better understanding about various activities on sea turtles.

LIST OF THE PROGRAM PROPOSED FOR THE YEAR 2003

Program/Project/Activity	Duration	Remarks
Conservation and Management of Sea Turtles in Southeast Asian Countries		
1. Sea Turtle Tagging Survey		
1.1 PIT tagging	Apr-Sep 2003	New activity to complement SEASTAR Project
1.2 Satellite tagging	May-Oct 2003	
2. Sea Turtle Hatchery Management Studies		
2.1 Field study on green turtles in Malaysia	Apr-Dec 2003	
2.2 Field study on green turtles in Thailand	May-Dec 2003	
2.3 Workshop/training	Dec 2003	
3. Study on the Conservation and Enhancement of Sea Turtle Resources		New Project
3.1 Assessment of threats on sea turtles	Apr-Dec 2003	
3.2 Information gathering for sea turtles conservation and resources enhancement	Apr-Dec 2003	

PROGRAM DOCUMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism
Program Title: Conservation and Management of Sea Turtles in Southeast Asian Countries
Lead Department: Marine Fishery Resources Development and Management Department
Lead Country: Malaysia
Total Duration: 2000-2003
Proposed 2003 Budget: USD 43,360

1. INTRODUCTION

Sea turtles are highly migratory animals and are known to inhabit the waters of the Southeast Asian region regardless of the geographical and political boundaries. A regional cooperation among member countries in conserving these endangered species is crucial as to ensure their continued survival.

Hatchery program as a common tool in conserving sea turtle resources in the region is most likely producing an incorrect sex ratio and reduced hatch success. In addition, hatchling healthiness and imprinting are two new issues in hatchery management that the managers should equally concern.

Recent population modeling suggests that conservation of eggs and hatchlings, without concurrent conservation of the older life stages, may be of limited use as they move from waters of one nation to another. Conservation efforts in one country may be jeopardized by activities in other countries. Lack of cooperative regional efforts can lead to an ineffective sea turtle management, socio-economic and cultural degradation, wastage and misuse of limited manpower and financial resources. An appropriate management of sea turtle populations, their associated habitats, and coastal ecosystems can contribute to the enhancement and recovery of sea turtle population and their sustainability state of resource. This study will assess the fishery and non-fishery sectors that negatively affect the sea turtle population in the ASEAN-SEAFDEC member countries.

2. PROGRAM

2.1 Objectives

The objectives of Sea Turtle Tagging Survey are: (i) to tag and identify individual sea turtle of all species in the region, (ii) to understand turtle biology – migration, reproduction, growth, mortality etc., (iii) to estimate population size, and (iv) to use information gained from the study for a proper management of sea turtles in the region. While the objectives of Sea Turtle Hatchery Management Studies are: (i) to understand the incubation biology of eggs and hatchlings from natural and artificial environments, (ii) to evaluate the management of hatchling production in the study area, and (iii) to formulate specific management recommendations to help improve existing conservation practices.

The objectives of Study on the Conservation and Enhancement of Sea Turtle Resources are: (i) to determine the status of incidental capture of sea turtle in fishing gears. (ii) to determine and quantify turtle and egg harvests for subsistence and trade (iii) to identify and determine the status of habitat loss and degradation and other potential threats (land development,

pollution, debris, artificial lighting etc.) and (iv) to gather and exchange information on sea turtles through a regional network to be built up and to publish it as a report on for international distribution.

2.2 Program description

2.2.1 Sea Turtle Tagging Survey

Tagging work in a few participated member countries began in 1998 with the use of standard coded inconel tags distributed by MFRDMD. In 2002, the implemented project aims to enhance public awareness about tagging program, to standardise tagging work, and to improve data management. This is conducted through: (i) the production and distribution of turtle species identification sheets and tag-recovery flyers, (ii) the production and distribution of tagging manual, and (iii) the purchase or development of computer program for tagging data management.

2.2.2 Sea Turtle Hatchery Management Study

The scope of study was aligned to suit the approved budget. Results of the study conducted in Malaysia indicated that: (i) green turtle nests were unevenly distributed on turtle beach of Pulau Redang, (ii) incubation success was high for eggs incubated naturally than those produced from hatcheries, (iii) sand temperatures were higher in hatcheries than that of nesting beaches, thus affecting hatchling sex ration, and (iv) shades covered on top of the hatcheries gave positive impact in reducing sand temperature. To enhance the reliability of the data, the 2001 study was a repetition of the one conducted in 2000. The 2002 study is focused on (i) field study on incubation biology (incubation success and other relevant parameters) of natural and artificial nests, (ii) field study in profiling sand and nest temperature for natural and artificial nests, (iii) field experiments to improve incubation success, (iv) sex ratio, (v) hatchling orientation, and (vi) hatchling performance.

2.2.3 Study on the Conservation and Enhancement of Sea Turtle Resources

This Project is a new project that will start from the year 2003. The project comprise two activities: Assessment of threats on sea turtles; and Information gathering of sea turtles conservation and resources enhancement.

3. PROGRESS

3.1 Sea Turtle Tagging Survey

The project is still in progress. Turtle species identification sheets and tag-recover flyers will be ready for distribution by the end of October 2002. The tagging manual and computer program for tagging data management can be completed by the end of this year.

3.2 Sea Turtle Hatchery Management Studies

All field studies will be completed by mid-October 2002. Results of the laboratory analysis of samples for sexing will be ready by the end of November. Presentation of the results will be made during the SEASTAR turtle workshop on 16-19 December 2002 in Bangkok.

4. PROPOSED FUTURE ACTIVITIES

Project 1: Sea Turtle Tagging

Activity 1.1: Sea turtle Tagging Survey

In order to have a comprehensive tag and recover data, PIT tags will be used to supplement existing flipper tagging.

Activity 1.2: Satellite tagging

This activity will be conducted in collaboration with existing SEASTAR project, South East Asia Sea Turtle Associative Research, that is led by Kyoto University.

Project 2: Sea Turtle Hatchery Management Studies

Activity 2.1: Field study on green turtle in Malaysia

The field study on green turtle in Malaysia will be carried out from April to September at several turtle beaches in the East and West Coast of Peninsular Malaysia

Activity 2.2. Field Study on green turtle in Thailand

The field study on green turtle in Malaysia will be carried out from May to September at Khram Island and Kra Island.

Activity 2.3. Turtle workshop / training

The fourth Workshop on Southeast Asia Sea Turtle Cooperation Research (SEASTAR) will most probably be held in one of the member countries in December 2003. Relevant training course will also be conducted during the workshop.

Project 3: Study on the Conservation and Enhancement of Sea Turtle Resources

Activity 3.1: Assessment of Threats on Sea Turtles

The study will be conducted by field visits to selected turtle harvest areas, nesting and foraging habitats, and preparing questionnaires that are distributed to all ASEAN-SEAFDEC member countries.

Activity 3.2: Information gathering for Sea Turtles Conservation and Resources Enhancement

This activity will be focused on the collection and dissemination of available information on the research, conservation and management of sea turtle in ASEAN-SEAFDEC member countries through a regional network to be built up.

Annex 6

REGIONALIZATION OF THE CODE OF CONDUCT FOR RESPONSIBLE FISHERIES

1. INTRODUCTION

To help ensure that future generations can avail themselves of the resources of the sea and inland waters, the Code of Conduct for Responsible Fisheries (CCRF) was adopted during the 8th Session of the FAO Conference held on October 31, 1995. SEAFDEC supports the formulation and implementation of the CCRF and upholds the general principles and standards provided therein. To fulfill this obligation and to introduce the CCRF in Southeast Asia, SEAFDEC, as the premier fisheries center in the region with a long-term commitment to sustainable development and management of the region's fisheries and coastal resources, has initiated a rather comprehensive project of what is known as the Regionalization of the Code of Conduct for Responsible Fisheries.

The need to regionalize the Code was to examine, clarify and elaborate the generic articles of the global CCRF by establishing a set of guidelines considering regional specificities including fisheries structure, ecosystems, cultural, social and economic factors as well as issues of importance in Southeast Asia. Further, the regionalization process shall also facilitate the implementation of the CCRF at the national level, where it matters most.

2. PROGRAM

The Regionalization of the Code of Conduct for Responsible Fisheries aims to address the missing and glossed over areas of the global CCRF which are critical to the fisheries development of Southeast Asia. To elicit and refine approaches and strategies in operating the Code, other relevant articles have also been explored.

Fundamentally, the RCCRF program establishes four phases of regionalization exercises focusing on Fishing Operations, Aquaculture Development, Fisheries Management, and Fisheries Post-Harvest Technology and Trade. To date, SEAFDEC has completed two (2) regionalization exercises which developed the regional guidelines for Article 8 (Aquaculture Development) and Article 9 (Responsible Fishing Operations) of the CCRF. In the pipeline is the Regionalization of Article 7 (Fisheries Management) of the global CCRF including the harmonization of Article 10 (Integration of Fisheries into Coastal Area Management) with Article 7.

The Regionalization of the Code of Conduct for Responsible Fisheries – Phase III: Fisheries Management specifically aims to address the missing and diluted areas of the global CCRF with respect to small-scale/coastal fisheries which is the dominant fisheries sector in Southeast Asia. It also clarifies relevant areas and issues of the global CCRF on industrial or commercial fisheries.

To achieve the objectives of the regionalization exercise, a series of processes and activities were undertaken including the identification of regional core experts and advisors; the governments endorsement of the core of experts; organization of pre-workshops and technical meetings to elicit national views on the global CCRF; mobilization of core expert

workshops for the preparation of the regional technical guidelines both for commercial/industrial and small-scale/coastal fisheries; and the drafting of the two separate regional guidelines for commercial/industrial fisheries management and small-scale/coastal fisheries management, respectively.

3. PROGRESS

To simplify the two regional guidelines, a Pre-Meeting was conducted among key technical officers of MFRDMD, TD and the Secretariat from August 12 to 14, 2002 at the Secretariat Office. The Pre-Meeting was organized primarily to prepare the consolidated draft regional guidelines applicable for both coastal and industrial fisheries by fusing or merging the previous two separate regional guidelines. The Pre-Meeting also discussed and finalized the necessary arrangements, administratively, logistically and technically, for the final exercises of the Regionalization of the CCRF on Article 7 (and Article 10) – the Expert-Government Consultation.

As the final step for the regionalization process, an Expert-Government Consultation was organized from October 1 to 5, 2002 in Kuala Lumpur, Malaysia to concretize and subsequently culminate the Regional Guidelines for Fisheries Management.

4. PROPOSED FUTURE ACTIVITIES

The following proposed activities will be undertaken singly by the Secretariat or may be carried out in collaboration with concerned Technical Departments and with ASEAN-SEAFDEC Member Countries

- Publication of the Regional Guidelines for Responsible Fisheries in Southeast Asia: Responsible Fisheries Management
- Dissemination and distribution of the Regional Guidelines to policy-makers and fisheries stakeholders in the Southeast Asia
- Formulate implementing and technical guidelines of the Regional Guidelines
- Develop, improve and formulate national policies to introduce the Regional Guidelines
- Initiate and implement regional and national programs supporting the Regional Guidelines including the Decentralization of Fisheries Management; Rights-Based Fisheries; Institutionalization of the Community-Based Coastal Resource Management; etc.
- Mobilization and consultation of experts for the final phase of the regionalization process of the CCRF Article 11 on Post-Harvest Practices and Trade

Annex 7

DEVELOPMENT OF FISH DISEASE INSPECTION METHODOLOGIES FOR ARTIFICIALLY-BRED SEEDS

OVERALL REVIEW OF THE PROPOSED PROGRAM

The Project generally intends to develop disease control techniques through research and development on areas related to the following: (1) establishment and standardization of diagnostic methods; (2) biology and pathogenesis of disease agents; (3) disease prevention and control; and (4) establishment of evaluation methods for residual chemicals in aquaculture. Under the extension component of the Project, Hands-on Training for the Detection of Important Viral Diseases of Shrimps and Marine Fishes, will be conducted.

1. RESEARCH

Four major research activities will be continued in 2003. However, the detailed plans of each component under these activities will be determined through evaluation during the Progress and Planning Meeting scheduled in December 2002.

1.1 Establishment and Standardization of Diagnostic Methods

This activity mainly addresses the establishment of the control methods of viral disease, focusing in the development of diagnostic techniques. This activity has five major components, which are implemented by AQD in the Philippines and other agencies in Thailand, starting in 2001 and will continue in 2003. The five components are:

1.1.1 Development of diagnostic method of hepatopancreatic parvovirus (HPV) and monodon baculovirus (MBV)

This component is conducted at SEAFDEC/AQD. Following the preliminary results in 2001, the horizontal transmission of HPV in *P. monodon* post-larvae was confirmed. The experimental infection of HPV and MBV makes possible the availability of enough viruses for purification and for monoclonal antibody (MAb) production. MAb production for virus will continue in 2003.

1.1.2 Epizootiology of economically viral diseases of wild P. monodon

This study conducted at SEAFDEC/AQD, is intended to secure wild stocks which are free from specific pathogens. This study will continue in 2003.

1.1.3 Development of shrimp cell culture in vitro

This study, conducted at the Marine Shrimp Research and Development Center in Songkhla, Thailand, is intended to refine the primary shrimp cell culture system. Result of one phase of the study which examined the effect of Vitamin C supplementation and epidermal growth factor, indicated that Vitamin C stimulated the attachment and growth of cells. Another phase of the study also successfully cultured yellow head virus using the primary cell culture system established from this study. This study will continue in 2003.

1.1.4 Viral diseases of cultured marine finfishes in Southeast Asia

One component of the study is being implemented by SEAFDEC/AQD, while the other component by the Aquatic Animal Health Research Institute (AHHRI), Thailand.

In order to enhance the capacity of piscine virus detection, cell line from snakehead was obtained from Japan for the study being pursued at AQD. In addition, the screening of virus of unexplained mortalities of rabbitfish and grouper larvae at AQD has been ongoing in 2002 and will continue in 2003. A viral survey of diseased grouper in Thailand using virus isolation and PCR techniques was conducted in 2002 by AHHRI. In the study, 35 virus isolates collected from brown-spotted grouper in Thailand, were characterized and grouped into: Betanodavirus genotype and iridovirus. Since there appeared to be some complications in the viral identification of the iridovirus, further characterization of the virus has been conducted in 2002 and will continue in 2003.

1.1.5 Establishment of preventive measures against viral nervous necrosis (VNN) in finfish hatchery

To establish a model of the preventive measures for VNN in the hatchery, grouper broodstock maintained at AQD were screened for VNN and divided into VNN-negative and VNN-positive. Monitoring of VNN virus for hatchery-produced eggs is being undertaken using a combination of cell culture and PCR detection methods. This will continue in 2003.

1.2 Biology and Pathogenesis of Disease Agents

This activity aims to study the biology and pathogenicity of parasites of economically important fishes and to establish the preventive methods for such parasites. The screening and diagnosis of parasites, biology of the gill monogenean, leech infestation and its associated blood parasites, establishment of prevention and control methods, have been conducted at AQD. The study on parasites of grouper in Thailand is implemented by AHHRI. These studies will continue in 2003.

1.3 Disease Prevention and Control

This activity aims to develop husbandry technique for disease control, especially for shrimp vibriosis. Studies are mainly focused on the utilization of two techniques such as, probiotics and green water system. This activity implemented at AQD and in Thailand, has five components.

1.3.1 Use of bacteria as biological control agent against microbial diseases in shrimp (P. monodon) and mud crab (S. serrata) hatcheries

Pathogenicity test of a candidate probiotic (Strain C1), selected in 2001 showed that the bacterium is not pathogenic to crab larvae. Preemptive colonization of the bacteria on *Artemia* cysts showed lower vibrio population in the *Artemia* nauplii. This study will be continued by AQD in 2003.

1.3.2 Screening of probiotics as biocontrol/bioremediation in the rearing of P. monodon

The study, which aims to establish experimental evaluation system for probiotics, is ongoing at AQD. Results so far have not yet refined the system. The possible continuation of this particular component will be an area for evaluation during the December 2002 Progress and Planning Meeting.

1.3.3 Antibacterial metabolites in the microbial and phytoplankton flora of the "green water" cultured P. monodon

For the screening of probiotics from green water system, pathogenicity test and salinity tolerance test for the bacteria selected in 2000 and 2001 were conducted. Bacterial interaction experiments conducted at AQD are ongoing and will continue in 2003.

1.3.4 Mechanism of the effect of tilapia-integrated water on luminous vibriosis in shrimp culture

This study aims to elucidate the mechanism of the effect of tilapia culture water to luminous *Vibrio*. Under this study, an experiment on the effect of the existence of tilapia with different biomass on *V. harveyi*, is being undertaken at AQD in 2002. The effects of other factors including fish species and micro algae will be addressed in 2003.

1.3.5 Screening of V. harveyi bacteriophage for controlling luminous disease in marine shrimp

This study is being conducted at the Samutsakorn Coastal Aquaculture Development Center (SCADC), Thailand. In early 2002, five bacteriophages have been obtained and the tests for cell lysis of 35 luminous bacterial strains were made. Results showed that 16 luminous bacterial strains were inhibited by the bacteriophages. However, the degree of cell lysis was slight, suggesting the need to improve the test system. Finalization of the study will be a subject for discussion during the December 2002 Progress and Planning Meeting.

1.4 Establishment of Evaluation Methods for Residual Chemicals in Aquaculture Products

This activity, aiming at the development of monitoring methods for residual chemicals in aquaculture, has three components.

1.4.1 Detection of pesticides in aquaculture products

This study, aiming at the standardization of the detection method of pesticides in aquaculture products, is being implemented at AQD. Twenty-two pesticides have been standardized in 2002. The standardization of other pesticides will continue in 2003.

1.4.2 Detection of antibiotic residues in aquaculture products

This study which aims to standardize the detection method of antibiotics in aquaculture products, started from August 2002 at the Marine Fisheries Research Department (MFRD), Singapore and will continue in 2003.

1.4.3 Establishment and monitoring of antimicrobial usage in shrimp aquaculture

This study is being implemented at SCADC in Thailand. The output will be finalized for the extension usage, in 2003.

2. WORKSHOPS, TRAINING AND EXTENSION

2.1 Progress and Planning Meeting, and Final Progress Meeting

The Progress and Planning Meeting for the Project to be convened in early December 2002, will be participated in by the representatives/proponents of the research activities. The progress and plan for the specific activities to be conducted under the Project in 2003 and onwards, will be the focus of the discussion during the Meeting. In addition, a Final

Progress Meeting will also be conducted in early 2003 to review the progress of the Project activities conducted in the collaborating institutions as well as formulate plans for the future activities to be conducted in the Project.

2.2 Training and Extension

In addition to the hands-on training to be conducted during the last quarter of 2002, supplemental and trouble-shooting training for the same trainers will be held in 2003, on the disease diagnostic techniques. The trainees are expected to train the staff of the national fish disease laboratories in the region which will be strengthened in terms of technical capability through the Project, as well train also representatives from the private sector and the fish farmers in each country.

3. NETWORKING

3.1 Regional Network for Fish Disease Control

AQD will continue to collaborate with other international organizations, i.e., OIE, FAO, NACA, for the development of a network for fish disease control in the region. Already initiated in 2002, this activity will continue through 2003. The focus of this scheme is on the development and dissemination of diagnosis and disease prevention control and methods.

3.2 Establishment of Disease Surveillance System of Aquatic Animals

As one of its major goals, AQD proposes to tackle a new project as an extension of the present project, on the Establishment of Disease Surveillance System of Aquatic Animals. The project aims to establish the surveillance system, placing AQD as the Technological Center for the implementation of the System.

LIST OF PROGRAMS PROPOSED FOR THE YEAR 2003

Program/Project/Activity	Duration	Remarks
Development of Fish Disease Inspection Methodologies for Artificially-bred Seeds		
1. Research		
1.1 Establishment and Standardization of Diagnostic Methods		
1.1.1 Development of diagnostic method for hepatopancreatic parvovirus (HPV) and monodon baculovirus (MBV)	Jan-Dec 2003	Implemented by AQD
1.1.2 Epizootiology of economically viral diseases of wild *P. monodon*	Jan-Dec 2003	Implemented by AQD
1.1.3 Development of shrimp cell culture *in vitro*		Implemented by MSRDC, Thailand
1.1.4 Viral diseases of cultured marine finfishes in Southeast Asia	Jan-Dec 2003	Implemented by AQD and AHHRI
1.1.5 Establishment of preventive measures against viral nervous necrosis (VNN) in finfish hatchery	Jan-Dec 2003	Implemented by AQD
1.2 Biology and Pathogenesis of Disease Agents		
1.2.1 Biology and pathogenicity of parasites of economically important fishes	Jan-Dec 2003	One component implemented AQD while specific component on parasites of grouper in Thailand is implemented by AHHRI
1.3 Disease prevention and control		
1.3.1 Use of bacteria as biological control agent against microbial diseases in shrimp (*P. monodon*) and mud crab (*S. serrata*) hatcheries	Jan-Dec 2003	Implemented by AQD
1.3.2 Screening of probiotics as biocontrol/bioremediation in the rearing of *P. monodon*	Jan-Dec 2003	Implemented by AQD Continuation will be an area for evaluation during the December 2002 Progress and Planning Meeting
1.3.3 Antibacterial metabolites in the microbial and phytoplankton flora of the "green water" cultured *P. monodon*	Jan-Dec 2003	Implemented by AQD

Program/Project/Activity	Duration	Remarks
1.3.4 Mechanism of the effect of tilapia-integrated water on luminous vibriosis in shrimp culture	Jan-Dec 2003	Implemented by AQD Effects of other factors such as fish species and microalgae will be addressed in 2003
1.3.5 Screening of *V. harveyi* bacteriophage for controlling luminous disease in marine shrimp	Jan-Dec 2003	Implemented by SCADC (Thailand) Finalization will be discussed during the December 2002 Progress and Planning Meeting
1.4 Establishment of evaluation methods for residual pesticides in aquaculture products		
1.4.1 Detection of pesticides in aquaculture products	Jan-Dec 2003	Implemented by AQD
1.4.2 Detection of antibiotic residues in aquaculture products	Jan-Dec 2003	Implemented by SEAFDEC/MFRD
1.4.3 Establishment and monitoring of antimicrobial usage in shrimp aquaculture	Jan-Dec 2003	Implemented by SCADC (Thailand)
2. Workshops, Training and Extension		
2.1 Final Progress Meeting	Early 2003	To be held in Iloilo, Philippines
2.2 Hands-on Training (supplemental and trouble-shooting)	Last quarter of 2003	Same trainees as in 2002 training
3. Networking		
3.1 Regional Network for Fish Disease Control	Jan-Dec 2003	
3.2 Establishment of Disease Surveillance System of Aquatic Animals	Jan-Dec 2003	Preparations for the extension of the Project will be along this area

Annex 8

FISH TRADE AND ENVIRONMENT

1. INTRODUCTION

The program on Fish Trade and Environment is in line with SEAFDEC's Strategic Plan on Fisheries to effectively safeguard its member countries' interests and welfare against unfair treatment which may jeopardize the national or regional fisheries resources sustainability. This program has been fittingly identified to enhance and strengthen competitiveness, cooperation and joint approaches in addressing international as well as regional issues and problems affecting fish trade and the environment in Southeast Asia through the formulation of regional fisheries policies.

Through the program, the participation of ASEAN-SEAFDEC member countries particularly the fisheries-related government agencies has become active and visible particularly in the conduct of the preparatory and negotiation works at the country level to strengthen national policy including regional positions and requirements for the trade of fish and fishery products.

The significance of the program was initially collaborated in November 1999 when the SEAFDEC Preparatory Meeting on Issues of International Fish Trade and Environment was convened to discuss about pertinent issues on fish trade and environment in order to meet squarely the demands required of the upcoming WTO Ministerial Meeting in Seattle. During the 1999 Fish Trade Meeting, recommendations were formulated and adopted based on the issues and initiatives that have been discussed internationally that have so much bearing to the region's trade of fish and environment such as Sustainable Fisheries and Sustainable Fish Trade; the US Shrimp Embargo on some ASEAN-SEAFDEC Member Countries; Fisheries Subsidies; SPS; CITES; Eco-labelling; etc.

In spite of the failure of the 1990 WTO Ministerial Meeting in Seattle to provide an acceptable global trade framework including fisheries, SEAFDEC has always gone step ahead to continuously clarify its regional requirements for fish trade. Hence, in April 2001, the Regional Technical Consultation on Fish Trade in ASEAN Region was organized. This Meeting was convened as an integral part of the ASEAN-SEAFDEC Millenium Conference. Similarly, international issues affecting the region's fisheries and trade were threshed out and recommendations were formulated subsequently to aid ASEAN-SEAFDEC member countries in dealing with these international issues and initiatives.

2. PROGRAM

The program has been formulated primarily to provide a forum for ASEAN-SEAFDEC member countries to discuss and exchange views based on the regional needs and also in response to international initiatives and other evolving fisheries situations that have serious implications to the region's trade of fish including the sustainability of the fisheries resources.

However, the inclusion of the Fish Trade Environment Program into the ASEAN-SEAFDEC Collaborative Projects was only realized in April 2000, two years after it has

been identified as a critical program for Southeast Asian member countries. Its inclusion was formalized at the Special SOM-AMAF Meeting held in Brunei Darussalam and thereafter, it has been funded regularly by the Japanese Trust Fund Project to continuously and carefully review and discuss immediate and future plan of actions against anticipated external threats to the region's trade of fish and fishery products including the sustainability of fisheries resources and the environment.

3. PROGRESS

The Program on Fish Trade and Environment has been continuously used as a forum for tackling sensitive issues in the international scene, political as well as technical, which may have serious implications in the trade of fish, environment and the sustainability of the fisheries resources in the region. A Meeting of government policy makers and technical officers from ASEAN-SEAFDEC Member Countries with an array of invited technical experts from Taiwan, Korea, China, Japan, FAO, AFF and some ASEAN-SEAFDEC member countries besetting with these problem-issues, was convened from October 14 to 16, 2002. The Meeting has tackled fish trade and environmental issues of particular importance like shark fisheries, marine turtles (by-catch) and chemical/antibiotic residues of aquacultured products. These issues were not taken up during the Millenium Conference but were repeatedly mentioned in almost all of SEAFDEC meetings preceding the Millenium Conference. At the said Meeting, the issues were technically clarified while recommendations and regional guidelines to support the implementation of the IPOA were formulated and adopted to aid ASEAN-SEAFDEC member countries in managing their respective shark fisheries. Similar fisheries management policy and technical programs were endorsed for the sustainable conservation and management of marine turtles. Finally, control and regulatory measures for chemical/antibiotic residues of farmed shrimp were developed.

4. PROPOSED FUTURE ACTIVITIES

The mobilization of the Fish Trade and Environment Program is flexible. Likewise, activities are carried out depending on the immediate requirements of the region including the degree of seriousness of the international and external threats posed to the region's fish trade and environment. However, follow-up activities to the previous ASEAN-SEAFDEC Regional Fish Trade Meetings may be conducted to ascertain that the region's interests are indeed safeguarded.

Annex 9

COASTAL RESOURCE MANAGEMENT: LOCALLY BASED COASTAL FISHERIES MANAGEMENT PROJECT

1. OVERALL REVIEW OF THE PROPOSED PROGRAM

Since 2002, the TD and the Department of Fisheries in Thailand (DOF) have implemented a pilot project on locally based coastal resource management in Pakklong Sub-District, Chumporn Province, together with the local people and the Sub-district Administrative Organization (Ao.Bo.To). The final goals of this collaborative project are the establishment of sustainable coastal resource management at local levels, the rehabilitation of coastal resources, and the alleviation of poverty. The purpose is to establish a practical framework for locally based coastal resource management (in Pathew District, Chumporn, LBCRM-PD) through encouraging fisher participation, supported by the creation of alternative job opportunities in coastal fishing communities. The TD and the DOF will extend lessons and experiences gained through the implementation of the project to other ASEAN member countries through the SEAFDEC information and training programs. The TD assists the member countries that design and implement whatever types of coastal resource management project, in collaboration with the national DOF.

Four results from the implementation of this project are expected; 1) with the LBCRM working effectively, resource users and other stakeholders can use the coastal resources in a sustainable manner; 2) an integrated approach will bring an improvement in production and living conditions at the project site; 3) Ao.Bo.To, the local people and any participatory organizations will be capable of resource management and community development activities; 4) the practices are converted into DOF policies on coastal resource management and are also transferred to SEAFDEC member countries under the FCG scheme.

The project has six major activities, i.e., 1) to conduct a base line survey (Activity 1, 2) to establish and extend a locally based coastal resource management framework (LBCRM) (Activity 2, 3) to encourage local business (Activity 3, 4) to improve capacity building through training and education programs (Activity 4, 5) to develop and deploy extension methodologies (Activity 5, 6) to rehabilitate and enhance coastal resources (Activity 6). The first phase of the project focuses mainly on the activities of a base line survey (Activity 1) and training matters (Activity 4), accompanied by a series of campaigns to enhance the awareness of coastal resource management and an improvement in extension methods (Activity 5). These components support the effective implementation of the core activities including Activities 2 and 3.

From the second year, the project will prepare for technology transfer to other member countries of SEAFDEC and regional training courses (Special Activities). Therefore, regional fisheries extension course is supportive way to widely disseminate gained experience of the LBCRM-PD implementation to regional fisheries extension officers.

2. ENVISAGED OUTCOMES OF THE PROPOSED PROGRAM

2.1 Outlines of the Project Activities

Along with the five-year plan of the collaborative project, the TD and the DOF continue to carry out the planned activities. In the second year of Phase I, the project will gradually change to two core activities (Activities 2 and 3).

Activity 1: the project places a greater emphasis on recording the results and outcomes of the surveys, while continuing regular oceanographic and environmental surveys. The socio-economic survey is directed toward the purposes of monitoring and evaluation.

Activity 2: with the government's announcement of the demarcated zones, the project assists the people and local government to establish a participatory management framework.

Activity 3: fish processing, fish cage culture and shell cultures are encouraged to increase alternative income sources. The encouragement of aquaculture must be accompanied by an appropriate allocation of suitable areas. The project suggests people's groups for micro credit to support such business activities.
Activity 4: the training courses will be designed and implemented for establishing a management framework, while enhancing local government's (Ao.Bo.To's) abilities.
Activity 5: the project develops text and manuals for awareness building. In the final period of the year, the project arranges a mid-term evaluation to review and re-plan the project activities. Advice for policy-making models on management frameworks will be included in this process.

2.2 Transferring Lessons and Experiences to Other Member Countries (Special Activities)

To attain the initial objective of the FCG scheme, the TD in collaboration with the DOF, arranges a practical training course for project design and management in the fields of coastal fisheries management and community development. The TD will conduct a feasibility study on making a project proposal in other member country(ies) under the FCG scheme, and start a new project with another host country.

2.3 Linkage to the "Resource Enhancement Project" under the Special 5-Year Program.

In relation to Activity 6, the DOF plans to install Artificial Reefs at the project site. The Resource Enhancement Project conducted by the TD will take part in this activity. The installation of artificial reefs will be monitored and evaluated. A regional workshop will be held at the CMFDC, under the scheme of the Resource Enhancement Project.

2.4 International fisheries extension course arrangement

A gained experience and lesson of the LBCRM-PD project is basic information to formulate a curriculum of fisheries extension for coastal resource management. The curriculum will emphasize on application of multi-disciplinary approaches such are community-based economic development, coastal resource management, local people' s organization development and co-management approach to design framework and syllabus of the

fisheries extension. The expected outcome of the course is to increase capacity building of fisheries officers are able to contribute local people's participation in sustainable coastal management.

LIST OF THE PROGRAM PROPOSED FOR THE YEAR 2003

Program/Project/Activity	Duration	Proposed Budget (USD)	Remarks
Coastal Resource Management			
Project 1: Locally Based Coastal Resource Management	1 year	61,000	Collaborative project with DOF in Thailand
Activity 1	1 year	9,000	
Activity 2	1 year	3,000	
Activity 3	1 year	3,000	
Activity 4	1 year	8,000	
Activity 5	1 year	3,000	
Special Activities	1 year	15,000	Feasibility studies for other member countries
International Training Course in Coastal Fisheries Management Extension	1 month (is too short, at least 6 weeks)	20,000	"Coastal resource management: Planning and extension for multi-disciplinary approaches to coastal fisheries management"

PROGRAM DOCUMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism
Program Title: Coastal Resource Management (Locally Based Coastal Resource Management Project)
Lead Department: Training Department
Lead Country: Thailand
Total Duration: 5 years (2002-2006)
Proposed 2003 Budget: USD 61,000

1. INTRODUCTION

Under the FCG scheme, since 2002, the TD and the Department of Fisheries in Thailand (DOF) have implemented a pilot project on coastal resource management in Pakklong Sub-District, Chumporn Province, together with the local people and the Sub-district Administrative Organization (Ao.Bo.To). The final goals of this collaborative project are the establishment of sustainable coastal resource management at local levels, the rehabilitation of coastal resources, and the alleviation of poverty. The purpose is to establish a practical framework for locally based coastal resource management (in Pathew District, Chumporn, LBCRM-PD) through encouraging fishers' participation, supported by the creation of alternative job opportunities in coastal fishing communities. The TD and the DOF will extend lessons and experiences gained through the implementation of the project to other ASEAN member countries through the SEAFDEC information and training programs. The TD assists the member countries that design and implement whatever types of coastal resource management project, in collaboration with the national DOF.

2. PROGRAM

2.1 Objectives

Four results from the implementation of this project are expected; 1) with the LBCRM working effectively, resource users and other stakeholders can use the coastal resources in a sustainable manner; 2) an integrated approach will bring an improvement in production and living conditions at the project site; 3) Ao.Bo.To, the local people and any participatory organizations will be capable of resource management and community development activities; 4) the practices are converted into DOF policy on coastal resource management and are also transferred to SEAFDEC member countries under the FCG scheme.

2.2 Program description

The project has six major activities, i.e., 1) to conduct a base line survey (Activity 1, 2) to establish and extend a locally based coastal resource management framework (LBCRM) (Activity 2, 3) to encourage local business (Activity 3, 4) to improve capacity building through training and education programs (Activity 4, 5) to develop and deploy extension methodologies (Activity 5, 6) to rehabilitate and enhance coastal resources (Activity 6). The first phase of the project focuses mainly on the activities of a base line survey (Activity 1) and training matters (Activity 4), accompanied by a series of campaigns to enhance the awareness of coastal resource management and an improvement in extension methods

(Activity 5). These components support the effective implementation of the core activities including Activity 2 and Activity 3.
From the second year, the project will prepare for technology transfer and regional training courses and fisheries extension course.

3. PROGRESS

According to the annual plan for 2002, the TD staff have mainly carried out activities in collaboration with the staff of the Chumporn Marine Fisheries Development Center (CMFDC).

Activity 1: socio-economic, oceanographic and fishing ground surveys are conducted on regular basis. These surveys outline the situation and trends of fisheries resource utilization and give a substantial picture of the resource and environmental conditions of coastal fisheries at the project site. The results and outcomes of the surveys will soon be available to the people and communities for them to establish a sustainable resource management framework in the demarcated zones.

Activity 2: the project enhances the people's awareness on the sustainable use of resources through a series of training and education programs. They organize community-based fishers groups and start with deeper discussion on applicable ways of sustainable use. Also, shell culture and fish cage culture groups have appeared. Community leaders have a vital role in the activities of this category.

Activity 3: women and their groups have made a rapid progress in fish processing businesses, which are additional income sources. Tambol Pakklong is becoming a prosperous production center for processed products.

Activity 4: the TD and the CMFDC prepare and implement three kinds of training course for the target groups. The trained project staff provides effective training programs, both for resource management and local businesses.

Activity 5: the TD prepares texts and visual materials for extending the concept and framework of the project activities.

Activity 6, the DOF releases juvenile fish and shrimp in collaboration with the people.

4. PROPOSED FUTURE ACTIVITIES

4.1 Outlines of the Project Activities

Along with the five-year plan of the collaborative project, the TD and the DOF continue to carry out the planned activities. In the second year of Phase I, the project will gradually change to two core activities (Activity 2 and Activity 3).

Activity 1: the project places a greater emphasis on recording the results and outcomes of the surveys, while continuing regular oceanographic and environmental surveys. The socio-economic survey is directed toward the purposes of monitoring and evaluation.
Activity 2: with the government's announcement of the demarcated zones, the project assists the people and local government to establish a participatory management framework.

Activity 3: fish processing, fish cage culture and shell cultures are encouraged to increase alternative income sources. The encouragement of aquaculture must be accompanied by an appropriate allocation of suitable areas. The project suggests people's groups for micro credit to support such business activities.

Activity 4: the training courses will be designed and implemented for establishing a management framework, while enhancing local government's (Ao.Bo.To's) abilities.

Activity 5: the project develops text and manuals for awareness building. In the final period of the year, the project arranges a mid-term evaluation to review and re-plan the project activities. Advice for policy-making models on management frameworks will be included in this process.

4.2 Transferring Lessons and Experiences to Other Member Countries (Special Activities)

The TD will conduct a feasibility study on making a project proposal in other member countries under the FCG scheme, and start a new project with another host country.

4.3 Linkage to the "Resource Enhancement Project" under the Special 5-year Program.

In relation to Activity 6, the DOF plans to install Artificial Reefs at the project site. The Resource Enhancement Project conducted by the TD will take part in this activity. The installation of artificial reefs will be monitored and evaluated. A regional workshop will be held at the CMFDC, under the scheme of the Resource Enhancement Project.

4.4 International Training Course in Coastal Fisheries Management Extension

To attain the initial objective of the FCG scheme, the TD in collaboration with the DOF, arranges a practical training course for project design and management in the fields of coastal fisheries management, community development and extension.

"Coastal resource management: Planning and extension for multi-disciplinary approaches to coastal fisheries management" is the suggested title of the international training course coastal fisheries management. The curriculum of this course highlights on multi-disciplinary approaches of fisheries management which logistically gain experience from the LBCRM-PD implementation. The TD/DOF project of Pathew district will serve as one case study and practical site to give fisheries officers and managers a concrete scenario of locally based coastal resource management.

Based on these learnings regional fisheries officers will understand diverse and multi-disciplinary approaches to and will be able to formulate extension plan of coastal management for their home countries.

Annex 10

FOLLOW-UP PROGRAM OF THE SPECIAL 5-YEAR PROGRAM ON SUSTAINABLE FISHERIES FOR FOOD SECURITY IN THE ASEAN REGION

The Special 5-year Program was initiated with clear objectives to support ASEAN Member Countries in implementing the priority issues "the Resolution and Plan of Action on Sustainable Fisheries for Food Securities for the ASEAN Region" adopted at the Millennium Conference. The Program was preliminary prepared by SEAFDEC and presented at the 24th Meeting of Program Committee, the 4th Meeting of ASEAN-SEAFDEC Fisheries Consultative Group (FCG), the 34th Meeting of SEAFDEC Council and the 10th Meeting of the ASEAN Sectoral Working Group on Fisheries (ASWGFi), respectively.

The Special 5-year Program is also regarded as one of the FCG programs. However, with its specific objectives to follow-up the implementation of the outcome of the Millennium Conference, presentation and discussion on the program would be separately conducted from other FCG programs. Due to the size of the program, the program will be presented and discussed at the project level. Ten existing Projects grouped under the Component structure(Component I: Fishery Management, Component II: Aquaculture, and Component III: Utilization of Fish and Fishery Products) have been implemented by the SEAFDEC Secretariat and Departments based on their technical competence in collaboration with ASEAN Member Countries. Furthermore, the increasing of the Special Fund enable SEAFDEC to expand activities of existing ten Projects as well as to initiate new five Projects to be implemented under the Special 5-year Program.

In principle, progress and future plan of 5-year Projects will be discussed at the SEAFDEC Program Committee Meeting and will be further reported to the ASEAN-SEAFDEC FCG and the SEAFDEC Council Meeting. However, for the 2002 program of activities, the program plan was finalized through the consultation with ASEAN Member Countries at the National Coordinator Meeting (17-19 June 2002 in Bangkok, Thailand).

Ten existing Projects and four new Projects proposed under the Special 5-year Program are summarized as follow:

Component I: Fisheries Management

SDI-1. Toward Decentralized Management for Sustainable Fisheries in the ASEAN Region
SDI-2. Improvement of Fishery Statistical Systems and Mechanisms
SDI-3. Responsible Fishing Technologies and Practices
SDI-4. Resource Enhancement
SDI-5. Identification of Indicators for Sustainable Development and Management of Capture Fisheries in the ASEAN Region
SDI-6. Information Gathering for Capture Inland Fisheries in ASEAN Countries

Component II: Aquaculture

SDII-1 Aquaculture for Rural Development
SDII-2 Supply of Good Quality Seeds

Component III: Utilization of Fish and Fishery Products

SDIII-1 Maximizing the Utilization of Fish Catch
SDIII-2 Fish Quality and Safety Management Systems

New Proposed Projects

Program Coordination
Food Security (Aquaculture)
Sustainable Coastal Fishery Management
Harvesting of Under-exploited Resource

FOLLOW-UP PROGRAM OF THE SPECIAL 5-YEAR PROGRAM ON SUSTAINABLE FISHERIES FOR FOOD SECURITY IN THE ASEAN REGION

COMPONENT I: FISHERIES MANAGEMENT

OVERALL REVIEW OF PROPOSED PROGRAM

The long-term sustainability of fisheries resources using appropriate management mechanisms is vital to ensuring a stable fish supply and achieving food security and related benefits in the ASEAN region. There is a need to improve national fisheries management frameworks to accommodate the various requirements for sustainable fisheries development in the region.

The program component I on fisheries management highlights the need for innovative management for sustainable fisheries through consultation, demonstration and dissemination of relevant approaches to management to the region. Specifically, the component intends to:

- Create awareness and promote decentralized management and rights-based fisheries to ensure sustainable fisheries in the region;
- Promote sustainable fishery statistical systems and use of indicators in support of fisheries management;
- Promote responsible fishing technologies and practices;
- Develop and promote resource enhancement; and
- Promote management of inland capture fisheries.

As endorsed by the last meeting of the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) mechanism and subsequently approved by the Council, the program component I includes 6 projects that will be implemented in the year 2003 as follows:

1. TOWARD DECENTRALIZED MANAGEMENT FOR SUSTAINABLE FISHERIES IN THE ASEAN REGION (SEC)

This project will investigate the potential implementation and promotion of the two major innovative management approaches – decentralized management for fisheries and rights-based fisheries in the region.

In 2003, it is proposed that this project will conduct the following activities:

- To continue the process of compiling and reviewing the concepts and approaches related to coastal fisheries management that have potential application in the region and the current status of coastal fisheries management in the Member Countries.
- To organize an ASEAN-SEAFDEC regional workshop on Decentralized Management for Sustainable Fisheries that addresses two major concepts namely decentralized management and rights-based fisheries.
- Based upon the outcome of the regional workshop, pilot projects to be conducted in some selected Member Countries will be identified and started.

2. IMPROVEMENT OF FISHERY STATISTICAL SYSTEMS AND MECHANISMS (SEC)

This project targets at improvement in national fishery statistical systems through capacity building of both human resources and statistical institutions and the promotion of comparable statistical systems to facilitate data and information sharing.

In 2003, it is proposed that this project will conduct the following activities:

- To continue the compilation and preparation of draft training packages for the on-site training of fishery statistical personnel.
- To organize an ASEAN-SEAFDEC Regional Workshop on the Improvement of Fishery Statistics in the ASEAN Region, which will discuss regional directions and plan for capacity building of fishery statistical personnel and to discuss the regional compilation of fishery statistics to ensure the timely provision of regional fishery statistics.
- To conduct the on-site training in CLMV based on readiness of the countries.

3. RESPONSIBLE FISHING TECHNOLOGY AND PRACTICES (TD)

The project aims to develop and promote practical responsible fishing technologies and practices in the region.

In 2003, it is proposed that this project will conduct the following activities:

- Study on Selective Fishing Gear and Devices in the ASEAN Region
- Monograph of Fishing Gear and Methods in Southeast Asia, Vol.5: Indonesia and Vol.6: Cambodia
- Selective Fishing Devices, including JTEDs Demonstrations and Experiments in the Philippines
- Workshop on estimation of discards and measures to reduce by-catch in the Indian Ocean and Western Pacific
- Training Courses in the Use of TEDs and JTEDs for Shrimp-trawling
- Production of promotional materials and Awareness Program
- Staff exchange program
- Mid-term project Evaluation Workshop
- Short course in Ecosystem Effects of Fishing
- Workshop on Safety at Sea for small Fishing Boats

4. RESOURCE ENHANCEMENT (TD)

This project addresses the importance of the optimum use of inshore waters through the development of various feasible resource enhancement activities.

In 2003, it is proposed that this project will conduct the following activities:

- Environmental survey studies on Artificial Reefs, Set net and Marine Cage Culture project sites, (Chantaburi Province, Thailand) in cooperation with the Management of Sustainable Coastal Fisheries Program.
- Training/Workshop on Artificial Reefs and Stationary Fishing Gear (Set net) Design and Construction
- Regional short-term Training Course in Resource Enhancement Methodologies

- Production of Extension Packages on Resources Enhancement
- NOAA-SEAFDEC Workshop on Marine Protected Areas

5. IDENTIFICATION OF INDICATORS FOR SUSTAINABLE DEVELOPMENT AND MANAGEMENT OF CAPTURE FISHERIES IN THE ASEAN REGION (MFRDMD)

This project focuses on studies and the promotion of practical indicators for sustainable development and management of capture fisheries in the region.

In 2003, it is proposed that this project will conduct the following activities:

- Second Regional Technical Consultation
- Implementation of pilot projects in ASEAN countries
  - Brunei Darussalam – trawl fishery
  - Indonesia – "mini" purse seine fishery
  - Malaysia – trawl fishery
  - Philippines – ring net fishery
  - Vietnam – small-scale fishery
- Project coordination and technical support
- Use of catch-effort and socio-economic indicators for fisheries management
- Maximizing the use of size data as an indicator for the development and management of capture fisheries
- Application of remote sensing and GIS to support the study on the use of indicators
- Training in acoustic research and methodology

6. INFORMATION GATHERING FOR CAPTURE INLAND FISHERIES IN ASEAN COUNTRIES (MFRDMD)

The project will investigate and promote the practical approaches in information gathering for the management of inland capture fisheries in the region.

In 2003, it is proposed that this project will conduct the following activities:

- First Regional Technical Consultation
- Compilation and documentation of data on fisheries, fishing gear and methods, fish species, environmental conditions and socio-economic data.
- Implementation of pilot projects for the riverine systems, lakes/reservoirs and flood plains.
- Development of database
- Application of remote sensing and GIS for the development and management of freshwater capture inland fisheries.
- Capacity building/on-the-job training for freshwater fish taxonomy and freshwater fish larvae identification

PROJECT DOCUMENT

Program Categories: Special 5-year Program
Project Title: Toward Decentralized Management for Sustainable Fisheries in the ASEAN Region
Lead Department: The Secretariat
Lead Country: Thailand
Total Duration: 4 years (2002-2005)
Proposed 2003 Budget: USD 40,000

1. INTRODUCTION

The long-term sustainability of fishery resources using appropriate management mechanism is vital to ensuring stable fish supplies and achieving food security and related benefits in the ASEAN region both now and in the future. This requires the improvement of existing national fisheries management frameworks to accommodate the various requirements for sustainable fisheries development in the region. In this connection, the decentralization of selected functions and responsibilities to appropriate local government institutions were extensively discussed at the 2001 ASEAN-SEAFDEC Conference on Fish for the People. The outcome of the deliberation on the issues was considered as a policy option for inclusion into the national fisheries management framework. In addition, it is clear that management measures and regulations are currently not effectively implemented in the "open access regime" of fisheries of the region, and this is a major contributor to over-exploitation of resources and environmental degradation. The implementation of rights-based fisheries complements the concept of decentralized fisheries management, as well as co-management with local institutions and resource users.

2. PROGRAM

2.1 Objective

The objectives of this project are

1. To review the current situation particularly on the problems and constraints in the promotion of decentralization of fisheries management and rights-based fisheries;
2. To enhance awareness on the necessity and importance of decentralization of fisheries management and rights-based fisheries;
3. To mobilize expertise and experience on community-based fisheries management approaches in ASEAN and SEAFDEC Member Countries to ensure their sustainable fisheries; and
4. To develop guidelines on the promotion of decentralized management for sustainable fisheries in the ASEAN region.

2.2 Program description

The ASEAN-SEAFDEC Conference on Fish for the People concluded that to implement the need for decentralization of management and rights-based fisheries, the concepts and approaches require a thorough investigation on feasibility and viability of the policy. In this connection, regional guidelines to facilitate a step-by-step development plan of fisheries management taking into account the above two management concepts requires an immediate

follow-up. Moreover, detailed discussions and consultations among the ASEAN Member Countries on the two concepts must be promoted. This project was proposed based upon the Resolution 5 and 6, the Plan of Action A1 as well as relevant conclusions and recommendations endorsed by the Conference, which highlight important issues in the decentralization of fisheries management and rights-based fisheries.

3. PROGRESS

It is planned that in November 2002, a regional seminar on coastal fisheries management will be held in Japan to start to review the directions and approaches in the promotion of sustainable coastal fisheries management in the region with particular emphasis on issues related to the decentralization of management and right-based fisheries. It is expected that the outcome of the seminar will provide a basis for further discussion at the subsequent ASEAN-SEAFDEC regional workshop on Decentralized Management for Sustainable Fisheries tentatively planned for April 2003.

4. PROPOSED FUTURE ACTIVITIES

To achieve the objectives of the project and to follow-up with activities in the year 2002, the following activities are proposed for implementation in the year 2003:

1. To continue the process of compilation and review of the concepts and approaches related to coastal fisheries management that have potential application in the region and the current status of coastal fisheries management in the Member Countries.
2. To organize an ASEAN-SEAFDEC regional workshop on Decentralized Management for Sustainable Fisheries which will address two major concepts namely decentralized management and rights-based fisheries.
3. Based upon the outcome of the regional workshop, pilot projects to be conducted in some selected Member Countries will be identified and started.

PROJECT DOCUMENT

Program Categories: Special 5-year Program
Project Title: The Capacity Building on the Improvement of Fishery Statistical Systems in the ASEAN Region
Lead Department: The Secretariat
Lead Country: Thailand
Total Duration: 4 years (2002-2005)
Proposed 2003 Budget: USD 40,000

1. INTRODUCTION

It is widely accepted that fishery statistics provides a basis and are crucial to the determination of national fisheries policies, the formulation of national management frameworks and actions or even as a basis for understanding the status and condition of fisheries resources. However, current national fishery statistical systems in the ASEAN Member Countries are not effectively implemented. The extent of the situation may be worse in the new ASEAN Member Countries (Cambodia, Lao PDR, Myanmar and Vietnam (CLMV)). Since the production of effective and timely fishery statistics is a costly exercise, improvement in the utility of statistics at the national level should be accorded a high priority. In addition, to reduce the gap between fishery development and management among the ASEAN Member Countries, priority should be given to the CLMV in capacity building of their national fishery statistical systems particularly on the statistical personnel aspect.

2. PROGRAM

2.1 Objective

The objectives of this project are as follows:

1. To improve fishery statistical systems and mechanisms in response to the needs of national fishery development and management, particularly in the new ASEAN Member Countries (Cambodia, Lao PDR, Myanmar and Vietnam (CLMV)) through the establishment of pilot projects;
2. To mobilize expertise and experience on fishery statistics existing in the ASEAN region;
3. To develop national plans for strengthening national fishery statistical systems for CLMV;
4. To promote harmonized/standardized definition and classification of fishery statistics in the ASEAN region; and
5. To improve the Fishery Bulletin for Fishery Statistics in the ASEAN region toward more usable and timely provision.

2.2 Program description

Because of the similarity of fishery structure and specificity among ASEAN Member Countries, existing cases, expertise and experience in the ASEAN region will be mobilized and form a basis for capacity building of the national fishery statistical systems with emphasis on the CLMV to ensure compatibility of fishery statistical systems and fishery

structure of the CLMV and other member countries in the region. The project targets at the development of training packages for training of statistical personnel and conducting on-site training in CLMV.

This project was proposed based upon Resolutions 4 and 7, the Plan of Action A9, A10 and A11 as well as relevant conclusions and recommendations endorsed by the Conference, which highlighted important issues in the improvement of fishery statistics.

3. PROGRESS

Regarding the project on Improvement of Fishery Statistical Systems and Mechanisms, the Secretariat has made efforts in the compilation and preparation of draft training packages for the on-site training for fishery statistical personnel. This also included coordination with other organizations like FAO and MRC in the improvement of fishery statistics in the region.

4. PROPOSED FUTURE ACTIVITIES

To achieve the objectives of the project and to follow-up with activities in the year 2002, the following are proposed for implementation in the year 2003:

1. To continue the compilation and preparation of draft training packages for the on-site training for fishery statistical personnel.
2. To organize an ASEAN-SEAFDEC Regional Workshop for the Improvement of Fishery Statistics in the ASEAN Region to discuss regional directions and plan for the capacity building of fishery statistical personnel and to discuss the regional compilation of fishery statistics to ensure timely regional provision.
3. To conduct the on-site training in CLMV based on readiness of the countries.

PROJECT DOCUMENT

Program Categories: Special 5-year Program
Project Title: Responsible Fishing Technologies and Practices
Lead Department: Training Department
Lead Country: Indonesia
Total Duration: 4 years (2002-2005)
Proposed 2003 Budget: USD 40,000

1. INTRODUCTION

The current status of many fisheries resources in the Asian region is of serious concern. A growing national and international demand for fish and fishery products has led to the continued development and adoption of modern fishing technologies, including new and improved boat design, fishing gear and deck equipment. Overall fisheries production in the ASEAN region has increased during the past decade, although in some regions, localized depletion of fisheries resources has resulted in reduced landings or catch compositions that comprise mainly smaller and less valuable species. Significant contributors to the problem of deteriorating fisheries resources are over-exploitation and practices and non-selective fishing gear. The impact of these is devastating, and ineffective management plans and law enforcement have, to date, failed to reduce these fishing pressures. Additional contributions to resource deterioration include excessive fishing effort, over-capacity and non-fisheries related impacts like the destruction of estuarine habitats, housing developments and water pollution etc.

Solving the problem of over-exploitation and habitat degradation in the region is both difficult and complex. The conflicting socio-economic problems associated with an increasing population and a need to maintain food security and people's livelihoods are significant. Under these circumstances there is a lack of appreciation and awareness of the need for selective fishing gear that has minimal impact on aquatic ecosystems. Despite increased emphasis on the sustainable harvest of fisheries resources, a lack of standardized research methodologies, particularly in gear selectivity research, coupled with difficulties associated with the design and introduction of effective selectivity devices in multi-species fisheries, makes overcoming these problems difficult.

Greater collaboration and commitment are required from ASEAN Member countries to reduce the impact of illegal and destructive fishing gear and practices and the use of responsible fishing technologies and practices must be promoted to maintain the integrity of the aquatic environment and the sustainability of fisheries resources.

2. PROGRAM

2.1 Objective

1. To reduce the capture of immature/juvenile fishes of commercially important species and unwanted catch by conducting experiments and evaluations on the various types of Juvenile and Trash Excluder Devices in ASEAN Member countries;
2. To study and improve selective gear, which minimizes environmental destruction and is suitable for ASEAN Member Countries;

3. To promote responsible fishing technologies and practices through introduction and demonstrations at experimental sites and to conduct a regional practical workshop on selective fishing gear and practices and appropriate selective devices;
4. To produce and disseminate information, training materials and information on responsible fishing technologies and practices to ASEAN Member countries;
5. To work in close cooperation with ASEAN Member countries and other institutions/international organizations outside the region through technical assistance and staff exchange; and
6. To work in conjunction with other related projects in the sustainable fisheries management program to ensure the contribution of sustainable fisheries for food security in the ASEAN region.

2.2 Program description

To mobilized technical capability into the project, it will be implemented in close collaboration with competent international organizations, national organizations and agencies, including FAO,/GEF, AMC, MI and TUF etc. The project activities will focus upon a review of available selective fishing gear and practices, the preparation and the carrying out of demonstrations and experiments in selective fishing gear and devices. These activities will be implemented by fishing technology experts, scientists, fishermen and personnel involved in the project. Interaction will be achieved through expert meetings, regional practical workshops, and staff exchange programs. Additionally, the outcome and experiences of the project together with issues of common interest related to the improvement of fishing technologies and practices will be discussed and exchanged during regional consultations to disseminate the information to all ASEAN member countries.

2.3 Collaborative arrangement

FAO/GEF project will co-sponsor the parts where the GEF project on the Reduction of Environmental Impact from Tropical Shrimp Trawling through the Introduction of By-catch Technology and Change of Management, is involved. AMC will dispatch experts to assist in the experiments and will accept technical staff for training and human resource development. MI will also accept technical staff for Extension and Information Transfer training at their Fishing Technology Unit, while TUF will send professors as advisors to the project and will be involved in the organization of meetings and workshops during the project.

Expert input will not be limited to these organizations, other institutions will be approached and negotiation will be promulgated.

3. PROGRESS

In the year 2002, 4 activities were conducted.

- A review of the available selective fishing gear and practices, including JTEDs was conducted during the Expert Meeting on Responsible Fishing Technology in 25-28 February 2002.
- A Regional Practical Workshop on Selective Fishing Devices was conducted from 27 May-3 June 2002. 13 participants from the government and private sector around the region had a clear understanding of the function and need for selective fishing gear and

devices and were able to pass on the information when they returned home. They also promised to prepare action plans for the introduction of selective fishing gear and devices in their countries to promote Responsible Fisheries and enhance Food Security in the ASEAN Region.

- The Demonstrations and Experiment on the use of TEDs, and JTEDs were conducted in Indonesia from 21 August – 2 September 2002 in collaboration with the FAO/GEF project. The knowledge and practical experience were transferred to Indonesian Fishermen.
- A Documentary VDO and documents related to the Practical Workshop and the Demonstrations and Experiment in Indonesia, were produced to support and promote the project activities

4. PROPOSED FUTURE ACTIVITIES

To achieve the objectives of the project, in the year 2003, 11 activities were proposed for implementation as follows:

- Study on Selective Fishing Gear and Devices in the ASEAN Region
- Monograph of Fishing Gear and Methods in Southeast Asia, Vol.5: Indonesia, Vol.6: Cambodia, and Vol. 7: Brunei Darussalam
- Selective Fishing Devices, included JTEDs Demonstrations and Experiments in the Philippines
- Selective Fishing Devices, included JTEDs Demonstrations and Experiments in Brunei Darussalam
- Workshop on the estimation of discards and measures to reduce by-catch in the Indian Ocean and Western Pacific
- Training Courses in the Use of TEDs and JTEDs for Shrimp-trawling
- Production of promotional materials and Awareness Program
- Staff exchange program
- Mid-term project Evaluation Workshop
- Short course in Ecosystem Effects of Fishing
- Workshop on Safety at Sea for small Fishing Boats

LIST OF THE PROJECT PROPOSED FOR THE YEAR 2003

Project/Activity	Duration	Remarks
Responsible Fishing Technologies and Practices		
1. Study on Selective Fishing Gear and Devices in the ASEAN Region	Jan-Dec 2003	
2. Monograph on Fishing Gears and Methods in Southeast Asia, Vol 5: Indonesia, Vol. 6: Cambodia, and Vol.7: Brunei Darussalam	Jan-Dec 2003	
3. Selective Fishing Devices, included JTEDs Demonstrations and Experiments in the Philippines	April-May 2003	Collaboration with FAO/GEF
4. Selective Fishing Devices, included JTEDs Demonstrations and Experiments in Brunei Darussalam	Sep 2003	
5. Workshop on estimation of discards and measures to reduce by-catch in the Indian Ocean and Western Pacific	Mar 2003	Collaboration with FAO/GEF
6. Training Course in the Use of TEDs and JTEDs for Shrimp-trawling	May-Jun 2003	Collaboration with FAO/GEF
7. Production of promotional materials and Awareness Program	Jan-Dec 2003	Collaboration with FAO/GEF
8. Staff Exchange program	Jan-Dec 2003	Collaboration with MI, AMC and TUF
9. Mid-term project Evaluation	Dec 2003	
10. Short course in Ecosystem Effects of Fishing	Sep 2003	Collaboration with AMC
11. Workshop on Safety at Sea for Small Fishing Boats	Aug 2003	

PROJECT DOCUMENT

Program Categories: Special 5-year program
Project Title: Resource Enhancement
Lead Department: Training Department
Lead Country: Malaysia
Total Duration: 2002-2005
Proposed Budget: USD 71,000

1. INTRODUCTION

The quality of coastal and inshore ecosystems has deteriorated significantly as a result of continued and increasing human activities. These areas are critical to a broad range of aquatic organisms during their life cycles including spawning, nursery areas and feeding zones and many of these species are of economic importance. The areas serve as important sources of recruitment to, and the sustainability of, commercial fisheries. It is suggested that the productivity of these ecosystems can be enhanced through human intervention leading to improved livelihoods for coastal communities.

In many areas, the introduction of man-made structures, including artificial reefs, aquaculture facilities, breakwaters, stationary nets and jetties are shown to enhance local populations of aquatic organisms, provided that there are sufficient numbers of structures to have a significant and positive impact on ecosystem productivity and that they are integrated into coastal zone management regimes. These structures can enhance fisheries resources. To optimize the results of such initiatives, careful impact assessment and planning procedures are required.

Re-stocking may be an effective component in the enhancement of marine resources in inshore waters. Juveniles and seeds produced by hatcheries, or collected from the wild in others areas, will be removed rapidly from the ecosystem by destructive fishing gear like push nets or small-mesh trawl nets. Furthermore, to retain the released stocks within the immediate vicinity and minimize losses through out-migration, suitable habitats must be available to them. Therefore, habitat restoration and/or enhancement and the establishment of exclusive fishing rights may be necessary prerequisites for any marine restocking exercises.

Immediate action is required to prevent further loss of habitat and damage to fish stocks. A range of effective community-level mechanisms must be developed to assist fishers to restore habitats and rebuild stocks. These mechanisms are likely to be specific to different stocks and habitats. Habitat creation and the establishment of artificial reefs, the use of fish attraction devices and predator removal all have potential in the region.

2. PROGRAM

2.1 Objective

1. To optimize the use of inshore waters through resource enhancement programs
2. To enhance the fisheries resources by artificial reefs, stationary fishing gear and aqua-culture facilities (e.g. oyster culture)

3. To assess the feasibility and environmental impact of artificial reefs, stationary fishing gear and aqua-culture facilities
4. To enhance the marine engineering of artificial reef construction and installation,
5. To develop human resources for the implementation of resource enhancement programs.
6. To promote right-based fisheries management concepts to local fishers.

2.2 Program description

The program is composed of three main activities as;

Activity 1. Survey and data collection on environmental studies on Artificial Reefs, Set net and Marine Cage Culture project site, (Chumporn Province, Thailand and Kedah Malaysia) in cooperation with the Management of Sustainable Coastal Fisheries Program.

Activity 2. Workshop on Artificial Reefs and Stationary Fishing Gear (Set net) Design and Construction and Marine Protected Area.

Activity 3. Training Regional short-term Training Course in Resource Enhancement Methodologies

3. PROGRESS

In the year 2002, project proposal and planning and a core working group were carried out. A Review of existing Artificial Reefs and Resources Enhancement project in the ASEAN countries is under investigation. A TD technical staff member attended the Second International Symposium on Stock Enhancement and Sea Ranching, Kobe, February 2002 for project information collection. Also TD technical staff attended the International Set Net Fishing Summit at Himi City, Ishigawa Prefecture, Japan during 23-26 November 2002. The identification of project site selection is under investigation together with discussion to find a suitable location with DOF Thailand. The workshop on Artificial Reefs is planned to be conducted during the end of 2002 at TD.

4. PROPOSED FUTURE ACTIVITIES

- Environmental survey studies on Artificial Reefs, Set net and Marine Cage Culture project site, (Chumporn Province, Thailand and Kadah Malaysia) in cooperation with the Management of Sustainable Coastal Fisheries Program. Also, seeds release at the project site.
- Training/Workshop on Artificial Reefs and Stationary Fishing Fear (Set net) Design and Construction
- Regional short-term Training Course in Resource Enhancement Methodologies
- Production of Extension Package on Resources Enhancement
- NOAA-SEAFDEC Workshop on Marine Protected Area

LIST OF THE PROJECT PROPOSED FOR THE YEAR 2003

Project/Activity	Duration	Remarks
Resource Enhancement		
1. Environmental Survey Studies on Artificial Reefs, Set Net and Marine Cage Culture	Jan-Dec 2003	
2. Training/Workshop on Artificial Reefs and Stationary Fishing Gear (Set net) Design and Construction	17-21 Mar 2003	
3. Regional short-term Training Course in Resource Enhancement Methodologies	May 2003	
4. Production of Extension Package on Resource Enhancement	Jan-Dec 2003	
5. NOAA-SEAFDEC Workshop on Marine Protected Areas	Feb 2003	

THE IDENTIFICATION OF INDICATORS FOR THE SUSTAINABLE DEVELOPMENT AND MANAGEMENT OF CAPTURE FISHERIES IN THE ASEAN REGION

OVERALL REVIEW OF THE PROPOSED PROJECT

The use of indicators in the management of tropical multi-species and multi-gear fisheries is an immediate option that can be used by national fisheries managers. This option does not aim to replace conventional stock assessment methodologies presently in use but is aimed at using simple, practical, available and cost-effective indicators in the formulation of management decisions.

The introduction of the use of indicators in SEAFDEC Member countries also stresses the need for the development of fisheries management plans for specific fisheries and the consultation and active participation of stakeholders, the majority of whom are fishers, in the process of the development of these management plans. This project will also adopt a more "bottom-up" approach in fisheries management.

To introduce the use of indicators as a tool for fisheries management, several pilot studies for identified fisheries in selected SEAFDEC member countries will be implemented. These pilot studies were proposed and recommended for implementation at the First Regional Technical Consultation on the Use of Indicators for the Development and Management of Capture Fisheries in the ASEAN Region, held from 16-18 September 2002 in Kuala Terengganu, Malaysia. Currently pilot projects for trawl fishery will be conducted in Brunei Darussalam and Malaysia. Indonesia will conduct a pilot study on the "mini" purse seine fishery while Philippines will study the ring net fishery. A small-scale fishery will be studied in Vietnam.

The initial phase of pilot project implementation requires detailed compilation and documentation of existing data on indicators. Technical Officers in their respective countries will conduct this role with the support of their National Fisheries Management Authorities and Departments and the cooperation of stakeholders. The fisheries management plans for identified fisheries for the pilot studies will be developed together with the stakeholders. The success in the use of indicators hinges on the active participation of stakeholders, thus consultations with the stakeholders must be conducted.

Technical Officers of pilot projects will play an active role in the implementation of pilot studies and work in close cooperation with the stakeholders. Technical Officers will also work in close collaboration with MFRDMD for project coordination, monitoring and evaluation.

Besides the organization of national consultations with stakeholders, the Second Regional Technical Consultation on the use indicators will be held in the fourth quarter of 2003.

ENVISAGED OUTCOMES OF THE PROPOSED PROJECT

Guidelines for the use of indicators in fisheries development and management and the preparation of fisheries management plans for capture fisheries in SEAFDEC Member Countries. These will be disseminated to ASEAN Countries on completion of the project.

This project will enhance networking among ASEAN countries for improved communication and information exchange and dissemination.

LIST OF THE PROJECT PROPOSED FOR THE YEAR 2003

Project/Activity	Duration	Priority *	Remarks
The Identification of Indicators for the Sustainable Development and Management of Capture Fisheries in the ASEAN Region	2002-2005		
1.1 Second Regional Technical Consultation		a	Existing project
1.2 Implementation of pilot projects in ASEAN countries		a	
1.2.1 Brunei Darussalam – trawl fishery 1.2.2 Indonesia – "mini" purse seine fishery 1.2.3 Malaysia – trawl fishery 1.2.4 Philippines – ring net fishery 1.2.5 Vietnam – small-scale fishery			
1.3 Project coordination and technical support		a	
1.4 Use of catch-effort and socio-economic indicators for fisheries management		a	Additional activity under existing project.
1.5 Maximising the use of size data as an indicator for the development and management of capture fisheries		a	
1.6 Application of remote sensing and GIS to support the study on the use of indicators.		b	
1.7 Training in acoustic research and methodology.		c	Additional project

Note: * Priority is categorized into a, b and c which refer to very high, high and moderate, respectively.

PROJECT DOCUMENT

Program Categories: Special 5-year Program
Project Title: The identification of indicators for the sustainable development and management of capture fisheries in the ASEAN Region
Lead Department: Marine Fishery Resources Development and Management Department
Lead Country: Malaysia
Total Duration: 2002-2005
Proposed 2003 Budget: USD 80,000

1. INTRODUCTION

The use of indicators in the management of tropical multi-species and multi-gear fisheries is an immediate option that can be used by national fisheries managers. This option does not aim to replace conventional stock assessment methodologies that are being used but is aimed at using simple, practical, available and cost-effective indicators in the formulation of management decisions.

2. PROGRAM

2.1 Objectives

2.1.1 To introduce the use of indicators for fisheries development and management of capture fisheries
2.1.2 To prepare regional guidelines on the use of indicators for fisheries development management for capture fisheries in the ASESN region.

2.2 Program Description

The "Identification of Indicators for Sustainable Development and Management of Capture Fisheries" is formulated to support ASEAN countries in the implementation of the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region adopted at the Millennium Conference held in November 2001. This project is aimed to support improved fisheries management through the use of suitable indicators by relevant national management authorities.

Pilot studies on the use of indicators will be conducted for selected fisheries interested countries and based upon the outcomes from these studies, regional guidelines on the use of indicators for the sustainable development and management of capture fisheries will be developed. These guidelines will be formulated to promote the use of indicators to interpret and understand the status and trends of fisheries to support fisheries management without aiming to replace conventional stock assessment.

3. PROGRESS

This project started in mid-2002 with a detailed review of a project document earlier formulated. The First Regional Technical Consultation on the Use of Indicators for the Sustainable Development and Management of Capture Fisheries in the ASEAN Region was successfully held from 16-18 September 2002 in Kuala Terengganu, Malaysia. The use of

indicators as a tool for fisheries management is introduced for the tropical multi-species fisheries of the ASEAN Region. Five pilot projects were proposed and recommended for implementation in Brunei Darussalam, Indonesia, Malaysia, Philippines and Vietnam. These projects will involve participation of stakeholders in the provision of data on indicators for fisheries management in selected localities. Pilot projects are expected to start in 2002 and continue into 2003. SEAFDEC MFRDMD will work closely with all Technical Officers of pilot projects to provide support and coordinate all relevant activities.

4. PROPOSED FUTURE ACTIVITIES

The initial phase of pilot project implementation requires detailed compilation and documentation of existing data on indicators. Technical Officers will conduct this role in their respective countries with the support of their National Fisheries Management Authorities and Departments with the cooperation of the stakeholders. Currently, pilot projects for trawl fishery will be conducted in Brunei Darussalam and Malaysia. Indonesia will conduct a pilot study on "mini" purse seine fishery while the Philippines will study the ring net fishery. A small-scale fishery will be studied in Vietnam. The fisheries management plans to identify fisheries for the pilot studies will be developed together with the stakeholders. The success in the use of indicators hinges on the active participation of the stakeholders, thus consultations with the stakeholders must be conducted. Technical Officers will also work in close collaboration with MFRDMD for project coordination, monitoring and evaluation and in the provision of technical support.

Besides pilot studies, MFRDMD propose three new activities under the existing project and an additional new project. These are:

a) The use of catch-effort and socio-economic indicators for fisheries management
b) Maximizing the use of size data as an indicator for the development and management of capture fisheries
c) Application of remote sensing and GIS to support the study on the use of indicators.
d) Training in acoustic research and methodology

These additional activities a), b) and c) proposed above are related to the main project formulation and will make use of existing data collected by MFRDMD. Catch-effort, socio-economic and size data collected for the small pelagic fishery of the east coast of Peninsular Malaysia are identified indicators for fisheries management. The use of remote sensing and GIS data will be used to show the distribution of the small pelagic fish. GIS will also be employed to enhance the presentation of data and findings to the stakeholders of the small pelagic fishery. This will aid in communication and information dissemination both to the stakeholders and to the national fisheries managers.

The additional project on training in acoustic research and methodology, d) above, is proposed to provide technical support in the use of hydroacoustics in pelagic fish stock assessment. Acoustics surveys had been conducted in several SEAFDEC member countries but different systems e.g. SIMRAD, Furuno and Biosonics had been used to determine fish biomass. Fish biomass is an indicator that is used for fisheries development and management and will provide information on the status and trend of pelagic fish stocks in ASEAN Member Countries. To enable meaningful comparisons of results, data must be converted and standardized and this is now possible through the use of developed software. However as this area is very technical and specific, training is required. MFRDMD

proposes to provide this training to support pelagic fish stock assessment in Member Countries.

INFORMATION GATHERING FOR CAPTURE INLAND FISHERIES IN ASEAN COUNTRIES

OVERALL REVIEW OF THE PROPOSED PROJECT

Inland capture fisheries are characterized by great varieties of fishing gear and methods used, types of environments, and socially and culturally complex societies. Because of these complexities, it has been difficult to establish and compile good quality information that is very beneficial to policy makers and administrators in managing the sustainable development of inland fisheries resources. Presently, information on capture inland fisheries in Southeast Asia is still scanty, fragmented, poorly reported and of insignificant importance when compared to the established systems for data collection of marine capture fisheries. Thus, this project was initiated with the aim of collecting and compiling as much data/information from capture inland fisheries of Southeast Asian region as possible.

This project will be implemented at the regional level and through pilot studies. At the regional level, information on capture inland fisheries will be compiled and evaluated through consultation visits in respective countries with the help of appointed core-experts/resource persons. In pilot studies, information will be collected and compiled at selected proposed sites.

To achieve the above objective, six activities are proposed to be carried out in 2003. These activities are as follows:

1. First Regional Technical Consultation
2. Compilation and documentation of data on fisheries, fishing gear and methods, fish species, environmental conditions and socio-economic data
3. Implementation of pilot projects for the riverine system, lakes/reservoirs and flood plains
4. Development of database
5. Application of remote sensing and GIS for the development and management of freshwater capture inland fisheries
6. Capacity building/on-the-job training for freshwater fish taxonomy and freshwater fish larvae identification

The activities proposed above will be discussed during the First Regional Technical Consultation meeting March 2003 to get the consensus of ASEAN member countries for the adoption and implementation of both regional and pilot projects. The conceptual plan of the project is illustrated in Figure 1.

Activity 1:

The First Regional Technical Consultation will be organized to appoint core-experts/resource persons from member countries who have knowledge on the fisheries, fishing gear and methods, fish species, environmental conditions and socio-economic activities of capture inland fisheries of the country. Papers containing these topics will be presented and the information gathered will be compiled and analyzed accordingly by country. Pilot projects to be implemented on a cost-sharing basis will also be proposed by any interested member country during the consultation.

Activity 2:
Information on fisheries, fishing gear and methods, fish species, environmental conditions and socio-economic activities gathered during the first RTC will be compiled and documented. MFRDMD and appointed core-expert/resource persons from each member country will collaborate in finalizing the documentation of this information. Consultation visits to member countries will be carried out for evaluation and verification of information.

Activity 3:
Pilot projects proposed by interested member countries will be identified and adopted for implementation. Information suggested to be collected in the pilot project includes fishery, biology, fish larvae, environment and socio-economy. Three inland water systems are proposed and these are the riverine system, lakes/reservoirs and flood plains. The outcomes and lessons learnt from pilot projects will be discussed and exchanged at national workshops for further improving the studies and strengthening data collection.

Activity 4:
Regional and localized databases would be developed. These databases will contain all information gathered from activities 1, 2 and 3.

Activity 5:
Remote sensing and GIS would be used in presenting and documenting the output of freshwater capture inland fisheries. The products of GIS are beneficial in the development and management of capture inland fisheries.

Activity 6:
For capacity building, training in freshwater fish taxonomy and freshwater fish larvae identification will be organized to strengthen and improve knowledge on freshwater species identification. Other training like standardized methods of biological data collection and analysis will also be proposed.

ENVISAGED OUTCOMES OF THE PROPOSED PROJECT

1. Compilation of information on fishing gear and methods used in capture inland fisheries in ASEAN countries.
2. Compilation of information on freshwater species and biological information of commercial important species.
3. Compilation of data on fish larvae and their distribution.
4. Compilations on social and economic information on inland fisheries in ASEAN member countries.
5. Databases on freshwater fishes, fishing gear and methods.
6. Reports of regional and national workshops.
7. Standard Operating Procedures and format for data collection and analysis.
8. Network among ASEAN member countries on inland capture fisheries.

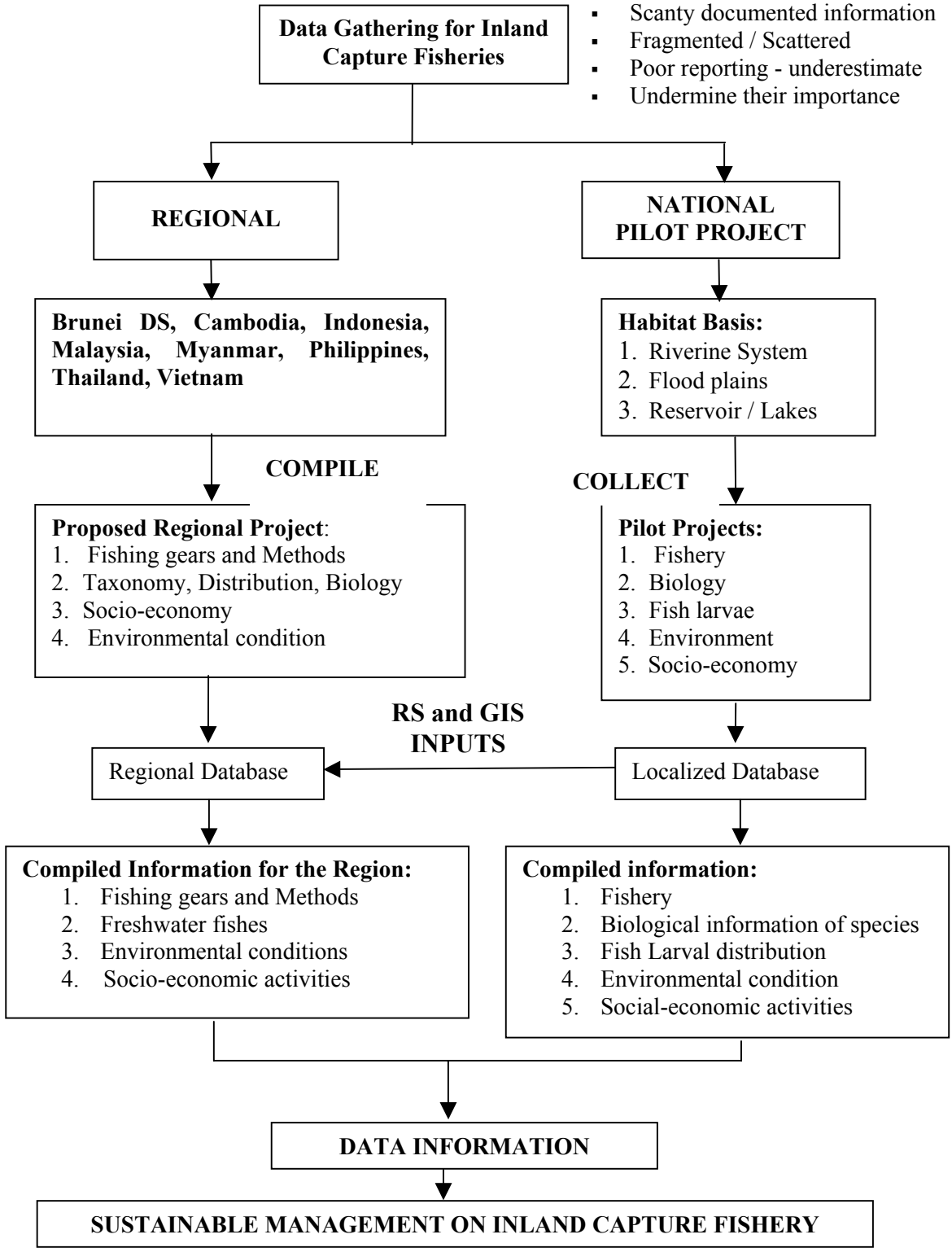

Figure 1: Conceptual Plan

PROJECT DOCUMENT

Program Categories: Special 5-year Program
Project Title: Fisheries Management: Information Gathering for Capture Inland Fisheries in ASEAN countries
Lead Department: Marine Fisheries Resources Development and Management Department
Lead Country: Cambodia
Total Duration: 2002-2005
Proposed 2003 Budget: USD 80,000

1. INTRODUCTION

Inland fisheries play an important role in the socio-economy of the rural areas of the Southeast Asian countries and provide local food security and livelihoods for the people. The fisheries are characterized by great varieties of fishing gear and methods used, types of environments, and socially and culturally complex societies. Because of these complexities, it has been difficult to establish and compile good quality information that is very beneficial for policy makers and administrators in managing the sustainable development of inland fisheries resources. Presently, most information on capture inland fisheries in Southeast Asia is still scanty, fragmented, poorly reported, underestimated and of insignificant importance when compared to the established system in the data collection of marine capture fisheries. Thus, SEAFDEC initiated this project to strengthen information on inland capture fisheries to assist in planning and management of these resources

2. PROJECT

2.1 Objective

To compile, collect and document as much data/information from capture inland fisheries of Southeast Asian region as possible.

2.2 Project Description

This project will be implemented at the regional level and through pilot studies. At the regional level, information on capture inland fisheries will be compiled and evaluated through consultation visits to respective countries with the help of appointed core-experts/resource persons. In pilot studies, information will be collected and compiled at selected proposed sites. This is a very new project and the proposed activities outlined here will be discussed during the First Regional Technical Consultation in March 2003 to get a consensus of ASEAN member countries for the implementation of both regional and pilot projects at the adoption.

3. PROGRESS

3.1 This project was initiated by MFRDMD. A discussion was held with DOF Cambodia and MRC in July 2002 on matters related to the implementation of this project. Both MRC and DOF Cambodia agreed to give full support to the implementation of this project.

3.2 Two officers from MFRMD were given the opportunity to participate in the "Expert Consultation on New Approaches for the Improvement of Inland Capture Fishery Statistics in the Mekong Basin", organized by FAO/ MRC/ Government of Thailand/ Government of Netherlands from 2-5 September 2002. The officers had the opportunities to establish contacts with experts dealing with inland fisheries and increased knowledge on the issues related to inland capture fisheries.

3.3 A project proposal and plan of activities from 2003 to 2005 were drawn and presented for approval at the department level in late September 2002.

4. PROPOSED FUTURE ACTIVITIES

Proposed activities 1 to 3: Proposed activity under the existing project
Proposed activities 4 to 6: Additional activity under the existing project

Project/Activities
Information Gathering for Capture Inland Fisheries in ASEAN Countries
1. Organize a First Regional Technical Consultation: Proposed date - March 2003. ▪ Establish core-working group and identify resource person. ▪ Endorsement and adoption of regional and pilot projects. ▪ Gather and compile information.
2. Compilation and documentation of data on fishing gears and methods, fish species, environmental conditions and socio-economic. Assisted by appointed core-expert/resource persons from each member countries.
3. Implementation of pilot projects in riverine system, reservoirs/ lakes and floodplains: To collect information on Fishery, Biology, Fish larvae, Environmental conditions and socio-economic.
4. Development of database at regional and localized levels (Pilot Site). This includes training for data entry and applications.
5. Application of remote sensing and GIS for the development and management of freshwater inland fisheries resources. For output of presentations and evaluation.
6. Capacity building: Training on standardized methods of biological data collection and analysis and fish larval / fish species identification.

PROJECT DOCUMENT

Program Categories: Special 5-year Program
Project Title : Harvesting of Under-Exploited Resources
Lead Department : Training Department in collaboration with MFRDMD
Lead Country : Thailand
Total Duration : 4 Years (2003–2006)
Proposed 2003 Budget : USD 70,000

1. INTRODUCTION

Many fisheries resources in the ASEAN region are currently heavily exploited. Increased production from these fisheries can only be derived from greater utilization of existing catches. However an increasing human population and associated demand for fish and fishery products means there is a need to increase fisheries production even further. This may be achieved by developing new fisheries and increasing production from currently under-exploited fisheries.

In the regional context, under-exploited resources are defined as those that are known to exist but are currently not harvested to full potential because of practical, operational or economic impediments. According to the FAO, moderately exploited or under-exploited fish resources exist in both the Eastern Indian Ocean and the Western Central Pacific regions (FAO statistical areas). These stocks are thought to be mainly pelagic species like tunas, scads, mackerel and squid. However, there is little scientific knowledge supporting their full extent and status. Limited demersal stocks are also believed to exist in many offshore waters (>150m depth) in the region and beyond the continental shelf. The reasons why these stocks are not exploited to the maximum potential are wide and varied, and include difficulties in accessing the resources and developing the appropriate infrastructure, a lack of suitable harvesting methodologies and a lack of market demand.

2. PROJECT

2.1 Objective

1. Identification and Development of under-exploited resources in the ASEAN region
2. Study on the appropriate refrigerator systems to improve the quality of fish through fish handling technology
3. Training on and promotion of fish handling technology at sea
4. Managing the development of new fisheries and under-exploited fisheries

2.2 Project Description

The project is composed of two main components and five activities as follows:

1. Research Component:
   Activity 1: Exploration of the deep sea shrimp and oceanic squid in the ASEAN region
   Activity 2: Study on fish handling
   Activity 3: Exploration of new fisheries resources in the Member Countries including Myanmar, Cambodia, Vietnam and Indonesia waters by appropriate research vessels.

2. Training Component:
   Activity 4: Training on fish handling at sea
   Activity 5: Training on appropriate fishing technology for the harvesting of under-exploited resources

3. PROPOSED FUTURE ACTIVITIES:

The activities to be implemented in the year 2003 are listed as follows:

1. Training on appropriate fishing technologies for the harvesting of under-exploited resources
2. Study on appropriate fish handling system for improving the quality of fishes
3. Training on Fish Handling at Sea and landing site (included on-site training)
4. Exploration of deep sea shrimp and oceanic squid in the region
5. Study on coastal squid: loligo by squid jigging

LIST OF THE PROJECT PROPOSED FOR THE YEAR 2003

Project/Activity	Duration	Priority	Remarks
Harvesting of Under-exploited Resources			
1. Training on appropriate fishing technologies for the harvesting of under-exploited resources	Jan 2003		
2. Study on appropriate fish handling system for improving the quality of fishes	Jan-Dec 2003		
3. Training on Fish Handling at Sea and landing site (included On-site Training)			
4. Exploration of Deep Sea Shrimp and Oceanic Squid in the Region	Jan-Dec 2003		
5. Study on Coastal squid: Loligo by Squid Jigging	Jan-Dec 2003		

FOLLOW-UP PROGRAM OF THE SPECIAL 5-YEAR PROGRAM ON SUSTAINABLE FISHERIES FOR FOOD SECURITY IN THE ASEAN REGION

COMPONENT II: AQUACULTURE

OVERALL REVIEW OF THE PROPOSED PROJECTS

The Project Framework of the Aquaculture Component of the Special 5-year Program as discussed during the IRAP Seminar-Workshop in September 2002, includes activities to be conducted in 2002 as well as in 2003. It was also confirmed that in the implementation of the activities, the cost-sharing scheme being promoted under the Special 5-year Program, be adopted.

The September 2002 IRAP Seminar-Workshop also confirmed that the activities during the remaining months of 2002 shall include: (1) follow-up activities to finalize the workplan of the various national activities; (2) active participation of AQD in the FAO-NACA-SEAFDEC-ICLARM-MRC Regional Consultation on the Role of Aquaculture and Living Aquatic Resources: Priorities for support and networking; and (3) site visitation and survey by AQD staff to confirm the proposed project sites of the national activities and finalize the national counterpart budget for the priority activities.

Under the Special 5-year Program, the Lead Countries and Lead Departments as well as participating countries have been encouraged to establish linkage and collaboration with other regional and international organizations for technical assistance and funding for the implementation of the activities. Thus, AQD will actively participate in the Regional Consultation in Manila and Iloilo, Philippines from 27 to 29 November 2002. Through the Regional Consultation, some form of collaboration could be established with donor agencies. As clarified during the IRAP Seminar-Workshop, in the event that no additional funds are obtained, the participating country would have to assume most of the costs for the implementation of the national activities.

1. AQUACULTURE FOR RURAL DEVELOPMENT

The region's aquaculture operations, which are generally conducted in rural areas, make considerable contribution to the rural as well as to national economies. Thus, future development must ensure that aquaculture is effectively integrated into the rural economy and society. Particular attention should also be given to the integration of aquaculture with agriculture, multiple resource use, and sustainable resource management.

The Project on Aquaculture for Rural Development aims to verify and disseminate appropriate responsible aquaculture technologies for aquaculture in both freshwater and marine systems to support the development and alleviate poverty of people in the rural areas. The major activities to be implemented under this Project include: (1) on-site training on priority technologies needed by respective ASEAN countries; and (2) national activities through verification and pilot demonstration, as prioritized and confirmed during the IRAP Seminar-Workshop.

1.1 On-Site Training

Eight on-site training sessions have been proposed from January to July 2003. These are: (1) Culture of *Macrobrachium rosenbergii* and ornamental fishes (Brunei Darussalam); (2) Culture of indigenous species such as *Pangasius* sp. (Cambodia); (3) Culture of *Pangasius djambal* (Indonesia); (4) Culture of target freshwater species, e.g., *Barbodes gonionatus* (Lao PDR); (5) Coastal Aquaculture (Myanmar); (6) Pen culture of tilapia, *M. nemurus, P. sutchi*, and *Clarias* sp. (Malaysia); (7) Culture of *M. rosenbergii* (Philippines); and (8) Culture of milkfish and siganids (Vietnam). It was confirmed during the IRAP Seminar-Workshop that appropriate expertise available in other ASEAN countries be availed during the conduct of the on-site training.

1.2 Verification and Pilot Demonstration

Through verification and pilot demonstration, eight national activities have been proposed and confirmed by participating countries during the IRAP Seminar-Workshop. These are: (1) Grow-out culture of *M. rosenbergii* (Brunei Darussalam); (2) Polyculture of indigenous species, i.e., *Pangasius hypophthalmus*, *Leptobarbus hoeveni*, *Puntius gonionatus*, *Trichogaster pectoralis*, with some exotic species in earthen ponds (Cambodia); (3) Culture of catfish (*Pangasius* sp.), Indonesia; (4) Development of aquaculture in rural areas through provision of appropriate technologies, equipment, training and micro-financing (Lao PDR); (5) Culture of sea bass and mud crab (Myanmar); (6) Pen culture in canals of indigenous species such as *M. nemurus, P. sutchi*, and *Clarias* sp. (Malaysia); (7) Grow-out culture of *M. rosenbergii* (Philippines); (8) Adaptive water management for community fisheries development (Thailand).

2. SUPPLY OF GOOD QUALITY SEEDS

The region's aquaculture industry has been constrained with insufficiency of natural supply of fry and fingerlings that can not be relied upon in order to sustain growth. In spite of the wide variety of plants and animals that have the potential for aquaculture, only a limited number of species have been cultured due to unavailability of seedstock. Consistent and adequate supplies of good quality seeds have become an important factor for the development of the aquaculture sector. Thus, an appropriate and responsible seed production technology should be developed to support the sustainable development of aquaculture in the region.

The Project on Supply of Good Quality Seeds aims to verify and disseminate appropriate broodstock management and seed production technologies for potential freshwater and marine species in order to support the region's aquaculture industry. The Project will promote the production of good quality seeds of indigenous freshwater species to support freshwater aquaculture as well as integrated agri-aqua culture. Seed production of other marine species is intended to support small-scale coastal aquaculture and mariculture.

2.1 On-site Training

Eight on-site training sessions have been proposed from January to July 2003. These are: (1) Seed production of *M. rosenbergii*, ornamental fishes, and mud crab (Brunei Darussalam); (2) Seed production of *Pangasius* sp. (Cambodia); (3) Seed production of *Pangasius* sp. (Indonesia); (4) Seed production of indigenous freshwater species, e.g., *Barbodes*

gonionatus (Lao PDR); (5) Seed production of *M. rosenbergii* and sea bass (Malaysia); (6) Seed production of *M. rosenbergii*, sea bass, and mud crab (Myanmar); (7) Seed production of *M. rosenbergii* (Philippines); and (8) Seed production of milkfish and siganids (Vietnam). As in the first Project, it was confirmed during the IRAP Seminar-Workshop that appropriate expertise available in other ASEAN countries be availed during the conduct of the on-site training under this Project.

2.2 Verification and Pilot Demonstration

Through verification and pilot demonstration, nine national activities have been proposed and confirmed under this Project, by participating countries during the IRAP Seminar-Workshop.

These are: (1) Improved seed production/Verification of hatchery technology for shrimps and prawns, sea bass, ornamental fishes, and mud crab (Brunei Darussalam); (2) Seed production of *Pangasius hypophthalmus*, silver barbs, tilapia, and carps (Cambodia); (3) Genetic improvement of giant prawn (*M. rosenbergii*), Indonesia; (4) Seed production of common carp, tilapia, silver barb, and *C. macrocephalus* (Lao PDR); (5) Backyard/small-scale hatchery operation for marine finfishes (Myanmar); (6) Production of disease-free grouper seeds (Malaysia); (7) Production of quality seeds of *M. rosenbergii* (Philippines); (8) Seed quality improvement of *M. rosenbergii* (Thailand); and (9) Improved seed prodution and verification of hatchery technology for milkfish and siganids (Vietnam).

3. SITE VISITATION/SURVEY

During the latter part of 2002 and probably until the first quarter of 2003, AQD will conduct a site visitation cum survey of the participating ASEAN countries. The objectives of this activity are: (1) confirm the proposed pilot project sites; (2) assess the technical capability of counterpart staff to determine the need for appropriate expertise from other ASEAN countries; (3) confirm the national counterpart budget in relation to the cost-sharing scheme of the Program; and (4) confirm the coordination and monitoring scheme of the Project as considered during the September 2002 IRAP Seminar-Workshop. During the site visitation and survey, the National Coordinators as well as their respective Technical Coordinators, will be involved.

It is also during the site visitation that further discussion with the Lead Countries of the projects be held. This will ensure that the Projects will receive support of the ASEAN participating countries. This will also be an opportune time to hold a consultation with the Lead Countries on policy-issues related to the implementation of the Projects.

LIST OF PROJECTS PROPOSED FOR THE YEAR 2003

Project/Activity	Duration	Remarks
1. Aquaculture for Rural Development		
1.1 On-site Training		
1.1.1 Culture of *M. rosenbergii* (Brunei Darussalam)	January	
1.1.2 Aquaculture of indigenous species such as *Pangasius hypophthalmus*, etc. (Cambodia)	February	
1.1.3 Culture of *Pangasius* sp. (Indonesia)	March	
1.1.4 Culture of target freshwater species (Lao PDR)	April	
1.1.5 Pen culture of tilapia, *M. nemurus, P. sutchi*, and *Clarias* sp. (Malaysia)	May	
1.1.6 Coastal aquaculture (Myanmar)	May	
1.1.7 Culture of *M. rosenbergii* (Philippines)	June	
1.1.8 Culture of milkfish and siganids (Vietnam)	July	
1.2 Verification and Pilot Demonstration		
1.2.1 Grow-out culture of *M. rosenbergii* (Brunei Darussalam)		
1.2.2 Polyculture of indigenous species: *P. hypophthalmus*, *Leptobarbus hoeveni*, *Puntius gonionatus*, Trichogaster pectoralis, with some exotic species in earthen pond (Cambodia)	Jan-Dec	
1.2.3 Culture of catfish, *Pangasius* sp. in rural areas (Indonesia)	Jan-Dec	
1.2.4 Development of aquaculture in rural areas through provision of appropriate technologies, equipment, training and micro-financing (Lao PDR)	Jan-Dec	
1.2.5 Pen culture in canals of red tilapia with indigenous species such as *M. nemurus*, *P. sutchi* and *Clarias* sp. (Malaysia)	Jan-Dec	
1.2.6 Culture of sea bass and mud crab (Myanmar)	Jan-Dec	
1.2.7 Grow-out culture of *M. rosenbergii* (Philippines)	Jan-Dec	
1.2.8 Adaptive water management for community fisheries development (Thailand)	Jan-Dec	
2. Supply of Good Quality Seeds		
2.1 On-site Training		
2.1.1 Seed production of *M. rosenbergii* (Brunei Darussalam)	January	
2.1.2 Seed production of *Pangasius sp*. (Cambodia)	February	
2.1.3 Seed production of *Pangasius sp*. (Indonesia)	March	
2.1.4 Seed production of indigenous freshwater species, e.g., *Barbodes gonionatus* (Lao PDR)	April	
2.1.5 Seed production of *M. rosenbergii* and sea bass (Malaysia)	May	
2.1.6 Seed production of *M. rosenbergii*, sea bass, and mud crab (Myanmar)	May	
2.1.7 Seed production of *M. rosenbergii* (Philippines)	June	
2.1.8 Seed production of milkfish and siganids (Vietnam)	July	
2.2 Verification and Pilot Demonstration		
2.2.1 Improved seed production/Verification of hatchery technology for shrimps, prawns, sea bass, ornamental fishes, and mud crab (Brunei Darussalam)	Jan-Dec	

Project/Activity	Duration	Remarks
2.2.2 Seed production of P. hypophthalmus, silver barb, tilapia, and carps (Cambodia)	Jan-Dec	
2.2.3 Genetic improvement of giant prawn, *M. rosenbergii* (Indonesia)	Jan-Dec	
2.2.4 Seed production of common carp, tilapia, silver barb, and *C. macrocephalus* (Lao PDR)	Jan-Dec	
2.2.5 Production of disease-free grouper seeds (Malaysia)	Jan-Dec	
2.2.6 Backyard/Small-scale hatchery operation for marine finfishes (Myanmar)	Jan-Dec	
2.2.7 Production of quality seeds of *M. rosenbergii* (Philippines)	Jan-Dec	
2.2.8 Seed quality improvement of *M. rosenbergii* (Thailand)	Jan-Dec	
2.2.9 Improved seed production and verification of hatchery technology for milkfish and siganids (Vietnam)	Jan-Dec	
3. Site Visitation and Survey		
3.1 Site Visitation and Survey (continuation from 2002)		
3.1.1 Site visitation of remaining countries not covered in 2002	Jan-Feb	

FOLLOW-UP PROGRAM OF THE SPECIAL 5-YEAR PROGRAM ON SUSTAINABLE FISHERIES FOR FOOD SECURITY IN THE ASEAN REGION

COMPONENT III: UTILIZATION OF FISH AND FISHERY PRODUCTS

OVERALL REVIEW OF THE PROPOSED PROJECTS

In 2003, the Marine Fisheries Research Department will concentrate on implementing the Component III of the Special 5-year Program on the Utilization of Fish and Fishery products.

Food security has been defined as when "all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life". In the ASEAN region the fisheries sector contributes significantly to food security. However based on future regional outlooks it appears that there is a risk gap developing between fish supply and increasing demand. Under current circumstances, further exploitation of fisheries resources in both marine and freshwater is unlikely to greatly increase fisheries production. Aquaculture, on the other hand, has considerable potential to increase production levels. However, there might be some potential to maintain or increase fish supply, particularly through innovative fisheries policy, appropriate management, close coordination among stakeholders, the reduction of waste and post-harvest losses and maximized use of existing fish catch.

The maximized use of existing fish catch will have a positive impact on the supply of fish to the local and international market. The waste or discarding of fish is predominantly caused by low market demand, value and poor quality, and these issues clearly need to be addressed. In addition to market acceptability, improved fish quality will widen the use of these species by the fish-processing sector, including those producing traditional fish products. Traditional fish products represent a significant component of fish utilization in the ASEAN region. The production of these culturally important products should be promoted, with appropriate support including the establishment of safety standards for small to medium enterprises. Otherwise these products will gradually disappear under the modernization and globalization directives of fish trade. The ASEAN region therefore clearly needs to place greater emphasis on fish quality, safety and management systems.

Under this program component, MFRD proposes two projects namely Maximizing Utilization of Fish Catch and Fish Quality, Safety and Management Systems.

Objective

To develop integrated fisheries post-harvest technology program that would address food security and sustainable development of fish resources in the region, and strengthen collaboration amongst SEAFDEC and ASEAN member countries.

Program Management and Administration

The lead SEAFDEC Department for this Component program will be the Marine Fisheries Research Department in Singapore and the lead country is Singapore. MFRD will manage

and coordinate all projects and activities under this program. MFRD will also lead in some activities of the projects.

Other member countries from ASEAN will be identified as project sites for certain activities based on their inherent expertise in those respective fields of study with Singapore as the lead country.

Change of Environment

The world's emphasis has shifted to food security i.e. providing enough fisheries resources to feed the people through maximizing the utilization of low-value and under utilized fish species for human consumption, educating the public towards the nutritional composition of fish and fish products and assisting the fish processing industry to produce fish and fish products in a an environment with good quality management through the application of HACCP.

Justification of the Program

From the Panel Session on the Utilization of Fish and Fishery Products held during the ASEAN-SEAFDEC Millennium Conference, 2 key areas of emphasis for the program in fisheries post-harvest technology were highlighted. They involve Maximizing the Utilization of Fish Catch, and Fish Quality and Safety Management Systems. MFRD's 2003 program focuses on addressing the resolution, plan of action and recommendations from the Conference, and the Department will continue to strengthen its activities towards these goals.

Linkage with the Implementation of SEAFDEC Strategic plan

The 2002 program of MFRD is in line with the objectives set up for the implementation of SEAFDEC strategic plan. MFRD's activities have become more regional based with networking and collaboration between SEAFDEC and ASEAN member countries.

ENVISAGED OUTCOMES OF PROPOSED PROJECTS

MFRD envisage incorporating more regional elements into its program such as using the ASEAN Fisheries Post-harvest Technology Network to look into the regional needs of SEAFDEC and ASEAN member countries and to utilize the country coordinators in projects that require gathering of information.

In 2003, MFRD expects to conduct the 2 projects. The envisage output include conducting Workshops on Good Laboratory Quality Management Practices, Manuals on the utilization of underutilized fish species, annual progress reports, and End-of-Activity Seminars and Workshops.

LIST OF PROJECTS PROPOSED FOR THE YEAR 2003

Project/Activity	Duration	Priority	Remarks
Maximizing the Utilization of Fish Catch			
Activity 1: Utilization of under-utilized marine species	Jan-Dec 2003	1	Proposed sub-activity under existing project
Activity 1.1: Actual production trials of products	Feb-Aug 2003	1	Proposed sub-activity under existing project
Activity 1.2: Shelf life and quality study of products (new)	Jan-Dec 2003	1	Additional sub-activity
Activity 1.3: Preparation of Processing Manual	Jul-Oct 2003	1	Proposed sub-activity under existing project
Activity 1.4: Printing of Processing Manual	Nov 2003	1	Proposed sub-activity under existing project
Activity 1.5: Preparation of Technical Report on Shelf life study	Dec 2003	1	Additional sub-activity
Activity 1.6: End-of-Activity Seminar	Dec 2003	1	Proposed sub-activity under existing project
Fish Quality and Safety Management Systems			
Activity 1: Harmonization and validation of methods	Jan-Dec 2003	1	Proposed activity under existing project
Activity 1.1: 2nd Regional Workshop on Good Laboratory Quality Management Practices and Methods Validation in SEA	Sep 2003	1	Proposed sub-activity under existing project
Activity 1.2: Regional Inter-laboratory Proficiency Testing for Heavy Metals	Jan-Dec 2003	1	Additional sub-activity
Activity 1.3: Methods Validation of other MFRD's Laboratory methods	Jan-Dec 2003	1	Additional sub-activity
Activity 1.4: Editing MFRD's Laboratory Manual	Jan-Dec 2003	1	Additional sub-activity
Activity 1.5: Feedback and evaluation of 1st phase of methods validation from key laboratories	Jun-Sep 2003	1	Proposed sub-activity under existing project
Activity 1.6: 2nd phase in methods validation by regional key laboratories	Nov 2003-Jun 2004	1	Proposed sub-activity under existing project
Activity 1.7: 2nd Evaluation Report	Dec 2003	1	Proposed sub-activity under existing project
Activity 2: Implementing Good Laboratory Practices	Jan-Dec 2003	1	Proposed activity under existing project
Activity 2.1: Preparation of Laboratory Quality Management Manual	Oct 2002-Aug 2003	1	Proposed sub-activity under existing project
Activity 2.2: Implementing Good Laboratory Practices by regional key laboratories	Jan-Dec 2003	1	Additional sub-activity
Activity 2.3: 1st Evaluation Report	Dec 2003	1	Proposed sub-activity under existing project

PROJECT DOCUMENT

Program Categories: Special 5-year Program
Project Title: Maximizing the Utilization of Fish Catch
Lead Department: Marine Fisheries Research Department
Lead Country: Singapore
Total Duration: 3 years (2003-2005)
Proposed 2003 Budget: Core Funding USD 78,000
Shared Cost from ASEAN Countries USD 30,000
Support from International organizations USD 58,000
Total budget USD 166,000

1. INTRODUCTION

The development of a new range of products, which are acceptable to the palate of Southeast Asian people, will enable the conversion of under-utilized marine and freshwater species for human consumption. This provision of alternative sources of fish protein for human nutrition is important in view of the imminent shortage of the traditional marine fish resources in Southeast Asia and the fast growing population.

Project 1 was proposed based on Resolution 11, Plan of Action C1 and Guideines and recommendations endorsed by the Conference as stated below.

Resolution 11: Promote the maximum utilization of catch, including the reduction of discards and post-harvest losses to increase fish supply and improve economic returns.

Plan of Action C1: To introduce and provide support for the development of technologies to optimise the utilization of catch and reduce post-harvest losses, wastes and discards in industrial and small-scale fisheries and processing operations through improved processing facilities, on-board and on-shore handling, storage and distribution of fish and fishery products.

Guidelines endorsed by the Conference: To promote research and development targeting improved utilization of under-utilized resources and by-catch for human consumption; and to undertake research in post-harvest technology.

Recommendations in Technical Report: To foster applied research to characterize processes and products to develop appropriate codes of practice for improving fish products.

2. PROJECT

2.1 Project Objectives:

1. To use under-utilized marine fish species for the development of value-added fish products (2002-2003)
2. To use under-utilized freshwater species for the development of value-added fish products (2004-2005)

2.2 Project description

Under this project there are 2 research activities, 3 annual project evaluation reports and 2 end-of-activity Seminar/Workshop.

The lead SEAFDEC Department for this component of the project will be the Marine Fisheries Research Department, MFRD. MFRD will manage the project. The lead country for this project will be Singapore. The Fishery Technology Development Institute (FTDI) of the Department of Fisheries, is identified to contribute expertise for both Activity 1 and 2 on the utilization of under-utilized marine and freshwater species for developing value added fish products (e.g. fish snacks). Indonesia will be the project site for Activity 1 and Cambodia will be the project site for Activity 2 on the utilization of freshwater species. FAO could be approached to conduct a joint project (pilot initiative) in Indonesia (Activity 1) and to provide technical expertise.

The project will comprise of research activities carried out at the project sites for Activities 1 and 2. For both Activity 1 and 2, Thailand and MFRD would take the lead in providing technical expertise for the research project in Indonesia and Cambodia respectively. The first 2 years (2002-2003) of the project will concentrate on Activity 1 and the next 2 years (2004-2005) on Activity 2.

The lead country for each activity would contribute to raw material cost, processing operation cost, facility cost and manpower cost for conducting the processing trials and production of the product, cost for quality assessment testing of the products, cost for nutritional characterization of the product and cost for shelf life studies.

For Activity 1 on utilization of under-utilized marine species, the National Centre for Quality Control (NCQC) in Indonesia has been identified as the Project-site; and for Activity 2 on utilization of under-utilized freshwater species, Cambodia would be the project site.

3. PROGRESS

A preliminary discussion meeting was conducted with the Head of the National Centre for Fish Quality Control and Processing Technology Development (NCQC) in September 2002. In October 2002, two research officers were dispatched to NCQC in Jakarta to start up some processing equipment, and conduct preliminary processing trials with the under-utilized pelagic species, introducing to the Indonesian counterparts alkaline leaching and training them on how to make tuna ham and sausage products.

4. PROPOSED FUTURE ACTIVITIES

Activity 1: Utilization of under-utilized marine species for development of value-added fish products

Jan 2003: Continuation of preliminary processing trials began in Oct 2002 by NCQC (Indonesia). This activity was carried over from 2002.

Feb 2003: 1st Evaluation Meeting in 24 Feb-1 Mar 2003 to discuss progress of project, finalising formulation and planning for actual production and shelf life studies. This activity was carried over from 2002.

Feb-Aug 2003:	Activity 1.1: Actual production, quality assessment, and nutritional characterization of product and shelf life studies
Jan-Dec 2003:	Activity 1.2: Shelf life and quality study of developed products (This is an additional sub-activity)
Jul-Oct 2003:	Activity 1.3: Preparation of Manual on the processing of value added fish products
Nov 2003:	Activity 1.4: Printing of Processing Manual
Dec 2003:	Activity 1.5: Preparation of Technical Report on Shelf Life Study (This is an additional sub-activity)
Dec 2003:	Activity 1.6**:** Completion and distribution of manual, and End-of-Activity Seminar.

Expected outputs:

1. Maximizing the utilization of low value under-utilized fish products into value-added fish products for human consumption thereby contributing towards food security for the people of the region and contributing to the economy of the country.
2. Introduction of new fish products to the region from under-utilized marine and freshwater species.
3. Manual on the processing of value added fish products from under-utilized marine species.
4. Manual on the processing of value added fish products from under-utilized freshwater species.
5. End-of activity seminars

PROJECT DOCUMENT

Program Categories: Special 5-year Program
Project Title: Fish Quality and Safety Management Systems
Lead Department: Marine Fisheries Research Department
Lead Country: Singapore
Total Duration: 3 years (2003-2005)
Proposed Budget: Core Funding USD62,000
Shared Cost from ASEAN countries USD20,000
Support from International organizations USD 50,000
Total Budget USD 132,000

1. INTRODUCTION

The harmonization of analytical methods through a network of lead laboratories in the various ASEAN member countries will enhance ASEAN as a coordinated fish-exporting bloc to importing countries such as Canada, USA, Japan and EU. This will help facilitate trade in fish and fish products within and without the ASEAN region. It will then be the onus of the ASEAN member governments to ensure that the methodologies in the other fish inspection laboratories in their respective countries are aligned with their lead laboratory.

Resolution 15: Strengthen the joint ASEAN approaches and positions on international trade in fish and fishery products indigenous to the region by harmonizing standards, criteria and guidelines; and

Plan of Action C4: Develop and apply fish quality and safety management systems that ensure food safety and support the competitive position of ASEAN fish products on world markets through the implementation, validation and verification of Hazard Analysis and Critical Control Point (HACCP) based systems and improved laboratory practices, and adapting quality and safety management systems so that they may be applied to small and medium enterprises in the ASEAN region.

Plan of Action D1: Strengthen ASEAN trade policy on fish and fishery products through regional collaboration by harmonizing product standards and sanitary measures with international standards wherever appropriate, working towards harmonized guidelines for fish inspection and quality control systems among ASEAN Member Countries, strengthening fish inspection and quality control systems with regard to food safety and exchanging information on risk analysis

Recommendation in Technical Report: To develop a regional inter-laboratory proficiency-testing program

Based on the above Resolution, Plan of Action and Recommendations, the following work program is proposed:

Harmonization of laboratory quality assurance and validation of analytical methodology for fish inspection and technology laboratories in ASEAN.

This would have three components

1. Validation of laboratory test procedures
2. Networking of lead laboratories in ASEAN
3. Implementing good laboratory practices in lead laboratories in the region

All the components, although separate in focus, are interconnected. A network of key fisheries post-harvest laboratories in ASEAN needs to be established through the ASEAN Network of Fisheries Post-Harvest Technology Centres for regional collaboration on the program items. All laboratories in the region (and in particular those certifying products for export) need to meet laboratory quality assurance requirements found in ISO 17025. This project is designed to assist laboratories in the region to meet this standard. It would also investigate the possibility of developing a regional inter-laboratory proficiency-testing program. In addition to meeting quality assurance requirements, there should also be a validation of laboratory analytical procedures to ensure equivalency of results. Many laboratories use their own methods or procedures adopted from another country, which may not have been validated against recognized international procedures such as AOAC. This program is designed to improve aspects of laboratory practices in the region.

2. PROJECT

2.1 Objectives

1. To harmonize and validate laboratory test procedures to align them with international standards
2. To set up a network of lead laboratories in each Southeast Asian countries
3. To implement good laboratory practices in lead laboratories in the region

2.2 Project description

Under this program there are 2 key activities and 3 Workshops, annual evaluation reports and an End-of-Activity Seminar / Workshop.

The lead SEAFDEC Department for this component program will be the Marine Fisheries Research Department in Singapore. MFRD will manage and coordinate all projects and activities under this program. MFRD will also lead in some activities of the projects.

Other member countries from ASEAN will be identified as project sites for certain activities based upon their inherent expertise in those respective fields of study with Singapore as the lead country.

International organizations such as FAO could be approached to provide technical expertise with regards to methods validation, good laboratory practices and to sponsor participation of more representatives (especially officials from non-fishery institutes/laboratories) to the Workshops. The project sites will be Thailand (FIQC) and Vietnam (NAFIQACEN). The project will be implemented through a Network of Lead Fish Inspection or Technology Laboratories in the various ASEAN member countries and through the country coordinators from each member country.

The project will be implemented through two activities, as follows:

Activity 1: Harmonization and validation of laboratory analytical methods
Activity 2: Implementing good laboratory practices

3. PROGRESS

Under Activity 1 on Harmonization and Validation of Methods, the 1st Workshop on Good Laboratory Quality Management Practices and Methods Validation was conducted from 23-28 Sep 2002. Twenty participants attended, two from each ASEAN/SEAFDEC member country. The Network of key laboratories was established and the action plan for the network of key laboratories was decided. The participants were also trained in good laboratory practices that comply with ISO/IEC 17025 requirements as well as on methods validation. They were provided hand-on experience in the calculation of parameters for methods validation for heavy metal analysis and also internal auditing of the quality system in MFRD's Chemistry Laboratory.

4. PROPOSED FUTURE ACTIVITIES

Activity 1: Harmonization and validation of methods (2002-2005, 4 years)

Oct 02-May 2003:	1st phase of methods validation against internationally recognized methods (continuation of 2002 activities).
Jun 2003:	Submission of results of validated methods to MFRD for compilation and comparison (continuation of 2002 activities).
Jul-Sep 2003:	Compilation of validated methods (continuation of 2002 activities).
Sep 2003:	Activity 1.1: 2nd Regional Workshop on Good Laboratory Quality Management Practices and Methods Validation in SEA.
Jan-Dec 2003:	Activity 1.2: Regional Inter-laboratory Proficiency Testing for Heavy Metals (Additional sub-activity)
Jan-Dec 2003:	Activity 1.3: Methods Validation of other MFRD's Laboratory Methods (Additional sub-activity)
Jan-Dec 2003:	Activity 1.4: Editing MFRD's Laboratory Manual (Additional sub-activity)
Jun-Sep 2003:	Activity 1.5: Feedback on results of 1st phase of methods validation from regional key laboratories
Nov 2003-Jun 2004:	Activity 1.6: 2nd phase in methods validation by regional key laboratories
Dec 2003:	Activity 1.7: 2nd Evaluation Report

Activity 2: Implementing good laboratory practices (2002-2005, 4 years)

Oct 2002-Aug 2003:	Activity 2.1: Preparation of Laboratory Management Manuals by keylaboratories.
Jan-Dec 2003:	Activity 2.2: Implementing good laboratory practices by regional key laboratories (Additional sub-activity)
Dec 2003:	Activity 2.3: 1st Evaluation Report

5. EXPECTED OUTPUTS

1. Implementation of good laboratory practices based on Laboratory Management Manuals by key laboratories in ASEAN countries.
2. Harmonized and validated methods for analytical tests used by key ASEAN laboratories.
3. Handbook of harmonized and validated methods used in ASEAN.
4. Laboratory Management Manual for key regional laboratories.
5. Accreditation of key regional laboratories to ISO 17025.

Annex 11

INFORMATION COLLECTION FOR SUSTAINABLE PELAGIC FISHERIES IN THE SOUTH CHINA SEA

OVERALL REVIEW OF THE PROPOSED PROGRAM

"Information Collection for Sustainable Pelagic Fisheries in the South China Sea" program comprises of three components. The Component I is organized meeting/workshop for effective program implementation. The Component II involved survey of the actual status of operation and catches of purse seine fishery that include also the fish biology studies. The Component III is examination on maximizing of pelagic fish resources utilization. Participating Departments and Countries in the program are MFRDMD, MFRD, TD, Brunei Darussalam, Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam. The Secretariat of SEAFDEC involves only overall coordination of the program. The responsible Departments for the implementation of Component I are MFRDMD, MFRD and TD, and MFRDMD, TD and Participating Countries are for Component II, and MFRD is for Component III.

In the year 2003, there will be two activities under Component I: Meeting/Workshop for effective program implementation, namely the 2nd Technical Consultation Meeting (TCM) and Training for Data Handling and Analyses. The 2nd TCM that will be held in the third quarter of 2003 will be discussed and finalized the methodology and mechanism of the Regular Data Collection and Analysis to be implemented in 2004-2006, and the discussion will be based on the Pilot Data Collection and Analysis carried out from December 2002 to the middle of 2003. In addition, methodology and mechanism of the activities under the Component III are also discussed and finalized at the 2nd TCM. Training for data handling and analyses will be conducted just before the 2nd TCM and a principal of stock assessment methodology and model, and the database format used in data recording as well as methodology of biological data analyses will be introduced.

A number of Projects/Activities under the Component II will be implemented in the year 2003. They are consisting of the followings:

Project 1. Fishing operation and catches data collection and analysis

- Activity 1.1: Examination/observation of the Selected Landing Site and other fishing port.
  To support the total catch data collections which will be very important for assessment the fish stock, the selected landing site and other fishing port should be observed and examined (such as gear selectivity (mesh size), fishing vessel selecting for tracking) for future planning.
- Activity 1.2: Identification of fishing grounds.
  Fishing grounds are identified using data from the electronic navigation recording system. Fishing vessels for this study have been selected in cooperation with the Technical Officer of the countries. For the year 2003, Thailand, Cambodia and Malaysia have been voluntary implemented, so that introduction of installation and maintenance of such system will be conducted. To ensure the proper installation of

the system and handle of fishing ground information, one TD technical staff will visit those implementing countries in assisting of the technical officer.

- Activity 1.3: Assessment of the target fishes stock.
  Total catch data collected from the selected landing sites will be examined in related to the fishing ground and be also used to assess the fish stock. In addition, study of the selectivity of the some fishing gears, such purse seine and others, will be conducted.

Project 2. Biological data collection and analysis of mackerels and round scads

- Activity 2.1: Growth and mortality of mackerels and round scads.
  Growth and mortality of mackerels and round scads are studied using monthly length frequency data collection.
- Activity 2.2: Reproductive biology of mackerels and roundscads.
  Spawning season, GSI (Gonadosomatic Index) and other reproductive parameters are studied using monthly collected data.
- Activity 2.3: Identification of stock/population on selected species.
  Identification of stock/population of *Rastrelliger kanagurta, Decapterus macrosoma* and *D. maruadi* is carried out by the genetic and morphological methods.

Under the Component III, the below Project/Activities will be implemented:

Project 3. Development of products and processing technology for maximizing utilization

Oct 2002 – Jun 2003

- Activity 3.1: Observation of landing sites and processing facilities.
  MFRD will visit one sampling port in each of the collaborating countries to observe the current status of landings by purse seiners of the target species of pelagic fish and of *the* processing facilities utilizing the pelagic fish. This activity will take place from Oct 2002 to May 2003.
- Activity 3.2: Data analysis to identify processing technology for products development.
  MFRD will examine and review the relevant data from the researchers of MFRDMD and TD together with the results of Activity 3.1 to identify the value-added products to be developed from the target species and the appropriate processing technology especially for Small and Medium Enterprises (SME). This activity will take place from Dec 2002 to Jun 2003.

Jul 2003 – Jun 2004

- Activity 3.3: 30th Regional Training Course in Fish Processing and Packaging (Pelagic Fish).
  MFRD will conduct a training course on fish processing and packaging with emphasis on utilization of pelagic fish species in Jul/Aug 2003. Two participants will be invited from each ASEAN member country and from each of the collaborating institutes.

- Activity 3.4: Pilot Projects with collaborating countries/institutes.

MFRD will identify three or four collaborating countries/institutes for pilot projects to develop value-added products and the appropriate processing technology utilizing the target pelagic fish species. This would involve consultation/observation visits to the collaborating countries/institutes to formulate the details of the pilot projects and to observe the processing facilities available as well as to conduct processing trials.

Pilot projects are undertaken by SEAFDEC Departments (MFRDMD, TD and MFRD) and the participating countries around the South China Sea with overall supervision by SEAFDEC Secretariat. Each participating country has selected a number of sampling ports for the data collection. Cost sharing scheme is involved in the sampling program.

ENVISAGED OUTCOMES OF THE PROPOSED PROGRAM

- Strengthen capabilities of Technical Officer of the participating countries on data handling and analysis through workshops/meetings/trainings.
- Preliminary identification of the fishing ground and examine the status of pelagic fishery in the region.
- Standardization of biological information collection and analysis of mackerels and roundscads.
- Preliminary analysis on the maximum utilization of pelagic fish in the region.

Under the Component 3 of the Program on Information Collection for Sustainable Fisheries of Pelagic Fish in South China Sea, MFRD will develop various value-added products from the under-utilized pelagic fishes through collaborative pilot projects with selected participating countries. The envisaged outcome is a manual(s) on the processing of these value-added products from under-utilized pelagic fishes.

LIST OF THE PROGRAM PROPOSED FOR THE YEAR 2003

Program/Project/Activity	Duration	Proposed Budget (USD)	Remarks
Information Collection for Sustainable Pelagic Fisheries in the South China Sea	2002-2006	250,000	
Component I: Meetings/Workshop for Effective Program Implementation			
Activity 1. The 2nd Technical Consultation Meeting			
Activity 2. Training for data handling and analysis			Including introduction of assessment of fish stock
Component II: Survey for Actual Status of Operation and Catches of the Purse Seine Fishery			
Project 1. Fishing operation and catches data collection and analysis			
Activity 1.1 Examination/observation of the Selected Landing Site and other fishing port			
Activity 1.2 Identification of fishing grounds			Installation of the tracking system to Cambodia, Thailand, Malaysia (from Jan 03)
Activity 1.3 Assessment of the fishes stock			
Project 2. Biological data collection and analysis of mackerels and round scads			
Activity 2.1 Growth and mortality of mackerels and round scads			
Activity 2.2 Reproductive biology of mackerels and round scads			
Activity 2.3 Identification of stock/population of selected species			
Component III: Examination of Maximizing Utilization of Pelagic Fish Resources			
Project 1: Component 3 of the Program on Information Collection for Sustainable Fisheries of Pelagic Fish in South China Sea	Jan-Dec 2003	50,000	
Activity 1: Pilot projects with collaborating countries / institutes	Jan-Dec 2003	20,000	
Activity 2: 30th Regional Training Course in Fish Processing and Packaging (Pelagic Fish)	Jul/Aug 2003	30,000	

PROGRAM DOCUMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism
Program Title: Information Collection for Sustainable Pelagic Fisheries in the South China Sea
Lead Department: MFRDMD in collaboration with TD and MFRD
Total Duration: 2002-2006
Proposed 2003 Budget: USD 250,000

1. INTRODUCTION

In the South China Sea, there are many commercially important pelagic fishes, for example mackerels, scads, sardines and coastal tunas. Although a number of meetings on pelagic fish resources were held so far, the information on pelagic fisheries and pelagic fish biology is still limited. Studies on the use of pelagic fish for production of surimi and surimi-based products are on preliminary stage. Therefore, SEAFDEC proposed a program that aims to collect information on the fisheries of pelagic fish. The program focuses its target on mainly purse seine fishery because that is one of the major fisheries, which are targeting pelagic fishes in the region. Clarification of the actual status of operation and catches of the purse seine fishery in the South China Sea will produce essential information for management exploitation and utilization of the resources of the purse seine fishery.

2. PROGRAM

2.1 Objectives in 2002-2006

1. To clarify the actual status of operation and catches of the purse seine fishery in the South China Sea for sustainable fisheries;
2. To examine existence of under-exploited resources in the purse seine fishery;
3. To examine maximizing utilization of catches in the purse seine fishery; and
4. To clarify the biological characteristics of pelagic fishes caught by the purse seine fishery.

2.2 Program description

The program comprises three Components, i.e. Component I: Meetings/Workshop for Effective Program Implementation; Component II: Survey for Actual Status of Operation and Catches of the Purse Seine fishery; and Component III: Examination of Maximizing Utilization of Pelagic Fish Resources.

3. PROGRESS

The Collaborative Program Meeting was held on 20th June 2002 in Bangkok with attendance of National Coordinators from the expected participating countries. At the meeting, the principle and overall framework of the program as well as cost share scheme were explained, discussed and accepted. Participation of eight countries (Brunei Darussalam, Cambodia, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam) into the Program was confirmed. The 1st Technical Consultation Meeting was held on 5-8 September 2002 at TD with attendance of Technical Officers from the participating countries. At the

meeting, country reports were presented by the participating countries, subsequently the presentation of work plans by MFRD, TD, and MFRDMD. The concrete mechanism and methodologies for the program implementation were discussed and finalized. Preparation for Pilot Data Collection will be done in Oct-Nov and Pilot Data Collection will be started from Dec 2002. Observation of landing sites and processing facilities by MFRD will be started from Oct 2002. Researchers of MFRDMD and TD will visit a landing site of each country to unsure data handling and biological data collection. Technical Officers were also attended the FAO/SEAFDEC Regional Training Workshop on the Use of Statistics and Other Information for Stock Assessment after the 1st TCM.

4. PROPOSED FUTURE ACTIVITIES

Component I: Meetings/Workshop for Effective Program Implementation

- Activity 1: The 2nd Technical Consultation Meeting.
  The Meeting will be held in the 3rd quarter of 2003 to review results of the Data Collection and Analyses and the Observation of landing sites and processing facilities in 2002-2003 and to finalize methodologies and mechanism of activities in 2004-2006.
- Activity 2: Training for data handling and analysis.
  The Training will be held just before the 2nd TCM to train the Technical Officers of participating countries on methodologies to handles and analyze fishing operation and catches data as well as biological data.

Component II: Survey for Actual Status of Operation and Catches of the Purse Seine Fishery

Project 1: Fishing Operation and Catches Data Collection and Analysis

- Activity 1.1: Examination/observation of the Selected Landing Site and other fishing port.
  Examination/observation is made to support the total catch data collection at the selected landing site.
- Activity 1.2: Identification of fishing grounds.
  Fishing grounds are identified with data from the electronic navigation recording system.
- Activity 1.3: Assessment of the target fishes stock.
  Total catch data collected from the selected landing sites is examined in related to the fishing ground and also used to assess the fish stock.

Project 2: Biological Data Collection and Analysis of Mackerels and Round Scads

- Activity 2.1: Growth and mortality of mackerels and round scads.
  Growth and mortality of mackerels and round scads are studied using monthly length frequency data.
- Activity 2.2: Reproductive biology of mackerels and round scads.
  Spawning season, GSI (Gonadosomatic Index) and other reproductive parameters are studied using monthly collected data.
- Activity 2.3: Identification of stock/population of selected species.
  Identification of stock/population of *Rastrelliger kanagurta, Decapterus macrosoma* and *D. maruadi* is carried out by the genetic and morphological methods.

Component III: Examination of Maximizing Utilization of Pelagic Fish Resources

Project 3: Development of Products and Processing Technology for Maximizing Utilization

- Activity 3.1: Observation of landing sites and processing facilities.
  MFRD researchers observe landing sites and processing facilities in three countries.
- Activity 3.2: Data analysis to identify species for products development.
  Species for products development is identified by analysis results of the observation and data collected by Project 1 and 2.
- Activity 3.3: Regional Training Course in Fish Processing and Packaging.
  MFRD conducts a training course on fish processing and packaging with emphasis on utilization of pelagic fish species in Jul/Aug 2003.
- Activity 3.4: Pilot Projects with collaborating countries/institutes.
  MFRD identifies 3-4 collaborating countries/institutes for pilot projects to develop value-added products and the appropriate processing technology.

PROGRAM DOCUMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism
Program Title: Information Collection for Sustainable Pelagic Fisheries in the South China Sea
Lead Department: Marine Fishery Resources Development and Management Department
Total Duration: 1 year (Jan-Dec 2003)

1. INTRODUCTION

In the South China Sea, there are many commercially important pelagic fishes, for example mackerels, scads, sardines and coastal tunas. Although a number of meetings on pelagic fish resources were held so far, the information on pelagic fisheries and pelagic fish biology is still limited. Studies on the use of pelagic fish for production of surimi and surimi based products are also at a preliminary stage. Therefore, SEAFDEC proposed a program that aims to collect information on the fisheries of pelagic fish. The program focuses its target on mainly purse seine fishery because that is one of the major fisheries which are targeting pelagic fishes in the region. Clarification of the actual status of operation and catches of the purse seine fishery in the South China Sea will produce essential information for management exploitation and utilization of the resources of the purse seine fishery.

2. PROGRAM

2.1 Objectives

1. To clarify the actual status of operation and catches of the purse seine fishery in the South China Sea for sustainable fisheries;
2. To examine existence of under-exploited resources in the purse seine fishery;
3. To examine maximizing utilization of catches in the purse seine fishery; and
4. To clarify the biological characteristics of pelagic fishes caught by the purse seine fishery.

2.2 Program Description

The program comprises three Components, i.e. Component I: Meetings/Workshop for Effective Program Implementation; Component II: Survey for Actual Status of Operation and Catches of the Purse Seine fishery; and Component III: Examination of Maximizing Utilization of Pelagic Fish Resources. Participating Departments and Countries in the program are MFRDMD, MFRD, TD, Brunei Darussalam, Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam.

3. PROGRESS

The Collaborative Program Meeting was held on 20th June 2002 in Bangkok with attendance of National Coordinators from the expected participating countries. At the meeting, the principle and overall framework of the program as well as cost share scheme were explained, discussed and accepted. Participation of eight countries (Brunei Darussalam, Cambodia, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam) into the Program was confirmed. The 1st Technical Consultation Meeting was held on 5-8 September

2002 at TD with attendance of Technical Officers from the participating countries. At the meeting, country reports were presented by the participating countries, subsequently the presentation of work plans by MFRD, TD, and MFRDMD. The concrete mechanism and methodologies for the program implementation were discussed and finalized. Preparation for Pilot Data Collection will be done in Oct-Nov and Pilot Data Collection will be started from Dec 2002. Observation of landing sites and processing facilities by MFRD will be started from Oct 2002. Researchers of MFRDMD and TD will visit a landing site of each country to unsure data handling and biological data collection. Technical Officers were also attended the FAO/SEAFDEC Regional Training Workshop on the Use of Statistics and Other Information for Stock Assessment after the 1st TCM.

4. PROPOSED FUTURE ACTIVITIES

Activity 1: Pilot Projects with collaborating countries/institutes

MFRD will identify three or four collaborating countries/institutes for pilot projects to develop value-added products and the appropriate processing technology utilizing the target pelagic fish species. This would involve consultation cum observation visits to the collaborating countries/institutes to formulate the details of the pilot projects and to observe the processing facilities available as well as to conduct processing trials.

Activity 2: 30th Regional Training Course in Fish Processing and Packaging (Pelagic Fish)

MFRD will conduct a training course on fish processing and packaging with emphasis on utilization of pelagic fish species in Jul/Aug 2003. Two participants will be invited from each ASEAN member country and from each of the collaborating institutes.

Annex 12

DIGITIZED ATLAS

1. INTRODUCTION

Over 35 years of SEAFDEC, there were many hundreds of implemented programs and activities have been carried out, most of these were in the hard copies and publication such as research reports, oceanographic profile/data and SEAFDEC fisheries statistic data in the South China, etc. SEAFDEC understands the benefits of geo-informatics technology such as Geographic Information System (GIS), Remote Sensing, Conventional and GPS-Satellite surveying in helping SEAFDEC core activities, including more efficient and more effective ways for information dissemination. Since 1999, digitized atlas project was established through the SEAFDEC homepage. This first phase of work focused on the information dissemination of the current fisheries situation including the result from the Collaborative Research Program on the marine resources survey in the South China Sea and some work on statistic database. Due to the SEAFDEC GIS database is complex, less technology and knowledge on the GIS application, nevertheless, the Geo-informatics technology is diverse and rapidly advancing. These altogether make it necessary for SEAFDEC to improve and update the SEAFDEC Digitized atlas as the **SEAFDEC Fisheries Information System (FIS)** of the Region. In conjunction to this, the promoting of the results from SEAFDEC special program and ASEAN interested issues through SEAFDEC Digitized Atlas is taken into consideration. Besides, the Regional database system and GIS for all fisheries information covers the SEAFDEC area such as coastal fisheries management, fishery statistics database system, fishery oceanography database system are need to develop and establish. These provided Regional Fisheries information will be very useful for fisheries planning, management on sustainable fisheries in the Southeast Asian country.

2. PROGRAM

2.1 Objective

The ultimate goal of this project is to improve the SEAFDEC information system as Digitized Atlas and to construct an operating, integrated data management system on fisheries to SEAFDEC users that can be friendly accessed through the Internet. The main objectives are as follows; 1) To improve the SEAFDEC digitized atlas for user friendly propose, 2) To develop the Regional Database System which related to all Fisheries Information Issues., 3) To develop/establish GIS on the Fisheries Information that related to all of the ASEAN-SEAFDEC Interested Issues and 4) To promote the SEAFDEC digitized atlas through others publication, advertisement and media.

2.2 Program Description

The program composes of three main components as follows:

2.2.1. Consultation Meeting among Departments, there are two activities:

Activity 1. Consultation Meeting: This consultation meeting will be organized in order to improve the project plan and to discuss on all available fisheries information/data from each Department. Structure of the overall project of the SEAFDEC Digitized Atlas can be

clarified. The participants from SEAFDEC Departments and Consultants from others international Organization will be invited as the Departmental coordinator. Some supporting policy on data providing will also be discussed and created in order to support the SEAFDEC Digitized Atlas project,

Activity 2. Technical Working Group Meeting: This meeting will be made during visiting the SEAFDEC Department in order to observe and discuss on the detailed available data of Department. Technology and knowledge transferring on the Fisheries GIS to Department and member countries will be planned for future activity.

2.2.2 Improve/Update the SEAFDEC Digitized Atlas, there are four activities.

Activity 1. Develop the Regional Database Management System
Activity 2. Develop the GIS of Fisheries and Data Analyses
Activity 3. Upgrade and Improve of the Hard and Software of the System:
Activity 4. Information Exchange and Staff Development

2.2.3. Develop/establish and promote of the SEAFDEC digitized atlas of the Regional project through SEAFDEC Web-site, there are two activities:

Activity 1. Develop and establish the Online Visualization
There are two outputs that will be presented online through the SEAFDEC web page as follows: 1) Highlights of all subject in Hyper Text Makeup Language (HTML) that are downloadable files, 2) Database text query from Map Application Presentation.

Activity 2. Promotion of the SEAFDEC Digitized Atlas

3. PROGRESS

1. Database on Oceanographic data in the South China Sea and Indian Ocean.
2. CD Rom package of the SEAFDEC GIS on Fishery Resource in the South China Sea Area
3. CD Rom package of the SEAFDEC GIS on Conservation and Management of Sea Turtles in the Southeast Asia
4. CD Rom package of the SEAFDEC GIS on Mapping of fishing ground of each fishing gear and their seasonal change and aquaculture site under the "Locally-Based Coastal Resources Management (Case study in Thailand) under the Coastal Resource Management Program".

4. PROPOSED FUTURE ACTIVITIES

The activities to be implemented the year 2003 are listed as follows:

1. Technical working group meeting among the departments in order to develop the GIS work on particular issues under the ASEAN/SEAFDEC program such as Promotion of Mangrove-Friendly Aquaculture in Southeast Asia, Regionalization of the Code of Conduct for Responsible Fisheries and others.
2. Develop and establish the Regional Database for Coastal Fisheries Management
3. Establish online visualization of GIS and Database through SEAFDEC home page
4. Increase the efficiency of the SEAFDEC Internet Server.

Annex 13

APPLICATION OF HACCP IN THE FISH PROCESSING INDUSTRY IN SOUTHEAST ASIA

OVERALL REVIEW OF THE PROPOSED PROGRAM

In 2003, under the Japanese Trust Fund I project there will be two activities.

The 1st Activity is the last Workshop on the Application of HACCP in the Fish Processing Industry in Southeast Asia will be conducted in Singapore and this culminates the work and activities by the network of fisheries post-harvest technology officers, over 4 years, in reviewing the application of HACCP and challenges faced especially by the small and medium enterprises of the fish processing industry in the region.

ENVISAGED OUTCOMES OF THE PROPOSED PROGRAM

The envisaged outcome is a publication on the Application of HACCP in the Fish Processing Industry in Southeast Asia as well as a regional network of fisheries post-harvest technology officers who have experience and in depth understanding of the application of HACCP in small and medium enterprises in Southeast Asian fish processing industry. The publication will include country status reports on HACCP application covering description of HACCP programmes implemented, problems/difficulties encountered, strategies/policies including national legislation, and future directions. Case study examples of HACCP implementation in the various fish processing industry will also be included in the publication.

LIST OF THE PROGRAM PROPOSED FOR THE YEAR 2003

Program/Project/Activity	Duration	Proposed Budget (USD)	Remarks
Application of HACCP in the Fish Processing Industry in Southeast Asia	Jan-Dec 2003	47,000	
Activity1: The 4th Regional Workshop on the Application of HACCP in the Fish Processing Industry in Southeast Asia	2nd quarter of 2003	40,000	
Activity 2: Preparation and printing of final publication	Jun-Dec 2003	7,000	

PROGRAM DOCUMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism
Program Title: Application of HACCP in the Fish Processing Industry in Southeast Asia
Lead Department: Marine Fisheries Research Department
Lead Country: Singapore
Total Duration: 1 year (Jan-Dec 2003)

1. INTRODUCTION

Since its development in the early 1960's, the Hazard Analysis and Critical Control Point or HACCP system has become the system of choice for ensuring food safety in many developed countries. HACCP has been endorsed worldwide by the Codex Alimentarius Commission of FAO/WHO, the European Union (EU) and by several countries such as USA, Canada, Australia, New Zealand and Japan. The use of HACCP in the seafood industry has also taken on a truly global perspective in the production and inspection of fish and fishery products. Many of the ASEAN countries have implemented or are in the process of implementing national HACCP programs for their fish processing industry.

In line with international trends and also essentially to comply with the regulations of the importing countries especially the EU and the USA, most of the ASEAN countries have implemented HACCP programmes, either mandatory or voluntary, in their fish processing industry albeit to varying degrees. In addition to export products, the ASEAN countries are also now looking into HACCP application for their traditional fish and fishery products. The program will document HACCP application in the fish processing industry in the ASEAN countries and provide a useful platform for the sharing of information and experiences on HACCP application among the ASEAN countries.

2. PROGRAM

2.1 Objectives

To collate information and data on HACCP application in ASEAN countries and produce a publication on the application of HACCP in the fish processing industry in ASEAN.

2.2 Program Description

The program comprises of a series of four workshops held annually from 2000-2003 and a research project to help upgrade the traditional fermented fish products industry in Myanmar through HACCP application and upgrading of laboratory expertise.

3. PROGRESS

This program was initiated in 2000 and two workshops have been held. The first inaugural workshop was held in Singapore in Aug 2000 and the second in Ho Chi Minh City, Vietnam in Oct 2001. The third workshop is planned for Nov 2002 and will be held in Manila, Philippines. Two study trips under the research project in Myanmar have been conducted in Jun 2001 and in Jan 2002. HACCP plans for the traditional fermented fish products of fish sauce and fish paste were developed.

Standards for these products based on the Thai standards were recommended. The attachment of two Myanmar technical staff of the Export Quality Control Laboratory in MFRD for 2 months from Aug-Sep 2002 to study histamine determination using the HPLC was postponed to Feb-Mar 2003.

4. PROPOSED FUTURE ACTIVITIES

Two activities are planned for the fourth and final year (2003) of the project:

Activity 1: The 4th Regional Workshop on the Application of HACCP in the Fish Processing Industry in Southeast Asia.

This final workshop will be held in Singapore in the second quarter of 2003. The workshop will examine and review the information and data collected on the application of HACCP in the Southeast Asian countries over the past three years to determine the progress made since the first workshop and the extent to which the recommendations made then have been achieved. The workshop will also decide on the format of the final publication of the project.

Activity 2: Preparation and printing of final publication

MFRD will produce a publication on the application of HACCP in the fish processing industry in Southeast Asia in the second half of the year after the 4th workshop. . The publication will include country status reports on HACCP application covering description of HACCP programmes implemented, problems/difficulties encountered, strategies/policies including national legislation, and future directions. Case study examples of HACCP implementation in the various fish processing industry will also be included in the publication.

Annex 14

MANAGEMENT OF FISHERIES AND UTILIZATION OF SHARK IN SOUTHEAST ASIA

1. INTRODUCTION

The fisheries sector in the Southeast Asian region is currently faced with many problems from the sustainable fisheries' point of view, these include the pressure of excessive fish catch, depletion of marine resources and environmental disruption. With the aim to establish sustainable regional fisheries in Southeast Asia, SEAFDEC in collaboration with member countries has already implemented various activities including technical development, training programs and the dissemination of technology and information under the FCG scheme. Especially, since the issue of sustainable fisheries based upon conservation of fishery resources is one of the most important themes that face regional fisheries in Southeast Asia in recent years, this issue was focused upon and also emphasized at the ASEAN-SEAFDEC Millennium Conference in 2001 and encapsulated in the 34th SEAFDEC Council Meeting. At the meeting on Fish Trade and Environment, organized by SEAFDEC in collaboration with ASEAN in October 2001, SEAFDEC and member countries recognized some environmental related issues like shark fishery that are closely associated with fisheries management, and confirmed the necessity to address these issues promptly and effectively.

Meanwhile, in November 2002, the 12th Meeting of the Conference of Parties of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) adopted some shark species to be listed to regulate their trade under the CITES scheme. Elasmobranches including shark species are important fisheries species in the Region even though they are not targeted species in fisheries. While the movement surrounding elasmobranches fisheries might affect fisheries activities in the Region, it is not fully understood in the fisheries communities in the region.

Since it is also scheduled to have the 13th Meeting of the Conference of Parties (COP13) of CITES in Thailand in 2005, it is certain that the shark issue will be raised again in COP13, and it will cause some confusion and problems in fisheries policy in the SEAFDEC member countries.

Under these circumstances, SEAFDEC will collect information on shark fisheries and its utilization and, if necessary, develop schemes to collect statistics to delineate shark fisheries in the Region. These approaches also include market studies of shark products including distribution channels.

2. PROGRAM

The most important aspect to improve fisheries management is firstly to delineate the real status of shark fisheries in the Region, and secondly to develop applicable management schemes necessary to local, national and regional fisheries and a model of a National Plan of Action on Shark encouraged by the FAO. SEAFDEC will conduct a new project will be started from year 2003 in order to; 1) collect information on shark fisheries and its utilization and, if necessary; 2) develop schemes to collect statistics to delineate shark

fisheries in the Region. These approaches also include market studies of shark products including distribution channels.

To implement this project, it is essential for the program to establish a regional network for researchers and institutions related to shark.

In the first year, 2 projects will start under this program; 1) Improvement for Management of Shark Fisheries in the Region (Project 1); and 2) Rational Utilization of Harvested Sharks (Project 2).

Under the project 1, SEAFDEC will conduct various researches focusing on delineating the status of shark fisheries in the region, taking account of necessity of rational management. In addition, for clarification of the current status of shark fisheries in the region for the proper management, a Technical Consultative Meeting on shark fisheries in the region will be planned in June 2003. Technical officers and researchers related to shark fisheries of ASEAN-SEAFDEC Member Countries as well as CITES authorities are expected to attend the meeting. Each country will present a country report on shark fisheries. Then, how to tackle the issues recommended by the ASEAN-SEAFDEC Regional Meeting on "Fish Trade and Environment" held in Oct. 2002 will be discussed. In addition, a strategy and preparatory works toward the forthcoming CITES COP13 (13th Meeting of the Conference of the Parties) will be also discussed.

Under the project 2, SEAFDEC will conduct research in order to; 1) delineate status of shark product market in the region and; 2) enhance rational utilization of shark caught in the region. And the Technical Consultative Meeting will also be organized in early year 2003 in order to; 1) collate preliminary information on the status of trade in and utilization of shark products in the Southeast Asian countries; and 2) appoint the survey respondents from relevant governmental organizations/authorities for further research related to market.

3. ENVISAGED OUTCOME OF THE PROPOSED PROGRAM

Outcomes from Project 1:

1. Improved data on landing at the species to provide more accurate information needed for shark management;
2. Development of regional and national capacity for monitoring and managing resources in the region by the regional training on taxonomy and biology of sharks and rays;
3. Improvement of the level of knowledge required for fisheries and conservation management objectives and strategies;
4. Enhancement of public awareness on shark fisheries and the surrounding situation.

Outcomes from Project 2:

1. Improved information on market of shark products in the region would be available
2. Inventory of Shark Products in Southeast Asia would be developed
3. Handbook on Shark Products would be published

LIST OF THE PROGRAM PROPOSED FOR THE YEAR 2003

Program/Project/Activity	Duration	Remarks
Management of Fisheries and Utilization of Shark in Southeast Asia		
1. Improvement for Management of Shark Fisheries in the Region		
1.1 Technical Consultation Meeting on Shark Fisheries in the Region	Jun 2003	.
1.2 Establishment and Development of a Regional Network on Shark Fisheries	Apr-Dec 2003	
1.3 Pilot Study on Refinement of Shark Fisheries Statistics		
1.4 Regional Training on Taxonomy and Biology of Sharks and Rays	May-Dec 2003	
1.5 Research on the Taxonomy, Biology and Ecology of Sharks in ASEAN-SEAFDEC Countries	Sep 2003	
1.6 Examination of Regional Guideline for NPOA for Shark	May-Dec 2003	
	May-Dec 2003	
2. Rational Utilization of Harvested Sharks		
2.1 Survey of Shark Utilization in Southeast Asia	Jun-Dec 2003	

Annex 15

ESTABLISHMENT OF DISEASE SURVEILLANCE SYSTEM OF AQUATIC ANIMALS

OVERALL REVIEW OF THE PROPOSED PROGRAM

In the last two decades, aquaculture in the ASEAN region grew rapidly and contributed much in increasing food supply and affluence of the region. However, due to its rapid growth and generally uncontrolled health management, many infectious diseases emerged, threatening the continuous growth and sustainability of aquaculture. To meet this problem, the Government of Japan provided the Japanese Trust Fund to enable SEAFDEC to implement a regional fish disease project on the Development of Fish Disease Inspection Methodologies for Artificially-bred Seeds, from 2000 to 2003.

The Project implemented research on the development of standardized diagnostic methods, husbandry methods for disease control and a monitoring method for residual chemicals in aquaculture products. The project, in particular, focused on the development of diagnostic methods of important viral diseases of shrimp and marine fish, and the output of research was disseminated to ASEAN countries by conducting an executive hands-on training for national trainers.

The Project also strengthened collaboration with other international organizations such as OIE and NACA and proposed a basic scheme for disease control in the region. Thus, the Project has successfully paved the way for the development of the disease control and surveillance system for the region.

Based on the above mentioned progress, SEAFDEC proposes to extend the original project by implementing a project on the Establishment of Disease Surveillance System of Aquatic Animals. It is further proposed that this new project be established under the FCG collaborative mechanism.

The new project, which is proposed for four-year period from 2004 to 2007, aims for SEAFDEC/AQD to play the role of a regional fish disease technological center, by conducting activities, such as: (1) Research on refinement of diagnostic methods and on the development of new disease prevention methods; (2) Surveillance on viral and parasitic diseases in the region; (3) Mobile clinics; (4) e-learning and hands-on training; (5) International workshop on regional disease control and surveillance system; and (6) Dissemination of research output of new disease-prevention methods.

LIST OF THE PROGRAM PROPOSED FOR THE YEAR 2003

Program/Project/Activity	Duration	Remarks
Establishment of Disease Surveillance System of Aquatic Animals		
1. Preparation and Submission of proposal to the FCG Members for comments	Jan-Feb	
2. Revision of proposal as necessary and finalization for submission to the 5th FCG Meeting	March	