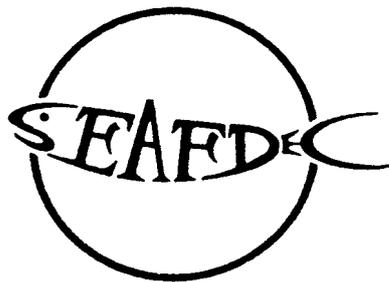


**REPORT OF
THE SIXTH MEETING OF THE ASEAN-SEAFDEC FISHERIES
CONSULTATIVE GROUP (FCG)**

**Bangkok, Thailand
5 April 2004**



**THE SECRETARIAT
SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER**

PREPARATION AND DISTRIBUTION OF THIS DOCUMENT

Report of the Sixth Meeting of the PASEAN-SEAFDEC Fisheries Consultative Group (FCG) was prepared by the Secretariat of the Southeast Asian Fisheries Development Center (SEAFDEC), in collaboration with the Association of Southeast Asian Nations (ASEAN). The Document is distributed to the ASEAN-SEAFDEC Member Countries, SEAFDEC Departments and concerned institutions.

BIBLIOGRAPHIC CITATION

SEAFDEC. 2004. Report of the Sixth Meeting of the ASEAN-SEAFDEC Fisheries Consultative Group (FCG), Southeast Asian Fisheries Development Center, the Philippines. 200 pp.

NOTICE OF COPYRIGHT

This publication may not be reproduced, in whole or in part, by any method or process, without written permission from the copyright holder. Applications for such permission with a statement of the purpose and extent of the reproduction desired should be made through and addressed to:

SEAFDEC Secretariat
Suraswadi Building
Kasetsart University Campus
P.O. Box 1046 Kasetsart Post Office
Bangkok 10903, Thailand.

ISBN: 974-537-299-4
All rights reserved

©SEAFDEC 2004

EXECUTIVE SUMMARY

The Sixth Meeting of the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) was held on 5 April 2004 in Bangkok, Thailand with the objectives to discuss the ASEAN-SEAFDEC fisheries collaborative programs as well as issues related to ASEAN-Japan cooperation on sustainable fisheries through SEAFDEC and fisheries policies of ASEAN important issues.

ASEAN-SEAFDEC FISHERIES COLLABORATIVE PROGRAMS

The Meeting endorsed the review of progress for the year 2003 and proposed of future activities for the year 2004 of existing FCG programs as well as three new proposed programs to be placed under the FCG mechanism. For future implementation of all programs, the Meeting made the following recommendations:

- To also incorporate cost and earning analysis as well as trade-related issues to aquaculture i.e. use of fishery subsidies, Sanitary and Phyto-sanitary (SPS) measure, anti-dumping in future activities of the program on the Promotion of Mangrove-friendly Aquaculture in Southeast Asia;
- To include a core expert from all ASEAN Member Countries in the ASEAN Post-harvest Technology Network, which will be mobilized for the implementation of the program on Regionalization of the Code of Conduct for Responsible Fisheries (RCCRF), Phase IV: Post-harvest Practices and Trade;
- To seek cooperation with other international/regional organizations on human resources development under the program on RCCRF and closer cooperation with Sida in the future; and
- For MFRD in collaboration with AQD to work closely with Thailand in developing human capacity on laboratory testing of Chloramphenicol and Nitrofurantoin residues in fish and fisheries products for other ASEAN Member Countries.

ASEAN-JAPAN COOPERATION FOR SUSTAINABLE FISHERIES THROUGH SEAFDEC

The Meeting also supported the initiatives promoted under the ASEAN-Japan cooperation for sustainable fisheries through SEAFDEC. These include:

- Statement of the Seminar on ASEAN-Japan Cooperation for Sustainable Fisheries through SEAFDEC;
- Mid-term Review of the Implementation of the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region; and
- Strategy for Human Resource Development (HRD) in Fisheries in the ASEAN Region.

Based on the above initiatives, the Meeting supported the proposal made by SEAFDEC Secretariat to evaluate the implementation of the Resolution and Plan of Action including the results of the first phase implementation of the Special 5-year program and its impacts in close consultation with the Member Countries. The Meeting also suggested that the outcome of the evaluation and the Strategy for HRD in fisheries could provide bases for formulation of activities under the second phase of the Special 5-year program to support the ASEAN Member Countries in the future implementation of the Resolution and Plan of Action.

POLICY CONSIDERATION ON ASEAN IMPORTANT ISSUES

The Meeting discussed and recommended the following:

1. Issues related to Fish Trade and Environment

The Meeting took note of the outcomes of the ASEAN-SEAFDEC Preparatory Meeting on Issues related to Fish Trade and Environment particularly on issues related to marine species under the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES) and fisheries subsidies and suggested:

- To give due consideration to socio-economic importance of fisheries subsidies and not support any proposal against the use of fisheries subsidies without sufficient supporting scientific evidence and/or undermining on-going national resource management;
- To concretize a common position among the ASEAN-SEAFDEC Member Countries on fisheries subsidies to be reflected in the forthcoming FAO Technical Consultation on Fisheries Subsidies to be held in June 2004;
- To reflect the outcomes related to excess fishing capacity concluded at the Regional Technical Consultation on the Use of Indicators for Sustainable Development and Management of Capture Fisheries in the FAO Technical Consultation on Fishing Capacity to be held back-to-back with the FAO Technical Consultation on Fisheries Subsidies;
- To urge the ASEAN-SEAFDEC Member Countries for their active participation into the above two FAO technical consultations;
- To include the issues related to commercial marine species particularly shark species to come under the purview of international fisheries competent agency like FAO and not under CITES;
- To encourage all ASEAN-SEAFDEC Member Countries to promote in-country coordination between the national CITES competent authority and the national fishery agency on issues related to CITES;
- To support fisheries representatives of the ASEAN-SEAFDEC Member Countries to be actively involved in relevant CITES preparatory meetings and included in the national delegates to participate into the forthcoming CoP13 of CITES to be held in October 2004 in Thailand.
- To support the proposal for a representative of SEAFDEC Secretariat to participate as observer in the forthcoming meeting of ASEAN Expert Group (AEG) on CITES and the Special Senior Officials' Meeting (SOM) for ASEAN Ministers in Agriculture and Forestry (AMAF) to coordinate the above issues.

2. Recommendations on Safety at Sea for Small Fishing Boats in the Southeast Asia

While endorsed the recommendations on Safety at Sea for Small Fishing Boats in the Southeast Asia, the Meeting suggested that the issue should be consulted and coordinated with the ASEAN maritime transportation mechanism.

3. ASEAN-SEAFDEC Cost-sharing Issues

The Meeting in principle supported the proposed guidelines and mechanism to promote the national actions in the cost-sharing manner on the national component of FCG programs and suggested:

- To integrate cost-sharing issues into overall planning and implementation of the FCG programs to enhance active participation and ownership of the Member Countries in the FCG programs;

- To develop detailed guidelines and mechanisms on cost-sharing for future implementation of the FCG programs considering the existing cost-sharing experiences of ASEAN including in-kind and in-cash contribution as well as special treatment to new Member Countries under the Initiative for ASEAN Integration (IAI); and
- To leave the cost-sharing principle including arrangement for the use of M.V. SEAFDEC 2 to the Eligible Countries Committee and the Vessel Operation Committee for finalization

In conclusion, the Meeting agreed to submit the proposals and recommendations concluded at this Meeting for consideration at the meeting of SEAFDEC Council and the forthcoming meeting of the ASEAN Sectoral Working Group on Fisheries.

CONTENTS

	Page No.
I. INTRODUCTION	1-4
II. ASEAN-SEAFDEC FISHERIES COLLABORATIVE PROGRAMS	5-11
III. ASEAN-JAPAN COOPERATION FOR SUSTAINABLE FISHERIES THROUGH SEAFDEC	12-13
IV. POLICY CONSIDERATION ON ASEAN IMPORTANT ISSUES	14-24
V. CONCLUSION	25

ANNEXES

	Page
1 List of Participants	7
2 Agenda	15
3 Promotion of Mangrove-friendly Aquaculture in Southeast Asian Countries	17
4 Conservation and Management of Sea Turtles in Southeast Asian Countries	27
5 Regionalization of the Code of Conduct for Responsible Fisheries	31
6 Development of Fish Diseases Inspection Methodologies for Artificially-bred Seeds	35
7 Fish Trade and Environment	39
8 Coastal Resource Management	43
9 Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region	49
10 Information Collection for Sustainable Pelagic Fisheries in the South China Sea	125
11 Digitized Atlas	131
12 The Application of HACCP in the Fish Processing Industry in Southeast Asia	135
13 Management of Fisheries and Utilization of Shark in Southeast Asia	139
14 Seafood Safety Information Network	143
15 Chloramphenicol and Nitrofurantoin Residues in Aquaculture Fish and Fish Products	147
16 Statement from the Seminar on ASEAN-Japan Cooperation for Sustainable Fisheries through SEAFDEC	151
17 Results of the Mid Term Review of the Implementation of the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region (December 2001- December 2003)	153
18 Strategy for Human Resource Development in Fisheries in the ASEAN Region	187
19 Summary Report of the ASEAN-SEAFDEC Preparatory Meeting on Issues related to Fish Trade and Environment	191
20 Recommendations on Safety at Sea for Small Fishing Boats in Southeast Asia	195
21 Proposed Guidelines and Mechanism to Promote the National Actions in the Cost-sharing Manner on the National Component of FCG Programs	197

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

**Bangkok, Thailand
5 April 2004**

I. INTRODUCTION

1. The Sixth Meeting of the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) was held on 5 April 2004 in Bangkok, Thailand with the objectives to discuss the ASEAN-SEAFDEC fisheries collaborative programs as well as issues related to ASEAN-Japan cooperation on sustainable fisheries through SEAFDEC and fisheries policies of ASEAN importance.
2. The Meeting was attended by representatives of the ASEAN and SEAFDEC Member Countries (except for Indonesia), ASEAN Secretariat as well as SEAFDEC Secretariat and Departments. The Meeting was also attended by a representative of the Swedish International Development Cooperation Agency (Sida). The list of participants appears as Annex 1.
3. The Meeting was co-chaired by the SEAFDEC Secretary-General, Mr. Niwes Ruangpanit and the representative of Lao PDR, Mr. Mahanakorn Souriya, in capacity of the current Chairman of the ASEAN Sectoral Working Group on Fisheries (ASWGF).i).
4. The Agenda, which appears as Annex 2 was adopted.

II. ASEAN-SEAFDEC FISHERIES COLLABORATIVE PROGRAMS

2.1 Review of the Progress and Proposed Future Program of Activities under the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) Mechanism (2003-2004)

5. The Meeting took note of the review of progress and proposed of future program of activities for the year 2003 and 2004 under the FCG mechanism by respective SEAFDEC Lead Departments as follows:
 - Promotion of Mangrove-friendly Aquaculture in Southeast Asian Countries (Annex 3);
 - Conservation and Management of Sea Turtles in Southeast Asian Countries (Annex 4);
 - Regionalization of the Code of Conduct for Responsible Fisheries (Annex 5);
 - Development of Fish Diseases Inspection Methodologies for Artificially-bred Seeds (Annex 6);
 - Fish Trade and Environment (Annex 7);
 - Coastal Resource Management (Annex 8);
 - Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region (Annex 9);
 - Information Collection for Sustainable Pelagic Fisheries in the South China Sea (Annex 10);
 - Digitized Atlas (Annex 11); and

- Application of HACCP in the Fish Processing Industry in Southeast Asia¹ (Annex 12).

6. As part of the program on the Promotion of Mangrove-friendly Aquaculture in Southeast Asia, the Meeting suggested SEAFDEC Aquaculture Department (AQD) to also incorporate cost and earning analysis as well as trade-related issues to aquaculture i.e. use of fishery subsidies, Sanitary and Phyto-sanitary (SPS) measure, anti-dumping in future program activities.

7. Regarding the ASEAN Post-harvest Technology Network, which will be mobilized for the implementation of the program on Regionalization of the Code of Conduct for Responsible Fisheries (RCCRF), Phase IV: Post-harvest Practices and Trade, the Meeting requested SEAFDEC Marine Fisheries Research Department (MFRD) to include a core expert from all ASEAN Member Countries to reflect common requirements and to ensure active participation from the Member Countries.

8. The Meeting took note with appreciation of the collaborative project between SEAFDEC and the Swedish International Development Cooperation Agency (Sida) on human resources development under the program on RCCRF focusing on issues related to fisheries management. The Meeting also encouraged SEAFDEC to seek similar cooperation with other international/regional organizations and closer cooperation with Sida in the future.

2.2 New Proposed Programs under the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) Mechanism (2004)

9. The Meeting took note of the three new proposed programs presented by respective SEAFDEC Lead Departments to be placed under the FCG mechanism as follows:

- Management of Fisheries and Utilization of Shark in Southeast Asia (Annex 13)
- Seafood Safety Information Network (Annex 14)
- Chloramphenicol and Nitrofurantoin Residues in Aquaculture Fish and Fish Products (Annex 15)

10. Considering the advance expertise of Thailand in laboratory testing of Chloramphenicol and Nitrofurantoin residues in fish and fisheries products, the Meeting suggested MFRD in collaboration with AQD to work closely with Thailand in developing human capacity on the issue for other ASEAN Member Countries.

11. While expressing appreciation to the success in the implementation of the FCG program of activities in the year 2003, the Meeting requested SEAFDEC Secretariat and Departments to incorporate the above recommendations for future implementation. The Meeting, after deliberation, endorsed the review of progress and proposed future program of activities for 2003-2004 as well as new proposed programs to be placed under the FCG mechanism.

¹ The program ended in 2003.

III. ASEAN-JAPAN COOPERATION FOR SUSTAINABLE FISHERIES THROUGH SEAFDEC

12. The Meeting expressed appreciation to Japan for continuous support and cooperation for sustainable fisheries in the ASEAN region, as this could serve as a basis for closer partnership among ASEAN Member Countries and Japan. The Meeting also supported the following initiatives promoted under the ASEAN-Japan cooperation for sustainable fisheries through SEAFDEC as presented by SEAFDEC Secretariat:

- Statement of the Seminar on ASEAN-Japan Cooperation for Sustainable Fisheries through SEAFDEC (Annex 16);
- Mid-term Review of the Implementation of the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region (Annex 17); and
- Strategy for Human Resource Development (HRD) in Fisheries in the ASEAN Region (Annex 18).

13. Based on the above initiatives, the Meeting supported the proposal made by SEAFDEC Secretariat to evaluate the implementation of the Resolution and Plan of Action including the results of the first phase implementation of the Special 5-year program and its impacts in close consultation with the Member Countries. The Meeting also suggested that the outcome of the evaluation and the Strategy for HRD in fisheries could provide bases for formulation of activities under the second phase of the Special 5-year program to support the ASEAN Member Countries in the future implementation of the Resolution and Plan of Action.

IV. POLICY CONSIDERATION ON ASEAN IMPORTANT ISSUES

4.1 Policy Consideration on Issues related to Fish Trade and Environment

14. The Meeting took note with appreciation of the outcomes of the ASEAN-SEAFDEC Preparatory Meeting on Issues related to Fish Trade and Environment (Annex 19) organized from 16-18 March 2004 by SEAFDEC Secretariat particularly on issues related to marine species under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and fisheries subsidies.

15. The Meeting also noted the information presented by the representative from Japan related to the on-going discussion on fisheries subsidies issues at the World Trade Organization (WTO) and suggested that due consideration should be given to socio-economic importance of fisheries subsidies. The Meeting also suggested that any proposal against the use of fisheries subsidies without sufficient supporting scientific evidence and/or undermining on-going national resource management should not be supported.

16. Based on the outcomes of the above Preparatory Meeting on Issues related to Fish Trade and Environment, the Meeting stressed the importance to concretize a common position among the ASEAN-SEAFDEC Member Countries on fisheries subsidies to be reflected in the forthcoming FAO Technical Consultation on Fisheries Subsidies to be held in June 2004.

17. Back-to-back with the FAO Technical Consultation on Fisheries Subsidies, the Meeting was also informed by SEAFDEC Secretariat of another FAO Technical



Consultation on Fishing Capacity. In this connection, the Meeting suggested that the outcomes related to excess fishing capacity concluded at the Regional Technical Consultation on the Use of Indicators for Sustainable Development and Management of Capture Fisheries, which was held from 9 to 11 March 2004 by MFRDMD should be reflected in the FAO Consultation. The Meeting also urged the ASEAN-SEAFDEC Member Countries for their active participation into the above two FAO technical consultations.

18. With respect to the issues related to commercial marine species particularly shark species under CITES, the Meeting strongly suggested that the issues should come under the purview of international fisheries competent agency like FAO and not under CITES. This common position was well echoed during the recent Technical Consultation on Sea Cucumber organized from 1 to 3 March in Malaysia.

19. Considering the fact that issues related to CITES are responsible by the national CITES competent authority not the national fishery agency, the Meeting encouraged all ASEAN-SEAFDEC Member Countries to promote in-country coordination between the two agencies. The Meeting also supported that fisheries representatives of the ASEAN-SEAFDEC Member Countries should be actively involved in relevant CITES preparatory meetings and included in the national delegates to participate into the forthcoming CoP13 of CITES to be held in October 2004 in Thailand. In addition, the Meeting also supported the proposal for a representative of SEAFDEC Secretariat to participate as observer in the forthcoming meeting of ASEAN Expert Group (AEG) on CITES and the Special Senior Officials' Meeting (SOM) for ASEAN Ministers on Agriculture and Forestry (AMAF) to coordinate the above issues.

4.2 Recommendations on Safety at Sea for Small Fishing Boats in the Southeast Asia

20. The Meeting endorsed the recommendations on Safety at Sea for Small Fishing Boats in the Southeast Asia (Annex 20) as presented by SEAFDEC Training Department. The Meeting viewed the issue as of importance to the region reflecting the nature of fisheries, of which the majority is coastal small-scale fisheries. The issue could also contribute to achieving the Vision "to be the leader in sustainable tropical fisheries for the people" as adopted at the Seminar on ASEAN-Japan Cooperation for Sustainable Fisheries through SEAFDEC held in December 2003.

21. The Meeting noted the information provided by the ASEAN Secretariat on the similar initiative promoted under the ASEAN cooperation in maritime transportation and suggested that the issue be consulted and coordinated within the appropriate framework and mechanism.

4.3 ASEAN-SEAFDEC Cost-sharing Issues

22. The Meeting in principle supported the proposed guidelines and mechanism to promote the national actions in the cost-sharing manner on the national component of FCG programs as presented by SEAFDEC Secretariat (Annex 21). With the view to enhance active participation and ownership of the Member Countries in the FCG programs, the Meeting suggested that cost-sharing issues should be integrated into overall formulation, planning and implementation of the FCG programs by SEAFDEC in close collaboration with the Member Countries.

23. The Meeting also took note of the existing cost-sharing experiences of ASEAN presented by the ASEAN Secretariat including in-kind and in-cash contribution as well as special treatment to new Member Countries under the Initiative for ASEAN Integration (IAI). The Meeting further suggested that the above experiences could be used as a basis to develop detailed guidelines and mechanisms on cost-sharing for future implementation of the FCG programs.

24. While noting the concern regarding readiness to share cost in the use of M.V. SEAFDEC 2 and the request for special treatment expressed by some of the new ASEAN Member Countries, the Meeting suggested that the cost-sharing principle including arrangement with the requesting countries should be left to the Eligible Countries Committee and the Vessel Operation Committee for finalization.

V. CONCLUSION

25. After deliberation on collaborative programs and issues under the FCG mechanism, the Meeting agreed to submit the proposals and recommendations concluded at this Meeting for consideration at the forthcoming meetings of SEAFDEC Council and ASEAN Sectoral Working Group on Fisheries.

LIST OF PARTICIPANTS

ASEAN-SEAFDEC MEMBER COUNTRIES

BRUNEI DARUSSALAM

Hajah Hasnah Binti Ibrahim (Ms.)
Deputy Director of Fisheries

Fisheries Department
Ministry of Industry and Primary Resources
Jalan Menteri Besar, Berakas, BB 3910
Brunei Darussalam
Phone: +673 (2) 383 412
Fax: +673 (2) 382 069
e-mail: hasnah_ibrahim@fisheries.gov.bn

Munah Haji Lampoh (Ms.)
Fisheries Officer

Fisheries Department
Ministry of Industry and Primary Resources
Jalan Menteri Besar, Berakas, BB 3910
Brunei Darussalam
Phone: +673 (2) 383 412
Fax: +673 (2) 382 069
e-mail: munah_lampoh@fisheries.gov.bn

CAMBODIA

H.E. May Sam Oeun
Secretary of State

Ministry of Agriculture, Forestry and Fisheries
200 Norodom Boulevard
Phnom Penh, Cambodia
Fax: +855 (23) 216 476

Mong Leng
Chief of Planning Office

Department of Fisheries
186 Norodom Boulevard
P.O. Box 582, Phnom Penh, Cambodia
Phone: +855 (12) 624 803
Fax: +855 (23) 215 470

INDONESIA

Anto Sunaryanto
Secretary to Directorate General of Aquaculture,
and National Coordinator for Indonesia

Directorate General of Aquaculture
Ministry of Marine Affairs and Fisheries
Jl. Harsono RM. No. 3, Building B, Floor 5
Ragunan, Pasar Minggu
Jakarta 12550, Indonesia
Phone/Fax: +62 (21) 780 4066
e-mail: asunaryanto@yahoo.com

JAPAN

Shiro Yuge
Deputy Director-General

Fisheries Agency
Ministry of Agriculture, Forestry and Fisheries
1-2-1, Kasumigaseki, Chiyoda-ku
Tokyo 100-8907, Japan
Phone: +81 (3) 3503 8971
Fax: +81 (3) 3504 2649



Tetsuya Kawashima
Assistant Director, Office of Overseas Fisheries
Cooperation, and National Coordinator for
Japan

Fisheries Agency
Ministry of Agriculture, Forestry and Fisheries
1-2-1 Kasumigaseki, Chiyoda-ku
Tokyo 100-8907, Japan
Phone: +81 (3) 3503 8971
Fax: +81 (3) 3504 2649
e-mail: tetsuya_kawashima2@nm.maff.go.jp

Kenji Kagawa
Policy Coordinator for Fisheries Trade, Office
of Overseas Fisheries Cooperation

Fisheries Agency
Ministry of Agriculture, Forestry and Fisheries
1-2-1 Kasumigaseki, Chiyoda-ku
Tokyo 100-8907, Japan
Phone: +81 (3) 3503 8971
Fax: +81 (3) 3504 2649

Mitsuhiro Kohno
Principal Deputy Director, Multilateral
Cooperation Division

Economic Cooperation Bureau
Ministry of Foreign Affairs
2-2-1 Kasumigaseki, Chiyoda-ku
Tokyo 100-8919, Japan
Phone: +81 (3) 5501 8365
Fax: +81 (3) 5501 8364

Masako Sakurada (Mrs.)
Interpreter

Fisheries Agency
Ministry of Agriculture, Forestry and Fisheries
1-2-1 Kasumigaseki, Chiyoda-ku
Tokyo 100-8907, Japan
Phone: +81 (3) 3503 8971
Fax: +81 (3) 3504 2649

LAO P.D.R.

Mahanakhone Souriya
Deputy Director-General

Department of Livestock and Fisheries
Ministry of Agriculture and Forestry
Vientiane, Lao P.D.R.
Phone: +856 (21) 416 932
Fax: +856 (21) 415 674
e-mail: eulaodlf@laotel.com

MALAYSIA

Dato' Junaidi Bin Che Ayub
Director-General of Fisheries

Department of Fisheries
Ministry of Agriculture
8th Floor, Wisma Tani
Jalan Sultan Salahuddin
50628 Kuala Lumpur, Malaysia
Phone: +60 (3) 2617 5447
Fax: +60 (3) 2694 2984
e-mail: kpp01@dof.moa.my

Mohamad Shaupi Bin Derahman
Director Planning & International

Department of Fisheries
Ministry of Agriculture
8 Floor, Wisma Tani
Jalan Sultan Salahuddin
50628 Kuala Lumpur, Malaysia
Phone: +60 (3) 2617 5638
Fax: +60 (3) 2692 0080

MYANMAR

U Than Tun
Director-General of Department of Fisheries

Ministry of Livestock & Fisheries
Sinmin Road, Ahlone Township
Yangon, Union of Myanmar
Phone: +95 (1) 225 260
Fax: +95 (1) 228 258
e-mail: dof@mptmail.net.mm

PHILIPPINES

Cesar M. Drilon, Jr.
Undersecretary

Department of Agriculture
Elliptical Road, Diliman, Quezon City
Republic of the Philippines
Phone: +63 (2) 926 8444
Fax: +63 (2) 927 8405

SINGAPORE

Ngiam Tong Tau
Chief Executive Officer

Agri-food & Veterinary Authority of Singapore
5 Maxwell Road, #04-00, Tower Block
MND Complex, Singapore 069110
Phone: +65 6325 7600
Fax: +65 6220 6068
e-mail: Ngiam_Tong_Tau@ava.gov.sg

Leslie John Cheong
Director, Food Supply & Technology
Department

Agri-food & Veterinary Authority of Singapore
5 Maxwell Road, #04-00, Tower Block
MND Complex, Singapore 069110
Phone: +65 6325 7604
Fax: +65 6220 6068
e-mail: Leslie_Cheong@ava.gov.sg

THAILAND

Sitdhi Boonyaratpalin
Director-General

Department of Fisheries
Kasetsart University Campus
Phaholyothin Road, Bangkok 10900
Thailand
Phone: +66 (2) 562 0523
Fax: +66 (2) 562 0493
e-mail: dgdof1@dof.thaigov.net



Poonsap Virulhakul (Ms.)
Senior Expert in Fisheries Management

Department of Fisheries
Kasetsart University Campus
Phaholyothin Road, Bangkok 10900
Thailand
Phone: +66 (2) 940 6211
Fax: +66 (2) 562 0571
e-mail: poonsapv@fisheries.go.th

Rangsanch Chayakul
Director, Marine Fisheries Technological
Research and Development Institute

Department of Fisheries
Kasetsart University Campus
Phaholyotin Road, Bangkok 10900
Thailand
Phone: +66 (2) 562 0542
Fax: +66 (2) 940 6559
e-mail: rangsanch@yahoo.com

Wimol Jantrarotai
Director, Fisheries Foreign Affairs Division,
and National Coordinator for Thailand

Department of Fisheries
Kasetsart University Campus
Phaholyotin Road, Bangkok 10900
Thailand
Phone: +66 (2) 579 8214
Fax: +66 (2) 562 0529
e-mail: wimolj@fisheries.go.th

Thammasak Sampansantikul

Bureau of the Budget
Rama VI Road, Bangkok 10400
Thailand

VIETNAM

Vu Van Trieu
Acting Director-General, International
Cooperation Department

Ministry of Fisheries
10 Nguyen Cong Hoan Street
Ba Dinh District, Hanoi, Vietnam
Phone: +84 (4) 771 6709
Fax: +84 (4) 771 6702
e-mail: vuvantrieu@mofi.gov.vn

Doan Manh Cuong
Programme Officer

Ministry of Fisheries
10 Nguyen Cong Hoan Street
Ba Dinh District, Hanoi, Vietnam
Phone: +84 (4) 771 9607
Fax: 84 (4) 771 6702
e-mail: doanmanhcuong@mofi.gov.vn

ASEAN SECRETARIAT

Somsak Pipoppinyo
Assistant Director (Natural Resources)

Bureau of Functional Cooperation
ASEAN Secretariat
70A, Jl. Sisingamangaraja
Kebayoran Baru, Jakarta 12110
Indonesia
Phone: +62 (21) 726 2991 Ext. 396
Fax: +62 (21) 739 8234
e-mail: somsak@aseansec.org

SEAFDEC

THE SECRETARIAT

Niwes Ruangpanit
Secretary-General

SEAFDEC/Secretariat
P.O. Box 1046, Kasetsart Post Office
Bangkok 10903, Thailand
Phone: +66 (2) 940 6326 to 29
Fax: +66 (2) 940 6336
e-mail: sg@seafdec.org

Junichiro Okamoto
Deputy Secretary-General

e-mail: dsg@seafdec.org

Yasuhisa Kato
Special Advisor

e-mail: kato@seafdec.org

Lee Yuen Tong
Advisor (based in Singapore)

c/o Marine Fisheries Research Department
2 Perahu Road, off Lim Chu Kang Road
Singapore 718915
e-mail: mfrdlibr@pacific.net.sg

Kitjar Jaiyen
Advisor

e-mail: kitjar@seafdec.org

Magnus Torell
Senior Advisor

e-mail: magnus@seafdec.org

Sutham Sittthichai kasem
Information Program Advisor

e-mail: sutham@seafdec.org

Somnuk Pornpatimakorn
Administration and Finance Coordinator

e-mail: somnuk@seafdec.org

Kannika Boonkananurak (Ms.)
Finance Officer

e-mail: kannika@seafdec.org

Pouchamarn Wongsanga (Ms.)
Information Program Coordinator

e-mail: pouch@seafdec.org

Suriyan Vichitlekarn
Policy and Program Coordinator

e-mail: suriyan@seafdec.org

Worawit Wanchana
Acting Project Manager

e-mail: worawit@seafdec.org

Buoy Roitana
WGRFP Member for Cambodia

e-mail: roitana@seafdec.org

Abd. Rahman bin Abd. Wahab
WGRFP Member for Malaysia

e-mail: rahmanwahab@seafdec.org

Tran Thi Tuyet Lan (Ms.)
WGRFP Member for Vietnam

e-mail: lan@seafdec.org

Smith Thummachua
WGRFP Member for Thailand

e-mail: smith@seafdec.org

TRAINING DEPARTMENT

Aussanee Munprasit
Assistant Training Department Chief/Technical

P.O. Box 97 Phrasamutchedi
Samut Prakan 10290, Thailand
Phone: +66 (2) 425 6100
Fax: +66 (2) 425 6110 to 11
e-mail: aussanee@seafdec.org

Bundit Chokesanguan
Information and Extension Division Head

e-mail: bundit@seafdec.org

Sutee Rajruchithong
Ship Division Head

e-mail: sutee@seafdec.org

Suppachai Ananpongsuk
Training Division Head

e-mail: suppachai@seafdec.org

Yuttana Theparoonrat
Administration Division Head

e-mail: yuttana@seafdec.org

Somboon Siriraksophon
Research Division Head

e-mail: somboon@seafdec.org

Sei Etoh
JICA Expert

e-mail: etoh@seafdec.org

Angkhanarat Tomyai (Ms.)
Finance Section Head

Phone: +66 (2) 425 6100

MARINE FISHERIES RESEARCH DEPARTMENT

Tan Sen Min
Chief

2 Perahu Road, off Lim Chu Kang Road
Singapore 718915
Phone: +65 6790 7973
Fax: +65 6861 3196
e-mail: tsm@pacific.net.sg

Tan-Low Lai Kim (Mrs.) Phone: +65 6790 7973 Ext.13
Head, Fish Quality Management & Technology e-mail: Tan-Low_Lai_Kim@ava.gov.sg
Section and Special Departmental Coordinator

AQUACULTURE DEPARTMENT

Rolando R. Platon Tigbauan 5021
Chief Iloilo, Philippines
Phone: +63 (33) 335 1009; 336 2965; 336 9544
Fax: +63 (33) 335 1008
e-mail: aqdchief@aqd.seafdec.org.ph

Kazuya Nagasawa Phone/Fax: +63 (33) 511 8878
Fish Disease Expert e-mail: nagasawa@aqd.seafdec.org.ph

Virgilia T. Sulit (Ms.) e-mail: vtsulit@aqd.seafdec.org.ph
Special Assistant to the Chief and Special
Departmental Coordinator

Wilfredo Yap 17 Times St., West Triangle
Head, Technology Verification and Diliman QC 1104, Philippines
Commercialization Division (TVCD) Phone: +63 (2) 372 3981
Fax: +63 (2) 372 3983
e-mail: wgyap@aqd.seafdec.org.ph

MARINE FISHERY RESOURCES DEVELOPMENT AND MANAGEMENT DEPARTMENT

Raja Mohd Noordin Raja Omar Fisheries Garden, Chendering
Chief 21080 Kuala Terengganu, Malaysia
Phone : +60 (9) 616 3150 to 52
Fax : +60 (9) 617 5136
e-mail: rnoordin@mfrdmd.org.my

Secretariat of the Meeting

Nualanong Tongdee (Ms.)
Suphasuk Pradubsuk (Ms.)
Saowanee Wanothayarnchai (Ms.)
Matinee Boonyintu (Ms.)
Julasak Markawat
Sonthikan Soetpannuk
Sekson Sathitchote
Thaweesak Chanloi
Mokkara Phanchuen
Boonsueb Rodsood
Vitoon Kongprawat

Annex 2

AGENDA

1. Opening of the Meeting
2. Adoption of the Agenda
3. Procedure of the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) Meeting
4. ASEAN-SEAFDEC Fisheries Collaborative Programs
 - 4.1 Review of the Progress and Proposed Future Program of Activities under the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) Mechanism (2003-2004)
 - 4.2 New Proposed Program of Activities under the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) Mechanism (2004)
5. ASEAN-Japan Cooperation for Sustainable Fisheries through SEAFDEC
 - 5.1 Outcomes from the Seminar on ASEAN-Japan Cooperation for Sustainable Fisheries through SEAFDEC
 - 5.2 Mid Term Review of the Implementation of the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region
 - 5.3 Strategy for Human Resource Development in Fisheries in the ASEAN Region
6. Policy Consideration on ASEAN Important Issues
 - 6.1 Policy Considerations on Issues related to Fish Trade and Environment
 - 6.2 Recommendations on Safety at Sea for Small Fishing Boats in the Southeast Asia
 - 6.3 ASEAN-SEAFDEC Cost-sharing Issues
7. Other Matters
8. Closing of the Meeting

Annex 3

**PROMOTION OF MANGROVE-FRIENDLY AQUACULTURE IN THE
SOUTHEAST ASIAN COUNTRIES**

Program Category: Programs under the ASEAN-SEAFDEC FCG Mechanism
Project Title: Promotion of Mangrove-Friendly Aquaculture in the Southeast Asian
Countries: Mangrove-Friendly Shrimp Culture Project
Lead Department: Aquaculture Department
Lead Country: Thailand
Total Duration: 5 years (2000-2004: Japan Fiscal Year)
Proposed 2004 Budget: USD 176,000

1. INTRODUCTION

In 1998, the ASEAN-SEAFDEC FCG Collaborative Project on the Promotion of Mangrove-Friendly Aquaculture in Southeast Asia was implemented with AQD as Lead Department and Thailand as the Lead Country for the ASEAN. The initial five-year program was planned to cover culture of various organisms that could have effects on the mangroves. Upon the recommendation of the 22nd SEAFDEC Program Committee, the program was revised to focus on the effects of shrimp culture on mangroves.

Aquaculture, particularly shrimp culture has always been identified as one of the major causes in the destruction of mangrove forests giving way to the development of fish farms. Moreover, effluents from intensive shrimp culture operations contain high levels of nutrients, pesticides, antibiotics and chemotherapeutants that could result in negative impact on the mangrove ecosystem. Reducing the negative environmental impact on the mangroves require improved pond culture management practices that involve nutrient and sediment removal systems, eliminating use of chemicals and chemotherapeutants, and improved pond system. Thus, starting in 2000 on the third year of program implementation, the original program was revised, giving due focus on shrimp and adopting the major approaches, namely verification and pilot demonstration, research, training, and information dissemination.

The Mangrove-Friendly Shrimp Culture Project has been implemented by AQD from April 2000 to March 2003, comprising four major activities: verification and pilot demonstration, research, training, and information. From the encouraging results obtained from the verification and pilot demonstration activity conducted in Thailand, the Philippines, Vietnam and Myanmar, other countries have expressed their interest for the implementation in their respective countries for similar verification runs.

Moreover, since the Project's research activities have also attained encouraging results, it was deemed necessary to have these research studies scaled-up to verify their effectiveness and verified under different culture conditions. It was also considered necessary to hasten the dissemination of developed and/or improved techniques for the benefit of the fish farmers in the region. Thus, the extension of the Project as Phase II has been proposed for the period from April 2003 to March 2005.

Further, as part of the outcome of the Regional-Seminar Workshop on Mangrove-Friendly Shrimp Aquaculture held in Bangkok in June 2003, it was recommended that the Regional

Code of Practice on the Responsible Use of Mangroves for Aquaculture be developed for the Southeast Asian region.

2. PROJECT

2.1 Objectives

The general objectives of this Project are:

1. To develop sustainable shrimp culture technologies that are friendly to the environment and mangroves; and
2. To disseminate such technology packages to the region through actual demonstration and training.

Specifically, the objectives of the Project extension are:

1. To extend the dissemination of the mangrove-friendly shrimp culture technology (verified in Phase I) to other interested countries in the region;
2. To scale-up certain positive research results obtained in Phase I to test their effectiveness in refining the presently-used technology;
3. To conduct further research on key areas to provide basis for technology refinement;
4. To conduct seminar-workshops to discuss status and plan subsequent strategies and activities of the program;
5. To conduct hands-on training; and
6. To undertake information dissemination activities to appraise the general public on development about the program through newsletters, manuals, etc.

2.2 Project Description

The Project extension shall have the following activities:

1. Pilot Demonstration
2. Research
3. Training
4. Information Dissemination
 - (a) Manual translation
Mainly for the translation of manual into five major languages in the region, i.e., Malay (Bahasa Indonesia), Thai, Vietnamese, Filipino, and Burmese
 - (b) Regional Seminar-Workshop (Bangkok, Thailand from 24 to 27 June 2003) includes printing of the Proceedings of the Regional Seminar-Workshop and Phase I Report (to also include the 2002 Annual Report on the Project)
 - (c) Operationalization of the Mangrove Website
5. Development of the Regional Code of Practice on Responsible Use of Mangroves for Aquaculture

3. PROGRESS OF PROJECT ACTIVITIES (Appendix 1)

Since the start of the Project in 2000, mangrove-friendly research and verification runs based on improved shrimp culture practices in Thailand and the Philippines have been conducted. Experiences in these countries were also documented and published in 2001 as State-of-the-Art Compilations on environment-friendly shrimp farming intended to serve as guide for shrimp growers in the region. These compilations were later updated and produced into a Manual describing environment-friendly shrimp culture method using two systems,

i.e., low-discharge and closed-recirculating. Using these two systems, verification and demonstration activities have been implemented in the Philippines, Thailand, Vietnam and Myanmar with remarkable success. During the later part of 2003, preparations for a pilot demonstration run was started in Cambodia and initial efforts were made for the conduct of a similar demonstration activity in Malaysia.

Two research activities have been conducted in order to further refine environment-friendly shrimp culture techniques known to be successful. One study aimed to re-evaluate SEAFDEC formulated diet for shrimp and the nutrient dynamics, environmental impacts and waste inputs resulting from the integrated closed-recirculating intensive shrimp farming. The other study that assessed to capacity of mangrove forests to process aquaculture pond effluents showed that mangroves can remove significant levels of nitrogen and solid wastes from shrimp pond effluents.

Three formal training sessions were conducted at AQD's Tigbauan Main Station in September 2001, August 2002, and October 2003. In addition, one on-site training session was conducted in Yangon, Myanmar in 2001. Moreover, information materials have also been produced, namely, State-of-the-Art Compilations, Manual, video materials, etc. The translation of the Manual will be done in early 2004 while the operationalization of the mangrove website has been sustained.

The implementation of the Project was evaluated during the Regional Seminar-Workshop on Mangrove-friendly Shrimp Aquaculture held in Bangkok, Thailand in June 2003. The Workshop served as a forum for the development of the Regional Code of Practice on Responsible Use of Mangroves for Aquaculture. The Workshop aimed to: (1) assess the progress of activities of the Mangrove-Friendly Shrimp Culture Project; (2) assess the dissemination of technology developed through the Project; (3) review the policy issues relating to the use of mangroves for aquaculture in the regional; (4) discuss and confirm the proposed extension of the Project; and (5) initiate the development of the Regional Code of Practice on Responsible Use of Mangroves for Aquaculture.

4. PROPOSED FUTURE ACTIVITIES (Appendix 2)

4.1 Pilot Demonstration

Verification of the results of the activities under Phase I particularly on the use of probiotics, greenwater system and disease diagnosis in shrimp aquaculture using the low discharge and closed recirculating systems will be continued in 2004. The pilot demonstration sites will be in Thailand (two original sites and another new site), the Philippines, Vietnam (new location), Myanmar (new location in Rakhine State), Cambodia, and Malaysia. Pilot demonstration activities shall be implemented under a cost-sharing scheme with the host countries.

4.2 Research

Research studies conducted in Phase I will be continued looking at other aspects that can potentially contribute to the improvement of the technology focusing on up-scaling the research results from Phase I. In addition, the total economic benefits of mangrove-friendly shrimp culture will be assessed starting in 2004. These studies will be conducted at AQD's Dumangas Brackishwater Station in Iloilo, Philippines.

4.3 Training

Hands-on training on mangrove-friendly shrimp culture will be conducted at AQD in Iloilo, Philippines. Initial results of Phase II of the Project will be included in the curriculum of the training. In addition, during the Regional Seminar-Workshop, Vietnam specified to conduct on-site training in Vietnam with experts from the Project as resource persons. These sessions could therefore be conducted in 2004.

4.4 Information

Publication of various information materials will be continued, including the translation of the Manual into five major languages in the region. The operationalization of the Mangrove Webpage will be sustained.

Moreover, the development of the Regional Code of Practice on Responsible Use of Mangroves for Aquaculture, with initial efforts made during the Regional-Seminar Workshop on Mangrove-Friendly Shrimp Aquaculture held in Bangkok in June 2003, will be continued in 2004. The proceedings of the Workshop have been prepared for printing in early 2004.

5. ENVISAGED OUTCOMES OF THE PROJECT

It is expected that the implementation of the Project will lead to the development and/or improvement of mangrove-friendly shrimp aquaculture technologies for the benefit of the fish farmers in the region. The technologies that are verified and extended to the fish farmers are expected to contribute to food sufficiency and security of the fisherfolk in the Southeast Asian region. The implementation of the Project could also contribute to capacity building of the countries in the region as more technicians will be trained on the developed technologies.

Moreover, the dissemination of information through publication of various types of information materials would lead to awareness on the part of the fisherfolk on the development of state-of-the-art shrimp culture technologies. Sustainability of mangrove-friendly aquaculture could also be attained as the Project will develop the Code of Conduct for Responsible Use of Mangroves for Aquaculture.

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

JANUARY-DECEMBER 2003

Programs/ Activities	Duration (period)	Status (% completed)	Accomplishment (jan-dec 2003)	Remaining Activity
1. Pilot Demonstration				
(1) Philippines	2000-2005	85%	Increased involvement of BFAR Demonstration Training Centers in the demonstration activity as well as involvement of the private sector and financing institutions. On-the-job training at the AQD site and skills development in other sites in the Philippines were continued.	Continue demonstration activity and training for technicians from government agencies and the private sector. Continue verification of research results in commercial scale.
(2) Thailand				
2.1 Songkhla	2000-2005	85%	In Songkhla, the integrated physical and biological technologies for water recycling in shrimp farms to improve the quality of effluents from shrimp farms, was conducted. Here the effluents pass through bivalve filtration facility to remove suspended matters, then to the biological filtration facility (trickling filter). It is then passed through seaweeds treatment.	Demonstration of large-scale water treatment system for recirculation of effluents from marine shrimp farms will be conducted. This would involve shrimp pond (0.3 ha) with stocking density of 30-60 pc/m ² , maintaining the aerobic.
2.2 Phuket	2000-2005	85%	In Phuket, mitigation measures of effluents from shrimp farms in mangroves and coastal areas were evaluated and verified.	This activity will be demonstrated in another site in Surat Thani.
2.3 Kung Krabaen	2000-2005	85%	In Kung Krabaen Bay, Chantaburi, the seawater irrigation facility has served as a showcase of sustainable shrimp farming not only for local but for foreign visitors as well.	Awareness building on the part of the farmers and the private sector (Thai nationals as well as foreign technical persons) on the role of seawater irrigation facility system in intensive shrimp farming.

Programs/ Activities	Duration (period)	Status (% completed)	Accomplishment (jan-dec 2003)	Remaining Activity
(3) Vietnam	2000-2005	75%	A model for semi-intensive shrimp culture with production of at least 1,500 kg/ha/crop has been verified.	Culture management to effectively increase production using improved extensive shrimp culture system will be conducted in another site.
(4) Myanmar	2000-2005	70%	Another site has been considered for pilot demonstration after the activity at a site near Yangon has been successful.	Pilot demonstration will be conducted in Rakhine State.
(5) Cambodia	2003-2005	20%	During the site visit in September 2003, the project site of the pilot demonstration activity in Cambodia has already been identified. Start of the pond design and construction was started in November 2003 with technical assistance from AQD.	Signing of the MOA between SEAFDEC and Cambodia will be effected as soon as possible. The activity in Cambodia will be continued, with AQD through the Project providing the technical expertise.
(6) Malaysia	2003-2005	20%	During the site visit in September 2003, the project site of the pilot demonstration activity in Malaysia has already been identified. Start of the pond design and construction will be implemented as soon as possible with technical assistance from AQD.	Signing of the MOA between SEAFDEC and Malaysia will be effected as soon as possible. The activity will be started, with AQD through the Project providing the technical expertise.
(7) Other Countries	2003-2005	10%	Initial discussions have also been made with Brunei Darussalam and Indonesia for the conduct of pilot demonstration in these countries.	Site visitation to the proposed sites identified by the participating countries will be conducted.
2. Research				
(1) Nutrient cycles: nutrient dynamics in pond culture	2000-2005	60%	Setting up of pond facilities and other essential fixtures (equipment and reinforcements for dikes and canals) for the new scheme of the experiment has been undertaken.	Renovation of ponds' features with regards to culture/treatment pond ratio, to carry out the objectives of the study.

Programs/ Activities	Duration (period)	Status (% completed)	Accomplishment (jan-dec 2003)	Remaining Activity
(2) Capacity of mangroves to process shrimp pond effluents: Mechanisms of nutrient assimilation	2000-2005	60%	The first part of the study provided gross measures of mangrove area required to process shrimp pond effluents from semi-intensive systems. The second part evaluates the mechanisms of nutrient assimilation, and for this part, site selection, materials and equipment acquisition were undertaken.	Microcosm and laboratory studies will be conducted to determine nutrient pathways. Microcosm study will determine N and P removal, and laboratory study to evaluate nutrient dynamics and plant nutrient assimilation.
(3) Evaluation of probiotics/waste digesters used for grow-out culture of tiger shrimp, <i>Penaeus monodon</i>	2003-2005	5%	Probiotics, which have bioremediating and anti- <i>Vibrio harveyi</i> effects are being used in the scale-up experiment. Waste digesters would be evaluated as to their efficacy.	Conduct of scale-up and laboratory experiments will be done simultaneously.
(4) Total economic benefits of mangrove-friendly shrimp culture	2003-2005	5%	Research proposal under review. The research is intended to provide quantified assessment of the developed technologies on mangrove-friendly shrimp culture.	Actual research will start as soon as possible.
3. Training				
(1) Training at AQD	23 Oct-11 Nov 2003	100%	Conducted at AQD's Tigbauan Main Station with practical sessions at AQD's Dumangas Brackishwater Station, the training had eight participants from Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, Philippines, and Thailand.	Another session will be conducted in 2004 with inputs from the initial output of Phase II of the Project.



Programs/ Activities	Duration (period)	Status (% completed)	Accomplishment (jan-dec 2003)	Remaining Activity
4. Information				
(1) Publications	2000-2004	85%	Publications of Manual completed in December 2003.	Translation of Manual into five major languages of the region (Bahasa Indonesia, Thai, Vietnamese, Filipino, Burmese) would be done starting in early 2004.
			Project Phase I Report and Proceedings of Regional Seminar-Workshop have been prepared for printing	Printing of the Report and Proceedings scheduled in February 2003, as one publication.
(2) Regional Seminar-Workshop on Mangrove-Friendly Shrimp Aquaculture	24-27 June 2003	95%	Convened by AQD in Bangkok, Thailand participated in by more than 50 participants.	Proceedings of the Regional Seminar-Workshop have been prepared for publication in early 2004, combined with the project Phase I Report
5. Regional Code of Practice on Responsible Use of Mangroves for Aquaculture				
(1) Planning Workshop	June 2003	10%	Experts to be involved in the development of the guidelines have been identified during the Regional Seminar-Workshop in June 2003. The draft scope of work has also been made. This activity is in response to a recommendation during the development of the Regional Guidelines for Responsible Fisheries in Southeast Asia: Responsible Aquaculture	Planning for next Workshop in order to prepare the draft Guidelines (June 2004)

PROPOSED PROGRAM OF ACTIVITY FOR THE YEAR 2004

Program Category: Program under the ASEAN-SEAFDEC FCG Mechanism
Program Title: Promotion of Mangrove-Friendly Aquaculture in Southeast Asian Countries: Mangrove-Friendly Shrimp Culture Project
Lead Department: Aquaculture Department

The Mangrove-Friendly Shrimp Culture Project has been implemented by AQD from April 2000 to March 2003, comprising four major activities: verification and pilot demonstration, research, training and information. From the encouraging results obtained from the verification and pilot demonstration activity conducted in Thailand, the Philippines, Vietnam and Myanmar, other countries have expressed their interest for the implementation in their respective countries for similar verification runs.

Moreover, since the Project's research activities have also attained encouraging results, it was deemed necessary to have these research studies scaled-up to verify their effectiveness and verified under different culture conditions. It was also considered necessary to hasten the dissemination of developed and/or improved techniques for the benefit of the fish farmers in the region. Thus, the extension of the Project as Phase II has been considered.

As part of the outcome of the Regional-Seminar Workshop on Mangrove-Friendly Shrimp Aquaculture held in Bangkok in June 2003, it was recommended that the Regional Code of Practice on the Responsible Use of Mangroves for Aquaculture be developed as part of Phase II of the Project.

1. OVERVIEW OF THE PROGRAMS

AQD will continue to conduct activities under Phase II of the Project, namely: (1) Pilot Demonstration; (2) Scale-Up Research and Verification; (3) Training; and (4) Information.

1. Pilot Demonstration

Verification of the results of the activities under Phase I particularly on the use of probiotics, greenwater system and disease diagnosis in shrimp aquaculture will be continued in 2004. The pilot demonstration sites will be in Thailand (two original sites and another new site), the Philippines, Vietnam (new location), Myanmar (new location in Rakhine State), Cambodia, and Malaysia. Pilot demonstration activities shall be implemented under a cost-sharing scheme with the host countries.

2. Scale-Up Research and Verification

To continue conducting research focusing on upscaling the research results from Phase I. This will be conducted at AQD's Dumangas Brackishwater Station in Iloilo, Philippines. Research studies conducted in Phase I will be continued looking at other aspects that can potentially contribute to the improvement of the technology. In addition, the total economic benefits of mangrove-friendly shrimp culture will be assessed starting in 2004.



3. Training

Hands-on training on mangrove-friendly shrimp culture will be conducted at AQD in Iloilo, Philippines and on-site in another country. Initial results of Phase II of the Project will be included in the curriculum of the training.

4. Information

Publication of various information materials will be continued, including the translation of the Manual into five major languages in the region. The operationalization of the Mangrove Webpage will be sustained.

Moreover, the development of the Regional Code of Practice on Responsible Use of Mangroves for Aquaculture, with initial efforts made during the Regional-Seminar Workshop on Mangrove-Friendly Shrimp Aquaculture held in Bangkok in June 2003, will be continued in 2004.

2. ENVISAGED OUTCOMES OF THE PROGRAMS

It is expected that the implementation of the Project will lead to the development and or improvement of mangrove-friendly shrimp aquaculture technologies for the benefit of the fish farmers in the region. The technologies that are verified and extended to the fish farmers are expected to contribute to food sufficiency and security of the fisherfolk in the Southeast Asian region.

The implementation of the Project could also contribute to capacity building of the countries in the region as more technicians will be trained on the developed technologies. Moreover, the dissemination of information through publication of various types of information materials would lead to awareness on the part of the fisherfolk on the development of state-of-the-art shrimp culture technologies. Sustainability of mangrove-friendly aquaculture could also be attained as the Project will develop the Code of Conduct for Responsible Use of Mangroves for Aquaculture.

CONSERVATION AND MANAGEMENT OF SEA TURTLES IN SOUTHEAST ASIAN COUNTRIES

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: 2004

Proposed 2004 Budget: USD 77,000

1. INTRODUCTION / BACKGROUND

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. Regional cooperation among member countries in conserving these endangered species is crucial to ensure their continued survival. Since it has been acknowledged that more information should be disseminated to enhance the knowledge and understanding of the urgent need for conservation and management of sea turtles, more effort should be directed into this area.

2. PROGRAM DESCRIPTION

The status of adult female sea turtle populations is perhaps best indicated by the trends or long-term changes in the sizes of individual populations. In this region mature female sea turtles have been tagged for more than 30 years ago. Adult females repeatedly return to the same beaches to nest and this is the time in their life cycle when they are most available for direct counting by humans. Counts of nesting females or nests provide the best available long-term data on the status of their populations. The number of nests is an index that can be correlated with the population size of mature females, rather than a direct estimate, because sea turtles do not necessarily nest every year and a female usually nests several times during a nesting season.

Since the information on conservation and management activities of sea turtles, especially resource enhancement of sea turtles in this region, has not been widely publicized. To enhance information dissemination in this area, MFRDMD in collaboration with member countries plan to produce a documentary on sea turtle conservation and management activities for international distribution. This VCD-form documentary will focus on activities such as releasing of sea turtle hatchlings, hatchery management activities as well as general education and public awareness programs implemented in ASEAN-SEAFDEC member countries involving government and private sectors.

The contents of a book entitled "Conservation and Management of Sea Turtle Activities in the Southeast Asian Region" will focus on information on resource enhancement of sea turtles in ASEAN-SEAFDEC member countries that was gathered during the Regional Technical Consultation Meeting on Sea Turtle Conservation and Management in Southeast Asia, 16-18 September 2003 in Kuala Lumpur, Malaysia. Other sources of information will be through literature search from scientific journals, proceedings of seminars/workshops, books, newsletters, theses etc. The contents of this publication will focus on facts and information from a positive aspect of resource enhancement such as releasing of sea turtles,

hatchery activities, education, public awareness building involving government and private sectors.

Since the Japanese Trust Fund I project under the Sea Turtle Hatchery Management Study will be terminated by 2003, MFRDMD will take immediate action to compile and analyze all data collected from 2001 to 2003. The information collected from the Sea Turtle Hatchery Management Study will be used to publish a book entitled “Field Guide for Hatchery Management Practices for ASEAN-SEAFDEC Member Countries”.

3. PROPOSED FUTURE ACTIVITIES

In the year 2004, this program aims to publish regional activities on the conservation and management of sea turtles for international distribution to fulfill conservation and management needs. This program will comprise two components. Component I is the Workshop on Sea Turtle Tagging in the Southeast Asian Region. Component II covers the production of a VCD-form documentary, publication of a book on sea turtle conservation and management activities in this region and the publication of the “Field Guide for Hatchery Management Practices for ASEAN-SEAFDEC Member Countries”.

Component I: Workshop on sea turtle tagging in Southeast Asian region

Project 1: Compilation of tagging data of sea turtles in Southeast Asian region

Activity 1. Compilation tagging data by country

For this region sea turtle tagging activities already started for more than 30 years. Some countries tagged thousands of adult turtles during the nesting seasons. By using the available tagging data in this region, MFRDMD and member countries will compile and analyze all previous tagging data and hopefully these can be used to estimate adult female sea turtle populations in this region. Two turtle researchers from member countries will be identified to compile their country tagging data.

Activity 2: Workshop on sea turtle tagging in the Southeast Asian region

The purpose of this workshop is to analyze all available tagging data in this region to estimate the adult female sea turtle populations in this region in the future. The number of nests is an index that can be correlated with population size of mature females, rather than a direct estimate, because sea turtles do not necessarily nest every year and a female usually nests several times in a nesting season. Two participants from each member country (except Singapore and Lao P.D.R.) will compile their data on tagging activities and these data will be presented during the workshop for future analysis such as for the estimation of adult female turtles in this region.

Component II: Publications

Project 1: Publication of VCD, book and field guide on conservation and management of sea turtle in this region

Activity 1: Production of VCD

This VCD-form documentary will focus on the activities related to resource enhancement of sea turtles implemented in ASEAN-SEAFDEC member countries. All member countries will be involved in the preparation of this documentary except Singapore and Lao P.D.R.

Activity 2: Publication of a book entitled “Conservation and Management Activities on Sea Turtles in the Southeast Asian Region”

The publication of this book will be based on available information on resource enhancement of sea turtles in ASEAN-SEAFDEC member countries gathered during the Regional Technical Consultation Meeting on Sea Turtle Conservation and Management in Southeast Asia, 16-18 September 2003, Kuala Lumpur, Malaysia. To achieve this, a consultant from a local university in Malaysia will be appointed to assist MFRDMD researchers to prepare the manuscript.

Activity 3: Publication of a book entitled “Field Guide for Hatchery Management Practices for ASEAN-SEAFDEC Member Countries”

Since the Japanese Trust Fund I project under the Sea Turtle Hatchery Management Study will be terminated by the end of year 2003, MFRDMD will take immediate action to compile and analyze all data collected from 2001 to 2003. The information collected from Sea Turtle Hatchery Management Study will be used to publish a book entitled “Field Guide for Hatchery Management Practices for ASEAN-SEAFDEC Member Countries”.

4. ENVISAGED OUTCOMES OF FUTURE PROGRAM

The envisaged outcomes in 2004 are as follows:

1. Publication of information sea turtle tagging activities in the Southeast Asian region. The results can be used as a guide for conservation and management activities in this region.
2. Publication on “Field Guide for Hatchery Management Practices for ASEAN-SEAFDEC Member Countries”. This publication can be used as a guide for member countries in their planning to set up sea turtle hatcheries in their countries. Another publication is entitled “Conservation and Management Activities on Sea Turtles in the Southeast Asian Region”.
3. Produce a documentary on the conservation and management of sea turtle activities in the Southeast Asian region in VCD form. The book entitled “Conservation and Management Activities on Sea Turtles in the Southeast Asian Region” and VCD are for international distribution as recommended during the ASEAN-SEAFDEC Regional Meeting on “Fish Trade and Environment” held in Bangkok, Thailand, in 2002.

REGIONALIZATION OF THE CODE OF CONDUCT FOR RESPONSIBLE FISHERIES

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism

Project Title: Regionalization of the Code of Conduct for Responsible Fisheries (RCCRF)

Lead Department: The Secretariat in collaboration with all Departments

Lead Country: Thailand

Total Duration: Component I 1999-2004

Component II 2003-2006

Proposed 2004 Budget: Component I (to be finalized)

Component II (to be finalized)

1. INTRODUCTION

Since the adoption of the Code of Conduct for Responsible Fisheries (CCRF) in 1995, SEAFDEC has extended its supports to the Member Countries in the implementation of the CCRF through 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.

The program was essentially implemented in close cooperation with the other Departments to formulate the guidelines for the RCCRF in various aspects of fisheries. Efforts has been mobilized in promotion of the program through the technical cooperation with other international organizations such as FAO, WorldFish Center, the National Board of Fisheries, Sweden (NBF), Swedish International Development Cooperation Agency (Sida), etc.

2. PROGRAM

2.1 Objective:

The objectives of this program are:

1. To develop a set of regional guidelines on CCRF clarifying actions to be undertaken by the Member Countries to effectively implement the CCRF; and
2. To develop supporting activities focusing on increasing human capacity for the implementation of the CCRF at the national level.

2.2 Program Description:

Since 2003, the RCCRF program composes of two components. Component I focuses on the formulation and dissemination of the regional guidelines for CCRF through regionalization exercises. And Component II focuses on human resources development with emphasis on fisheries management related aspects.

The RCCRF program – Component I establishes four phases of regionalization exercises namely:

- Phase I: Fishing Operations (TD),
- Phase II: Aquaculture Development (AQD),
- Phase III: Fisheries Management (MFRDMD and TD), and
- Phase IV: Fisheries Post-Harvest Technology and Trade (MFRD).

Currently, SEAFDEC has completed 3 regionalization exercises, which developed the regional guidelines for Article 7 (Fisheries Management) including the harmonization of Article 10 (Integration of Fisheries into Coastal Area Management), Article 8 (Aquaculture Development) and Article 9 (Responsible Fishing Operation) of the global CCRF. While phase IV focusing on Fisheries Post-Harvest Technology and Trade will specifically aim to review current status and problems in these two aspects faced in Southeast Asia and to make the relevant and necessary recommendation to support the implementation of the CCRF.

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.

Starting in 2003, the RCCRF program – Component II was initiated under the technical cooperation NBF and Sida, the issues related to fisheries management contained in the CCRF through appropriate human resource development activities are programmed. The implementations focus on

- Human resources development activities on the issues contained in the regional guidelines on the fisheries management of the CCF.
- Human resources development activities on the issue related to the reduction of “Fishing Capacity” to achieve sustainable fisheries in the region.

3. PROGRESS

Component I

To promote the Regionalization of the Code of Conduct for Responsible Fisheries in aspect of fisheries management, the publication on “The regional Guidelines for Responsible Fisheries in Southeast Asia: Responsible Fisheries Management” was completed. The production achieved since 2nd quarter of the year 2003. The dissemination of the Guidelines was distributed to policy-maker and fisheries stakeholders in the Southeast Asia. The impacts of the guidelines to national implementation of the CCRF have been cited by many countries such as Cambodia and Vietnam when fisheries laws were drafted as well as other Member Countries when fisheries development and management plans were prepared.

In addition, the Secretariat in collaborative with TD and MFRDMD initiated and implemented regional and national programs supporting the Regional Guidelines for

- Decentralization of Fisheries Management
- Right-Based Fisheries
- Institutionalization of the Community Based Coastal Resource Management

Component II

Under the collaborative arrangement with NBF and Sida,

4. PROPOSED FUTURE ACTIVITIES

Component I

The following proposed activities will be undertaken the Secretariat in collaboration with concerned Departments and with ASEAN-SEAFDEC Member Countries

- Coordination on regional and national programs supporting the Regional Guidelines for the Code of Conduct for Responsible Fisheries, the Resolution and Plan of Action as well as formulation of options for national policies on fisheries.
- Formulation and dissemination of Regional Guidelines on Post-Harvest Practices and Trade (Phase IV). The 1st Regional Technical Consultation on RCCRF Phase IV in Post-Harvest Practices and Trade is scheduled in March 2004 and the regional guidelines is expected to be published by the end of 2004.

Component II

The following proposed activities will be undertaken by the Secretariat in full collaboration with the Sida supported Senior Adviser and the WGRFP stationed at Secretariat, and with concerned Departments and with ASEAN-SEAFDEC Member Countries.

- Organizing the Regional Workshop on Training Needs Assessments for human resource development (HRD) on Fisheries (Co-Funded by Japanese Trust Fund I) in February 2004. The envisaged output is to identify the needs/areas for enhanced human resource capabilities at all levels to be used for the promotion of appropriate capacity building.
- Organizing Regional Technical Consultation for Sida-SEAFDEC HRD projects in May 2004. This aims to delineate the strategies for consensus building to enhance human capacity.
- Organizing Regional Technical Consultation for HRD on Fishing Capacity in June 2004. The meeting aims to identify problem areas, possibilities and target groups for various interventions to alleviate problems caused by excess levels of fishing capacity using available information from each country.
- Organizing On-site Training on HRD on Fisheries Management during June – September 2004 with objective of testing the applicability of the regionally developed training materials on the fisheries management of RCCRF on-site training.
- Preparation of draft training materials during January- December 2004, which will be prepared in the format of textbook, posters and leaflets.
- Preparation of translation of the training material and Regional Guidelines for Responsible Fisheries in Southeast Asia Phase I-III to national language and its circulation during January-December 2004.
- Information collection for fisheries and aquaculture relevant to CCRF in each ASEAN member country on national policies, laws and institutions framework, fishing capacity, and management policies and practices during January-December 2004.

Annex 6

DEVELOPMENT OF FISH DISEASE INSPECTION METHODOLOGIES FOR ARTIFICIALLY-BRED SEEDS

Program Category: Program under the ASEAN-SEAFDEC FCG Mechanism

Program Title: Development of Fish Disease Inspection Methodologies for Artificially-Bred Seeds

Lead Department: Aquaculture Department

Lead Country: Philippines

Duration: 2000-2004

The Project on the Development of Fish Disease Inspection Methodologies for Artificially-Bred Seeds aims to develop disease control system in aquaculture and promote healthy trading of aquaculture products including seeds for aquaculture in the Southeast Asian region. The Project was initially implemented from 2000 to 2003. However, a new disease, Koi Herpesvirus Disease (KHVD), has been currently reported from the region, and its impact on carp production is devastating in some areas. Under this situation, the Project has extended by 2004.

In order to develop the control technique of KHVD and prevent its spread in the region, the Project will conduct various activities on this disease, including research and development, attendance and support to international meetings, and organizing a workshop. These activities will be used as inputs for the production of manuals and workshop proceedings that the target clientele, especially the governmental staff and fish farmers in the region, can use.

As part of the outcome of the Project's Progress and Planning Meeting held in Iloilo, Philippines in December 2003, a networking scheme for disease diagnosis and control in the region will be established. The operationalization of the networking will be made part of the proposed "Development of Disease Surveillance System of Aquatic Animals" as Phase II of the Project.

1. OVERVIEW OF THE PROGRAMS

Research and development on KHVD, which has caused a serious negative impact on common carp production, will be conducted until the end of the duration of the Project. The International Symposium on KHVD to be held in Yokohama, Japan, will be supported by the Project, and a Workshop on Transboundary Surveillance of Finfish and Shellfish Diseases in Southeast Asia will be also organized in Manila. Manuals and workshop proceedings will be published as outputs of the Project. Training activities may spill over under the proposed "Development of Disease Surveillance System of Aquatic Animals" as Phase II of the Project. The components of the activities to be completed in 2004, are as follows:

1.1 Research and Development

- a. Transmission and control of koi herpesvirus
- b. Development of PCR-based detection method and phylogenetic analysis of koi herpesvirus isolated from Asian countries



- c. Histopathology of koi herpesvirus disease
- d. Hematology of carp infected with koi herpesvirus
- e. Determination of the virucidal effects of various disinfectants on koi herpesvirus

1.2 International Symposium on Koi Herpesvirus Disease

The Project will contribute and support *International Symposium on Koi Herpesvirus Disease* to be held in March in Yokohama, Japan. The component will invite representatives, including speakers, of SEAFDEC member countries in order to promote understanding of KHVD and to prevent its spread in the region. The Project will also hold a meeting on the day before the symposium in order to discuss the current status of KHVD in each SEAFDEC member country.

1.3 Workshop on Transboundary Surveillance of Finfish and Shellfish Diseases in Southeast Asia

The Project will hold a *Workshop on Transboundary Surveillance of Finfish and Shellfish Diseases in Southeast Asia* in June in Manila, the Philippines. Representatives of SEAFDEC member countries will be invited in order to discuss and establish such a system in the region.

1.4 Information

Publication of various information materials will be continued based on results from 2000-2003, including the following manuals and guidelines:

- a. Control measures against important viruses in shrimp hatchery;
- b. Control measures against Viral Nervous Necrosis (VNN) in finfish hatchery;
- c. Diseases of grouper;
- d. Health management in crab broodstock and hatchery;
- e. Standardized methods for analyses of pesticide and antibiotic residues; and
- f. Surveillance of antimicrobial usage in shrimp culture.

Outputs of the Workshop on Transboundary Surveillance of Finfish and Shellfish Diseases in Southeast Asia will be printed as proceedings.

1.5 Training

The training on diagnosis for important viral disease of shrimp and marine fish will be sustained under the proposed “Development of Disease Surveillance System of Aquatic Animals” as Phase II of the Project.

2. ENVISAGED OUTCOMES OF THE PROGRAMS

It is expected that the implementation of the Project will lead to the development of diagnosis, control and prevention of diseases in aquaculture for the benefit of the fish farmers in the Southeast Asian region. Thus, the technologies that are verified and extended to the fish farmers are expected to contribute to food sufficiency and security of the fisherfolk in the region.

The implementation of the Project could also contribute to capacity building of the countries in the region as more technicians will be trained on the developed technologies. Moreover, the dissemination of information through publication of various types of information materials would lead to awareness on the part of the fisherfolk on the development of state-of-the-art systems of disease diagnosis and control.

FISH TRADE AND ENVIRONMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism

Program Title: Fish Trade and Environment

Lead Department: The Secretariat

Lead Country: Thailand

Total Duration:

Proposed 2004 Budget:

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 Millennium 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

2.1 Objective:

The objectives of this project are as follows:

1. To review international issues related to fish trade and environment that may have potential impact to fisheries in the region.
2. To provide forum for the Member Countries to discuss and clarify approaches to ensure sustainable fish trade in the region in response to the up-coming international issue
3. To prepare policy option related to fish trade and environment to facilitate common position among ASEAN-SEAFDEC Member Countries to reflect fisheries situation in the region and safeguard their interest.

2.2 Program Description:

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

Since the ASEAN-SEAFDEC Regional Meeting on Fish Trade and Environment was organized in Bangkok in October 2002, it was tackled the issues of particular importance like shark fisheries, marine turtles (by-catch) and chemical/antibiotic residues of aquaculture products.

To follow-up activities of the said Meeting, SEAFDEC Secretariat organized the Regional Technical Consultation on Fisheries Subsidies was arranged in Bangkok, Thailand from 9-10 October 2003. Although this issue was not taken up during the former Meeting but subsidies were identified as one issue related to fish trade and environment program.

The Meeting had the purposes to develop the appropriate ASEAN policy on the fisheries subsidies for the forth coming International Technical Consultation on the subject and secondly to effectively collaborate with FAO on its preparatory work.

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, to follow-up the previous ASEAN-SEAFDEC Regional Fish Trade Meetings and safeguard the region's interests, an ASEAN-SEAFDEC Preparatory Meeting on Issues Related to Fish Trade and Environment will be organized tentatively in mid of March 2004. The Meeting aims primarily at discussing the issues related to CITES to reflect regional concern and develop common positions to be voiced in the planned 13th Meeting of the Conference of the Parties (CoP13) of CITES. In addition, the Meeting also aims at preparing the Member Countries for the issues related to fisheries subsidies for the International Consultation on the same topic to be held by FAO in June 2004.

COASTAL RESOURCE MANAGEMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism

Program Title: Coastal Resource Management

Lead Department: Training Department

Lead Country: Thailand

Total Duration:

Proposed 2004 Budget:

PHASE I: Locally Based Coastal Fisheries Management Project in Chumphon, Thailand (LBCFM-PD)

1. OVERALL REVIEW

In 2003, TD and the Department of Fisheries (DOF) collaborated to implement the “Locally Based Coastal Fisheries Management Project in Pathew District (LBCFM-PD)”, Chumphon Province. This was the second year of Phase I of the project. These two counterparts have gotten local people and members of the Pakklong Sub-district Administrative Organization (Ao.Bo.To.) to run progress work of the project activities. The focus points of the project placed an emphasis on core activities; Activity II (Encourage and Extend Locally Based Coastal Fisheries Management) and Activity III (Encourage Local Business). These two activities were tools used to strengthen an attainment of sustainable coastal resource management and to create alternative job opportunities for local people, particularly for women in the community, to allow them to access additional sources of income.

The main effect of Activity II was that local people reached their agreement to mark demarcation of aquaculture zone management. The main result of Activity III was women’s group members worked and participated in producing fish products and outlets at a food festival fair in local and urban areas. Activity I (Base Line Survey), which involved oceanographic and environment mapping surveys, helped to support marking demarcation of aquaculture zone management. Activities IV (Developing Human Capacity Building) and V (Develop Extension Methodology) were supportive components used to increase awareness of coastal resource management to locals.

In February of 2003, the local and regional seminars on the “Development of Coastal Resource Management: Lessons Gained Through Locally Based Coastal Resource Management” in Pathew District, Chumphon Province, Thailand were held in Chumphon and Phuket. The seminars took place between the 19th and 21st of February. Participants recommended an investigation of genders working hours and conflict management between crab gill net and collapsible crab trap fishers. A survey on women’s working hours was conducted in August 2003. The Chumphon provincial office of fisheries initiated the enlarging of the mesh size in the bottom net of collapsible crab traps in July, 2003 to help reduce conflict between the two resource users.

TD hosted an international fisheries extension course entitled “The International Training Course in Coastal Fisheries Management and Extension Methodology 2003”. Fisheries extension officers from SEAFDEC member countries and Sri-Lanka attended the course. All participants attended lectures on the topic of extension methodology in coastal fisheries



management and also visited the LBCFM-PD project site in Chumphon for five days to conduct practical surveys. This on-site training will hopefully give participants tangible views of the project implication comparing coastal resource management in their own countries.

Furthermore, TD progressed in transferring knowledge and experiences to other member countries during the second phase of the program. In the wake of producing some outputs during the two years project, a sister project entitled “Locally Based Coastal Resource Management in Pulau Langkawi (LBCRM-PL)” was initiated in Malaysia in August, 2003.

2. PROPOSED PROJECT GOALS

2.1 Outline of Project Initiatives

TD would implement the project activities, which ended phase I of the project in December 2003 as followed the project timeframe. TD would gradually phase out its responsibility in implementing the project by reducing the number of project activities in the year 2004 (the first year of phase II). TD collaborates with DOF to highlight Activities II and III. This is to strengthen self-management of coastal resource and increase accessible sources of alternative job opportunities. The other three activities, Activities I, IV and V, are provided to contribute to Activities II and III. Contents and focus points of the project activities are as follow:

Activity I: Socio-economic surveys place an emphasis on monitoring community development through provision of the project activities to recognize problems and/or threats occurring on a day-to-day basis regarding the implementation of the project. Oceanographic and environmental surveys regularly collect samples and monitor data collecting methodology.

Activity II: Continue to promote locally based coastal fisheries management by helping local people and organizations to establish a local monitoring unit and self-regulated MSC for protection of coastal areas. This includes mandating self-regulation to force local people to control and manage aquaculture zone limits.

Activity III: Contribute to women’s groups in each village to help develop standardization of fish processing products. Women’s groups will be provided appropriate training courses on developing skills on marketing and product distribution. The training course and its tentative consideration is based on results from surveys on women’s working hours in the area.

Activity IV: A series of training courses for fishers’ organizations will be designed to teach how to organize group activities in order to strengthen voluntary member participation in coastal resource management.

Activity V: The LBCFM project will be promoted and information and outcomes gained from the project will be presented to local people in an effort to increase the importance of coastal resource management participation in their own community.

2.2 Special Activities

Transferring Lessons and Experiences to Other Member Countries

TD initially succeeded in transferring lessons and experiences gained from the LBCFM project in Thailand and Malaysia. To expand these beneficiaries to other areas in Southeast Asia, the two member countries are considering making visits to assess the feasibility to formulate the same conceptual framework of the LBCFM project to a third country. This is expected to gradually enlarge areas under sustainable coastal resource management and increase human resource capacity building and its institutional development.

International Fisheries Extension Course Arrangement

An international fisheries extension course is a viable training course used to teach fisheries extension officers how to integrate a multi-fisheries management approach to reach sustainable coastal resource use. This course is intended to enhance capacity building of the officer, encouraging local people to participate in coastal resource management.

2.3 Introduction of Set-net Fishing to Develop Sustainable Coastal Fisheries Management

The project “Introduction of Set-net Fishing to Develop Sustainable Coastal Fisheries Management” was proposed and approved as a two-year project (2003-2004). The pre-survey site selection, fishing gear design, gear construction and installation as well as a monitoring survey were carried out in the year 2003. Three other monitoring surveys, a project evaluation, a technical seminar and a project report will be performed in the year 2004.

PHASE II: Locally Based Coastal Resources Management Project in Langkawi, Malaysia (LBCRM – PL)

1. BACKGROUND

Under the component of Coastal Resources Management in the FCG plan, the project entitled “Locally Based Coastal Resources (subsequently changed to Fisheries) Management” commenced activities as phase II of the program in October of 2001 in Chumphon Province, Thailand. The primary objectives were to establish a practical framework for locally based coastal resources management through the encouragement of fishermen’s participation, supported by the creation and expansion of job opportunities in coastal fishing communities. The project also proposed to impart knowledge and technologies, including the experience and knowledge gained, to other member countries. The project has produced some tangible outputs as planned, and the members at the SEAFDEC FCG Meeting in 2002 highlighted it. Malaysia was selected, among others, as the next country to implement a similar coastal resources management project. The Malaysian government assigned a project site in Langkawi within the collaborative project framework. TD has since deployed fact-finding and project formulation missions to Langkawi. The first Steering Committee Meeting of the project was held on July 10th, 2003 where it was decided that the project would begin on August 1st, 2003 with a two-year tenure. A program document was formulated and endorsed by the 2nd Steering Committee held on October 20th, 2003 in Phuket, Thailand.



2. PROJECT MANAGEMENT AND OPERATIONAL FRAMEWORK

The main agency responsible for implementing the project is the Department of Fisheries (DOF) Malaysia while SEAFDEC/TD acts as a collaborating agency within the regional collaborative framework. The Fisheries Development Authority Malaysia (LKIM) and the State of Kedah act as primary supporting agencies, while SEAFDEC/MFRDMD contributes technical support. In fact, activities prior to the commencement of the project began in November, 2001 when DOF organized the four FENs (Fishermen's Economic Group) in Pulau Langkawi. Therefore, DOF runs the project and SEAFDEC/TD provides technical support based on knowledge gained from the on-going project in Chumpon, Thailand, and with financial support within the budgetary contribution of co-financing. DOF, Thailand is also involved in the operation in a consultative capacity within the regional technical exchange scheme network at SEAFDEC.

From SEAFDEC/TD's side, the "Resources Enhancement Project (SDI-4), Special 5-year program on Sustainable Fisheries for Food Security in the ASEAN Region", has made a financial and technical contribution by testing the suitability of FADs and ARs and their impact on natural resources in Malaysia. The current major concern in LBCRM in Langkawi is the applicability of FADs and ARs and their management. Some components in the project activities are duplicated, especially in the activity "Rehabilitation and Enhancement of Coastal Resources". Hence, parts of the activities in SDI-4 were merged into the main LBCRM-PL project.

3. PROJECT OUTLINE

3.1 Project Area and Target Groups

The project site is located on Langkawi Island, Kedah State, Malaysia. The target group includes all those who are engaged in fisheries as well as their families, in Kuala Teriang, and numbers about 600.

3.2 Objectives

The overall goal of the project is to provide technical assistance to ensure sustainable development of coastal fishery communities in Pulau Langkawi within the collaborative framework. Further objectives of the project are the development of sustainable coastal resources management at the community level, the rehabilitation of coastal resources and the alleviation of poverty. To achieve these goals, the project engages in activities in three major areas: a CBFM approach, a resources enhancement approach, and a job creation approach.

3.3 Activities

The core project activities are Activity III, "Promotion of Local Business and Activity V, "Encourage and Extend Locally Based Fishery Resources Management". To support these activities, another four activities are performed; "A baseline survey", "The Rehabilitation and Enhancement of Coastal Resources", "Fishing Gear Technology Improvement" and "Enhancement of Human Resources Capability and Participation".

4. PROJECT PROGRESS

Since the inception of the project in August 2003, some activities in “Baseline Surveys” and “Rehabilitation and Enhancement of Coastal Resources” have been carried out and more projects related to “Enhancement of Human Resources Capability and Participation” are expected to be carried out in December, 2003. The preliminary socio-economic survey in the target group took place in three fishing villages in the project area and a summary of the results is under way. The preliminary results of the survey will be discussed in a two-day workshop to be held in December. A preliminary survey on site selection and suitable modules of AFD was carried out jointly with the Fisheries Research Institute in Phuket in July of 2003. The follow-up survey will take place in December 2003. For the purpose of encouraging stakeholders in the project area to fully understand the importance and implication of the project from the outset, a Fishermen’s Workshop is also to be held in December 2003.

5. PROPOSED FUTURE ACTIVITIES

Consistent with the context of the Program Document, the planned activities are to be implemented as follows:

Activity 1: Base Line Survey

The data analysis of the preliminary socio-economic survey conducted in October, 2003 will be finalized and compiled into a report for publication. The necessary data collection like fish landings will be continued through the project life. Study on the impact of the installation of FADs will be conducted intermittently (SDI-4).

Activity 2: To Rehabilitate and Enhance Coastal Resources

The LKIM plans to install FADs using a budget of RM100,000 in the project area in 2004. The project assists them in designing suitable modules for FADs and selecting suitable locations.

Activity 3: Promotion of Local Business

An appropriate approach for promoting local business will be identified by the task force, and based upon the findings, demonstrations and training for fishers will be carried out. Also, the improvement needs for fish handling and processing technology will be identified, and based upon the needs, training will be given.

Activity 4: Fishing Gear Technology Improvement

Based upon the study on current practices of fishing, concentrating on FADs, improvement of fishing methods will be devised and demonstrated to the fishers for practical application.

Activity 5: Encourage and Extend Locally-Based Coastal Fishery Resources Management

The impact given by the installation of FADs will be assessed by a team from SDI-4 and, based upon the result, a management plan will be formulated for implementation. The practical application may be realized in 2005.



Activity 6: Enhance Human Resources Capability

Various training courses and workshops will be organized aimed at capacity building for fishermen's groups like FENs and Fishermen's Associations. Preparation of extension materials including text, manuals and audio-visuals will be prepared for strengthening the extension service network.

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

PROGRAM SUMMARY

1. BACKGROUND

In order to analyze fisheries problems and discuss issues of concern to the ASEAN region, as well as help formulate harmonized regional policies to ensure sustainable fisheries production and promote collaboration on the global initiatives, the Special 5-year Program on Contribution of Sustainable Fisheries for Food Security in the ASEAN region was initiated and promoted through fisheries collaborative mechanism of ASEAN and SEAFDEC Member Countries.

2. OBJECTIVES

With the aim to provide benefit to all ASEAN Member Countries, to minimize disparities and to achieve coordinated efforts toward sustainable fisheries, the program has the following objectives:

1. To analyze issues critical to the achievement of sustainable fisheries, recognizing its importance to food security for the ASEAN region;
2. To create a climate of cooperative and integrated efforts among ASEAN Member Countries to achieve sustainable fisheries;
3. To emphasize the importance of such efforts in dealing with socio-economic issues, especially for the disadvantaged people of the region; and
4. To identify and prioritize implementable actions by the fisheries sectors in the ASEAN region.

3. PROGRAM STRUCTURE

The Program is considered a continuum of activities divided into three phases covering the period of 2000 to 2005 as follows:

1. *Preparatory Stage (2000-2001)*: A series of preparatory activities leading up to the organization of the Conference have been conducted by SEAFDEC in collaboration with ASEAN, FAO, DOF (Thailand) and ASEAN-SEAFDEC Member Countries. The activities included regional consultations, national seminars, etc.
2. *Conference Proper (19-24 November 2001)*: The Conference divided into technical and ministerial sessions was conducted in order to discuss fisheries related problems and identify ways and means to overcome the problems. The major outcomes of the Conference – Resolution and Plan of Action – are considered a regional fisheries policy and actions to be undertaken to promote sustainable fisheries development in the region.
3. *Follow-up Stage (2002-2005)*: In order to ensure proper actions to be taken in line with the Resolution and Plan of Action, follow-up program/projects are developed to assist ASEAN Member Countries in ensuring sustainable fisheries in the region.



4. FOLLOW-UP PROGRAM

1. *Follow-up Program Components:* Based on the Conference proper, three program components were identified – Fisheries Management, Aquaculture and Utilization of Fish and Fishery Products.
2. *Supporting Projects:* Topics and issues discussed and concluded at the Conference are prioritized by SEAFDEC for further development of supporting activities. Based on agreed format and guidelines, the prioritized projects (see Annex 1 for tentative projects summary) have been developed by SEAFDEC Secretariat and Departments for submission to the SEAFDEC Program Committee for endorsement and subsequently proposed to relevant ASEAN-SEAFDEC mechanisms for their approvals.
3. *Program Administration:* SEAFDEC Secretariat will be responsible for the overall program administration in coordination with the Departments. The program will be implemented in close collaboration with the ASEAN Member Countries to achieve the identified objectives.
4. *Financial Arrangement:* Cost-sharing policy among SEAFDEC, ASEAN Member Countries and collaborating regional/international organization will be extensively promoted with the major contribution from the Government of Japan. SEAFDEC Secretariat is responsible for preparing consolidated financial requirement and reporting for submission to relevant bodies.
5. *Program Monitoring and Evaluation:* Program monitoring will be conducted annually by SEAFDEC Secretariat in coordination with the Departments from 2002 to 2005. At the end of the follow-up program, the overall evaluation will be also conducted using performance indicators by the Secretariat in collaboration with the Departments and ASEAN Member Countries for submission to relevant bodies

PROJECT DOCUMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism
Program Title: The Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region
Component Title: Component I: Fisheries Management
Project Title: Toward Decentralized Management for Sustainable Fisheries in the ASEAN Region (SDI-1)
Lead Department: The Secretariat
Lead Country: Thailand
Total Duration: 4 years (2002 - 2005)
Proposed 2004 Budget: USD 45,000

1. INTRODUCTION/BACKGROUND

Stable fish supply for achieving food security for the people of the ASEAN countries depends on the long-term sustainability of fish and other aquatic resources. To achieve such sustainability, existing national fisheries management frameworks need to be modified and adjusted to accommodate the various requirements for sustainable fisheries development in the region. Among the various options considered suitable to promote sustainable fisheries, the decentralization of selected functions and responsibilities to appropriate local 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 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 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 this emerging need for decentralization of management and rights-based fisheries, the concepts and approaches requires 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

In November 2002, a regional seminar on coastal fisheries management was held in Japan, during which policy directions and approaches in the promotion of sustainable coastal fisheries management through decentralization and the introduction of rights-based fisheries were reviewed. The outcome of this seminar provided the basis for further discussion during the ASEAN-SEAFDEC regional workshop on Decentralized Management for Sustainable Fisheries, which was held in May 2003 in Phuket, Thailand.

Under execution of pilot projects are conducted in some selected member countries, the National Workshop on Introduction of Fish Restocking Program for Reservoir Fisheries Management was arranged in Namngum, Lao PDR in August 2003. The purposes of the workshop were to seek clarification on directions and plan for Fish Restocking Program and promote the comprehensive management in reservoirs considered as a rights-based fisheries system in Lao PDR.

In addition, Fish Releasing Ceremony and Demonstration on Artificial Breeding was organized in Lao PDR in August 2003. Envisaged output from the activities for Lao PDR officials will be an ability and capacity to apply the artificial breeding as a tool to improve inland natural water bodies of Lao PDR through fish restocking program under the rights-based fisheries management regime.

4. PROPOSED FUTURE ACTIVITIES

The Workshop on Decentralized Management for Sustainable Fisheries recommended a strategy and various options and potential follow-up activities to achieve the objectives of the project.

Based on those recommendations, the following activities are proposed for implementation in the year 2004:

1. To continue the process of reviewing efforts aimed at strengthening local-level fisheries management within the region. In-depth studies of issues considered to be crucial for the success of decentralized, rights-based fisheries management systems will provide the basis to develop and formulate guidelines for the establishment of such systems. Among the various crucial issues regarding the establishment of sustainable coastal fisheries and resources management systems, there are few, which require special attention. In-depth studies of these issues will greatly enhance our understanding of the processes and factors promoting or hampering efforts in establishing decentralized, rights-based fisheries management systems.

a. Legal frameworks for decentralization and rights-based fisheries

Some countries are currently revising their legal framework for fisheries

management, to accommodate provisions for co-management, community involvement, the delegation of management functions to the local level and user-rights in fisheries. While such modifications of the legal framework are encouraged, they usually take a long time. It is therefore necessary to identify what kind of management functions and authority can be legally transferred to the local level and currently existing legal frameworks of the countries in the region.

b. Identifying management functions and authority which should be transferred to the local level to be effective

The observation that many local efforts and initiatives in coastal fisheries and resources management are not sustainable deters responsible policy makers and fisheries managers from actively pursuing a decentralization process and delegating management functions to local level authorities and to go beyond pilot-projects. It is critical to look at projects, programs and management systems at the local level, which are considered to be successful and sustainable and identify the factors, which contribute to this success. This will be supplemented by a “needs-assessment” of what management functions and authorities should be transferred to the local level, to be most effectively applied.

c. Spatial and political integration

One of the most important issues to be addressed in the efforts to establish and strengthen local level fisheries management is the identification of “what is local”. Often, the ecological and geographical boundaries of the areas to be managed under a decentralized coastal fisheries and resources management system are different from political and administrative boundaries (A mangrove or coral reef area may fall into several villages, or districts, a bay may be shared by the villages and towns of several provinces). A study of institutional mechanisms and administrative tools applied in existing projects to merge the political/administrative will provide useful information for developing the regional guidelines on the promotion of decentralized management for sustainable fisheries in the ASEAN region.

2. A SEAFDEC internal workshop to clarify the linkages between various activities promoted and conducted by SEAFDEC, which are relevant for the development of decentralized fisheries management systems.

As SEAFDEC currently conducts a number of projects and programs, which have linkages to various aspects of decentralized, rights-based fisheries management systems. To clarify these linkages and improve the flow of communication and coordination, a SEAFDEC internal workshop should be conducted, addressing this issue.

3. Based on the outcome of the proposed in-depth studies and the review of ongoing pilot projects and coastal fisheries management approaches in the region, a first draft of the regional guidelines for decentralization and introduction of rights-based fisheries management will be formulated and to be discussed at the regional expert meeting.



PROJECT DOCUMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism

Program Title: The Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region

Component Title: Component I: Fisheries Management

Project Title: Improvement of Fishery Statistical Systems and Mechanisms (SDI-2)

Lead Department: The Secretariat

Lead Country: Thailand

Total Duration: 4 years (2002 - 2005)

Proposed 2004 Budget: USD 54,000

1. INTRODUCTION

Fishery statistics is widely accepted as a tool to provide a basis and being 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 of 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 high priority. In addition, to reduce the gap of 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 existed 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 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 conduct of 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

The ASEAN-SEAFDEC Regional Technical Consultation (RTC) on Fishery Statistics was organized by the SEAFDEC Secretariat in Chiang Mai, Thailand from 16 to 19 June 2003. The Consultation aimed at addressing the importance and needs for improving fishery statistics in the region with particular emphasis on the aspects of capacity building in the area of coastal and inland fisheries. In addition, the Consultation also emphasized the need for commitment and close collaboration among the Member Countries and SEAFDEC in the implementation of the project. The outcome of the Consultation provided the basis, directions and plan for further implementation of the national workshops and on-site trainings for the CLMV countries.

The national workshops on fishery statistics for the CLMV countries were organized in four countries from September to October 2003. The outcomes of the workshop highlighted issues/problems areas as well as directions/approaches for improvement of fishery statistics system in each CLMV Countries.

The Secretariat completed preparation of the training packages and training materials including the final draft of the Regional Guideline on Collecting Fishery Statistics for Inland and Coastal Fisheries for the on-site trainings. The 1st on-site training on fishery statistics was organized in Lao PDR and Cambodia in October and December 2003, respectively. The outcomes of the 1st on-site training in each country would further contributed to the improvement of fishery statistics system and provide input for the 2nd on-site training to be organized in early 2004.

4. PROPOSED FUTURE ACTIVITIES

Considering the financial support from the ASEAN Foundation on capacity building in fishery statistics, which will be ended in July 2004, the Project for 2004 will therefore composes of two parts. Part I covering the period from January to June will focus on capacity building and identification of future undertaking of fishery statistics improvement. Part I starting from July onwards, will focus on strengthening of national fishery statistics and their compilation. To achieve the objectives of the project and to follow-up with activities in the year 2003, the following activities are proposed for implementation in the year 2004:

- To conduct the 1st on-site training on fishery statistics in Myanmar and Vietnam based on readiness of the countries. The training methodology will be used based on the issues/problems areas identified and elaborated at the national workshop in both countries.



The outcomes from the 1st on-site training will be used as framework and approach to further conduct the 2nd on-site training.

- To conduct the 2nd on-site training in CLMV countries based on readiness of the countries. The outcomes from the first on-site training will assist and contribute to the improvement of fishery statistics system in target countries. The second training will further fulfill and strengthen on human resource development capacity related to fishery statistical system and mechanism.
- To organize the Expert Meeting on Fishery Statistics to review and conclude the outcomes from all capacity building activities on the improvement of fishery statistics in CLMV countries namely the national workshop, 1st on-site training and 2nd on-site training.
- To organize the 2nd ASEAN-SEAFDEC Regional Technical Consultation on Fishery Statistics to present all capacity building activities on the improvement of fishery statistics in CLMV countries for program evaluation. In addition, the consultation will also discuss future regional directions and plan for improvement of fishery statistics in the member countries and to discuss the regional compilation of fishery statistics to ensure timely provision to support fisheries management.
- Inter-departmental Workshop on Improvement of SEAFDEC Statistics Bulletin
- Regional Training Core on Fishery Statistical Processing and Analysis
- Inter-departmental Training Workshop on FIRM-FIGIS Database

PROJECT DOCUMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism
Program Title: The Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region
Component Title: Component I: Fisheries Management
Project Title: Responsible Fishing Technologies and Practices (SDI-3)
Lead Department: Training Department
Lead Country: Indonesia
Total Duration: 4 years (2002 - 2005)
Proposed 2004 Budget: USD 50,000

1. INTRODUCTION/BACKGROUND

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 technology, 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.

Solutions to the problem of over-exploitation and habitat degradation in the region are 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 Objectives:

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 (JTEDs) in ASEAN member countries.



2. To study and improve the selective gear which minimize destructive degree and suit for the 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.
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 international and national organizations and agencies, including FAO/GEF, AMC, MI, and TUF. The project activities will focus on a review of Selective Fishing Gear and Practices and 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 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 will co-sponsor the areas of the project where the GEF project on the Reduction of Environmental Impact through Tropical Shrimp Trawling through the Introduction of By-catch Reduction Technologies 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 and other institutions will be approached.

3. PROGRESS:

In the year 2003, the following 7 activities were conducted:

3.1 Monograph on Fishing Gear and Methods in Southeast Asia

Two publications: “Fishing Gear and Methods in Southeast Asia: II. Malaysia (Rev)” and “Fishing Gear and Methods in Southeast Asia: III. Philippines Part 1”, were both reviewed

and published. Fishing gear surveys in Cambodia and Indonesia were conducted and results will be published at the end of 2003.

3.2 Production of Promotional Materials and the Awareness Program

A VDO on the use of TEDs (Turtle Excluder Devices) for shrimp trawl fisheries in Thailand was produced. In addition, pamphlets on TEDs and Juvenile and Trash Excluder Devices (JTEDs) were produced and distributed.

3.3 Experiments and Demonstrations on the Use of Juvenile and Trash Excluder Devices (JTEDs) in Southeast Asia

Experiments and demonstrations on the use of juvenile and trash excluder devices (JTEDs) were conducted in the Philippines from April 28th to May 10th, 2003. The demonstrations were conducted for 20 fishermen at Amaya Fishing Village and Tanza. They were shown how to construct JTEDs and practiced the installation of both JTEDs and TEDs. They also embarked on a fishing vessel to observe shrimp trawling operations using a TED and a JTED. For the JTED experiments, 43 trials were conducted onboard two different vessels. Five types of JTEDs were used including the Window JTED, the Semi-curved JTED, a JTED with a 1cm grid interval, a JTED with a 2cm grid interval, and another with a 3cm grid interval. The data from the experiments will be analyzed and results will be published in September.

Between July 22nd and August 3rd, 2003, a research team from the Training Department in collaboration with the Department of Fisheries, Brunei Darussalam, conducted the second set of demonstrations and experiments on juvenile and trash excluder devices in Brunei waters. The experiments were aimed at collecting data on the effectiveness of JTEDs with 1 and 2cm sorting grid intervals, the semi curved JTED, and the window JTED. The results will be used to compare the performances of the selective devices and how to improve the design. Apart from the sea trials, a demonstration was conducted for the staff of the Department of Fisheries and the local fisherfolk.

3.4 International Workshop on the Estimation of Discards and Measures to Reduce By-Catch in the Indian Ocean and Western Pacific

The Training Department collaborated with the Food and Agriculture Organization (FAO) to organize an international workshop on the Estimation of Discards and Measures to Reduce By-Catch in the Indian Ocean and Western Pacific May 12-16, 2003. The workshop was attended by representatives from Brunei Darussalam, Cambodia, Indonesia, Japan, Malaysia, Myanmar, Philippines, Thailand, Australia, South Africa and South Korea. The workshop was also attended by resource persons from FAO, the Philippine Bureau of Fisheries and Aquatic Resources (BFAR), SEAFDEC Marine Fishery Resources Development and Management Department (MFRDMD) and the Training Department (TD). The workshop reviewed and discussed the current situation on discards and by-catch (better understood as Unwanted Catch), in the ASEAN region. The workshop came up with an action plan to help reduce the amount of unwanted catch in the region.

3.5 Training on the Use of TEDs and JTEDs

The Training Department in conjunction with the Food and Agriculture Organization's Global Environmental Facility's (FAO/GEF) project on the "Reduction of Environmental Impact by Tropical Shrimp Trawling Through the Introduction of By-catch Reduction Technologies and



Changes in Management” conducted a regional training course on the use of Turtle Excluder Devices (TEDs) and Juvenile and Trash Fish Excluder Devices (JTEDs) from August 25th to September 8th, 2003. Sixteen participants from ASEAN member countries attended, namely; Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Thailand and Vietnam. During the course the participants gained a better understanding of both theoretical and practical use of TEDs and JTEDs as by-catch reduction devices. The participants also gained practical experience on the use TEDs and JTEDs through onboard training.

3.6 Training Course in Ecosystem Effects of Fishing in Southeast Asia

The training course in Ecosystem Effects of Fishing was held in cooperation with the Australian Maritime College. The course began on the 10th of November and concluded on the 20th of November. There were twelve participants; one from each SEAFDEC member county and two from Sri Lanka. The course aimed to build upon the results of the Millenium Conference and presented participants with current issues related to ecosystem effects of fishing. Participants gained an understanding of legal, policy, administrative and management implications of ecosystem function and assessment in relation to the present issues facing fisheries in the ASEAN region.

3.7 Workshop on Safety at Sea for Small Fishing boats

The Training Department organized a workshop on “Safety at Sea for Small Fishing Boats” from December 17 - 19, 2003. The Workshop agreed with the Recommendation on Safety at Sea for Small Fishing Boats in Southeast Asia (Appendix 1).

4. PROPOSED FUTURE ACTIVITIES:

To reach the objectives of the project, 5 activities were proposed for the year 2004 as follows:

- Monograph on Fishing Gear and Method in Southeast Asia (Myanmar)
- Demonstrations and Experiment on Selective Fishing Devices including JTEDs in Southeast Asia (Myanmar and Cambodia)
- Workshop on the Evaluation of JTEDs in Southeast Asia (in collaboration with FAO/GEF)
- Training Course in Ecosystem Effects of Fishing
- Production of Promotion Materials and Awareness Program

Appendix 1 of Annex 9



**WORKSHOP ON
SAFETY AT SEA FOR SMALL FISHING BOATS
17-19 DECEMBER 2003, TRAINING DEPARTMENT**

**RECOMMENDATIONS ON SAFETY AT SEA
FOR SMALL FISHING BOATS IN SOUTH-EAST ASIA**

We, ASEAN Technical Officers related to the safety at sea for small fishing boats, met in Bangkok 17 – 19 December 2003 for the Workshop on Safety at Sea for Small Fishing Boats, and agreed to the following recommendations as a basis for formulating a comprehensive framework on the program to promote the issue of safety at sea for small fishing boats.

1. Leave the definition of 'small fishing boats' and 'operational range' up to individual countries.
2. Promote the registration of small fishing boats.
3. Promote coordination between concerned authorities on monitoring and control of small scale fishing boat safety as well as socio-economic considerations.
4. Strengthen local authorities and promote policies of safety at sea within the coastal communities.
5. Promote technical and financial support from authorities, including subsidies, at all levels for issues of safety at sea.
6. Identify and promote basic requirements for safety at sea in the areas of;
 - research on the design and construction of small fishing boats including the modification of traditional type boats
 - safety equipment including fire fighting and life-saving appliances
 - regular boat inspection systems.
7. Implement training & education programs for all stakeholders including fishers and boat builders, for the basic requirements of:
 - boat design and construction
 - equipment and its correct use
 - search & rescue
 - occupational health and safety awareness, including the avoidance of dangerous fishing practices
 - awareness of environmental factors.
8. Develop and promote the use of appropriate communication systems for;
 - weather forecasting information
 - search & rescue systems
9. Development of appropriate incident reporting and investigation systems for the purpose of improving safety at sea.

PROJECT DOCUMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism

Program Title: The Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region

Component Title: Component I: Fisheries Management

Project Title: Resource Enhancement (SDI-4)

Lead Department: Training Department

Lead Country: Malaysia

Total Duration: 2002 - 2005

Proposed 2004 Budget: USD 50,000

1. INTRODUCTION/BACKGROUND

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 other areas are removed rapidly from the ecosystem by destructive fishing gears such as push nets or small-mesh trawl nets. Furthermore, in order to retain the released stocks within the immediate vicinity and minimize losses through out-migration, suitable habitat must be available to them. Therefore, habitat restoration and/or enhancement and establishment of exclusive fishing rights may be necessary prerequisites for any marine re-stocking 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 OBJECTIVES:

1. To optimize the use of inshore waters through resource enhancement programs.
2. To enhance fisheries resources by artificial reefs, stationary fishing gear and aquaculture facilities (e.g. oyster culture).
3. To assess the feasibility and environmental impact of artificial reefs, stationary fishing gear and aquaculture facilities.
4. To enhance marine engineering of artificial reef construction and installation.

5. To developing human resources for the implementation of resource enhancement programs.
6. To promote right-based fisheries management concepts to local fishers.

3. PROGRESS:

TD, together with members of ASEAN and SEAFDEC member countries, conducted a “Resources Enhancement” project at Pathew Distric, Chumporn Province, Thailand and Paulo Langkawi, Malasia as case study areas. This project was designed to integrate installation of artificial habitats in inshore waters with careful pre-assessment of environmental and socio-economic impact.

In the year 2003, project proposal and planning as well as core working group were carry out. “A Review of Existing Artificial Reefs and Resources Enhancement” project in the ASEAN countries is currently under investigation.

Set net fishing demonstrations and training were conducted at Rayong province, Thailand during from October 1 - 11, 2003. Fifty local fishermen participated in the program. The effects of stationary fishing gear (set net) on fisheries resources enhancement are being conducted under Trust Fund programs.

A workshop on “Artificial Reefs and Stationary Fishing Gear (Set net) Design and Construction and Marine Protected Areas” was conducted at SEAFDEC/TD between September 30th, and October 3rd, 2003. There were 44 participants from 10 countries that participated in the workshop, namely; Brunei Darusalam, Cambodia, Indonesia, Japan, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. The outcomes and recommendations of the workshop will be published in 2004.

Survey and data collection on environmental studies on Artificial Reefs at Pathew district, Chumporn province, Thailand was conducted between November 16th to the 24th, 2003. Information on oceanographic parameters such as water current and speed/direction were collected. Biological information such as benthos, phytoplankton, zooplankton, and fish larvae distribution was also collected. Fishing surveys using various fishing gears such as Trammel net, Fish trap, Squid trap, Crab trap, were also carried out. In addition, fish stock assessment by hydro-acoustic survey at the project site was performed.

A similar survey and data collection on environmental studies on Artificial Reefs and FADs (Fish Aggregating Device) at Plulo Langkawi, Malaysia was carried out between December 8th to the 16th, 2003.

4. PROPOSED FUTURE ACTIVITIES:

- Survey and data collection on environmental studies on Artificial Reefs, Set nets and Marine Cage Culture project sites.
 - o On site survey in Chumporn, Thailand
 - o On site survey in Lankawi, Malaysia
- Experiments on Fish Shelter Model for particular species in Artificial Reefs.
- Marine Ranching and Stock Enhancement.
- Workshop on Implementing Artificial Reefs in Southeast Asia.
- Production of Information Package on Resources Enhancement.



**Proposed Departmental Work Plan and Budgetary Allocation for the year 2004
for the Special 5-year Program on Sustainable Fisheries for Food Security in the
ASEAN Region**

Summary Table of Proposed Work Plan and Budgetary Allocation

Program Component	Responsible Department	Sub-Project/Activities Title	Total Duration	Proposed Budget in 2004 (USD)
Component I: Fisheries Management				
SDI-4 Resources Enhancement	TD	Survey and data collection on environmental studies on Artificial Reefs, Set Nets and Marine Cage Culture project sites. - On site survey in Chumporn, Thailand - On site survey in Lankawi, Malaysia	Jan.-Dec.	25,000.00
		Experiment on Fish Shelter Model for particular species in Artificial Reefs.	Jan.-Dec.	4,000.00
		Marine Ranching and Stock Enhancement.	Jan. – Dec.	2,000.00
		Workshop on Implementing Artificial Reefs in Southeast Asia.	Jun. – Dec.	16,000.00
		Production of information package on Resources Enhancement.	Jan. – Dec.	3,000.00
				50,000.00

PROJECT DOCUMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism

Program Title: The Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region

Component Title: Component I: Fisheries Management

Project Title: The Identification of Indicators for the Sustainable Development and Management of Capture Fisheries in the ASEAN Region (SDI-5)

Lead Department: Marine Fishery Resources Development and Management Department

Lead Country: Malaysia

Total Duration: 4 years (2002 - 2005)

Proposed 2004 Budget: USD 96,000

1. INTRODUCTION / BACKGROUND

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

The following are the objectives.

1. To introduce the use of indicators for fisheries development and management of capture fisheries
2. To prepare regional guidelines on the use of indicators for fisheries development management for capture fisheries in the ASEAN region.
3. To conduct related research on the use of indicators for improved fisheries management

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 have been started in several countries. Basing on 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 status and trends of fisheries to support fisheries management without aiming to replace conventional stock assessment.

3. PROGRESS

Pilot projects on the use of indicators for the sustainable development and management of capture fisheries were started in five countries. The Philippines started the project on the ringnet fishery operating from Danao City, Cebu, in December 2002. This pilot project focuses on the small pelagic fishery. Resource and biological indicators have been selected. Existing data on this fishery are being compiled and new data are being collected under a



regular sampling program that was started. Malaysia started a pilot project in early 2003, focusing on the trawl fishery (covering vessels of <40 GRT) in the States of Kedah and Perlis on the north-west coast of Peninsular Malaysia. Indicators selected are fleet, socio-economic and environmental indicators and these have been agreed upon following a series of meetings, discussions and workshops with stakeholders. Thailand also started a pilot study on the trawl fishery in Pran Buri, Prachuab Khiri Khan. A meeting with stakeholders was held in July 2003. Currently, stakeholders including fishers, are actively involved in this project. Existing data are being compiled and new data are being collected through a regular sampling program. Selected indicators include resource, fleet, economic and social indicators. Brunei Darussalam is studying the use of indicators for the management of the trawl fishery beginning October 2002, while Indonesia is attempting to study a traditional demersal fishery in Pekalongan, Central Java, since July 2003. In both these countries, existing data on the fishery selected are being compiled while regular sampling programs have been planned. Vietnam will not implement a pilot project.

In all the above pilot projects, stakeholder consultations were initiated through formal and semi-formal meetings, workshops and seminars that involve fishers as well as others who are participating in the selected fisheries either directly or indirectly.

SEAFDEC MFRDMD has been working with all Technical Officers of pilot projects to provide support and coordinate all relevant activities. Visits were made by the Regional Project Leader to pilot project sites in the Philippines, Malaysia, Thailand and Indonesia.

In relation to the Indicator Project, MFRDMD is also collecting biological, economic and socio-economic data on the small pelagic fishery of the east coast of Peninsular Malaysia. These data will also serve as indicators for the improved management of the small pelagic fishery. These data are being analysed. The use of bio-economic modeling will also be undertaken.

To support the assessment of the status of pelagic fisheries using the hydro-acoustic method, a basic study on target strength determination of selected small pelagic fish was conducted in 2003. Several other species will be studied in 2004. Remote-sensing and Geographic Information System (GIS) are being used as tools to support development and management of small pelagic fisheries.

4. PROPOSED FUTURE ACTIVITIES

The Second Regional Technical Consultation on the Use of Indicators for the Sustainable Development and Management of Capture Fisheries will be held from 9-11 March 2004 in Kuala Lumpur. The main aim of this consultation is to review the progress and short-comings of all pilot projects that are being implemented and to propose a draft outline for the preparation of the regional guidelines on the use of indicators for improved fisheries management.

The main activities of this project in 2004 (and possibly part of 2005) will be focused on the implementation of the pilot projects in Brunei Darussalam, Indonesia, Malaysia, the Philippines and Thailand. It is hoped that the pilot projects that have been started will gain momentum in 2004. In 2003, most of the pilot projects did not take off as fast as earlier anticipated. It is also hoped that fisheries management plans for identified fisheries for the pilot studies will be developed together with stakeholders. The process of compiling existing data on indicators and gathering of new data and information, together with data analysis and reporting, will be the major role of the National Technical Project Officers in their respective

countries with the support of their National Fisheries Management Authorities and Departments. Stakeholders will participate actively in the provision of data and in the general implementation of pilot projects. Consultations, meetings and discussions with stakeholders will remain an important component of this project.

Visits to pilot project sites will be conducted by the Regional Project Leader as part of the on-going coordination, monitoring and evaluation process as well as to gather feed-back for further improving implementation of pilot projects.

Besides pilot studies, MFRDMD proposes to extend five activities under the existing project. These are:

- a) The use of catch-effort and socio-economic indicators for fisheries management
- b) Maximising 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
- e) Target strength determination of small pelagic fish

The activities a), b) and c) proposed above are related to the main project formulated 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.

Training in acoustic research and methodology is proposed to provide technical support in the use of hydroacoustics in pelagic fish stock assessment to interested countries like Brunei Darussalam and Vietnam. 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 need to be converted and standardized and this is now possible through the use of developed software. However since this area is very technical and specific, training is required. MFRDMD also proposes to improve target strength determination of selected small pelagic fish to support pelagic fish stock assessment in member countries.

5. ENVISAGED OUTCOMES OF THE FUTURE PROGRAM

Relevant data and information on the selected fisheries will be compiled, documented and analysed to support improved fisheries management in the region. Information exchange will be enhanced among ASEAN-SEAFDEC countries. Guidelines on 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 in 2005.



PROJECT DOCUMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism

Program Title: The Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region

Component Title: Component I: Fisheries Management

Project Title: Information Gathering for Capture Inland Fisheries in ASEAN countries (SDI-6)

Lead Department: Marine Fishery Resources Development and Management Department

Lead Country: Cambodia

Total Duration: 2002-2005

Proposed Duration: 2003-2005

Proposed 2004 Budget: USD 100,000

1. INTRODUCTION/ BACKGROUND

The lack of data and information for the management of inland capture fisheries is the basis for conducting a project entitled "Information Gathering for Inland Capture Fisheries in ASEAN countries". Through this project MFRDMD in collaboration with SEAFDEC Secretariat aims to strengthen the compilation, documentation and dissemination of information and data on inland capture fisheries in the Southeast Asian region to assist in the planning, development and proper management of these resources.

2. PROJECT

2.1 Objectives

1. To strengthen collection and compilation of information for inland capture fisheries in ASEAN member countries
2. To gather as much information on inland capture fisheries and act as basis for future plan on sustainable management of inland fisheries resources.
3. To promote information exchange among ASEAN member countries through networking
4. To establish a standard format for collection and entry of data

2.2 Project Description

The project undertaken by MFRDMD will be implemented at the regional level and through pilot studies. At the regional level, information on capture inland fisheries will be compiled through country reports presented during the First Regional Technical Consultation (RTC), held in August 2003. A special report "Current Information on Inland Capture Fisheries in ASEAN Countries" will be published. Information and data collected through pilot studies at selected sites identified during the RTC include fishery, biology, fish larvae, environment and socio-economy. Three types of water bodies - riverine system, lakes/reservoirs and flood plains were proposed. The data obtained from the regional level and through pilot projects will be stored in a database, disseminated through a website in GIS format. TD will assist MFRDMD in developing the database and website for Inland Capture Fisheries in the Southeast Asian region.

The SEAFDEC Secretariat will assist MFRDMD in implementing the following activities.

- Compilation of Inland Fishing Gear and Methods in Southeast Asia: Lao P.D.R.
- Compilation of Inland Fishing Gear and Methods in Southeast Asia: Myanmar

- Inland Fish Taxonomy in Myanmar Phase II
- Inland Fisheries Resources Evaluation of the Fisheries Management in Myanmar (only financial support)

3. PROGRESS

3.1 Regional Technical Consultation on Information Gathering for Inland Capture Fisheries in ASEAN Countries

The consultation was successfully conducted from 4 to 6 August 2003 in Kuala Lumpur, Malaysia. The Meeting was attended by 40 participants from ASEAN-SEAFDEC member countries of Cambodia, Indonesia, Lao P.D.R., Malaysia (including Sabah and Sarawak), Myanmar, the Philippines, Thailand, Vietnam and representatives from SEAFDEC Secretariat, TD, MFRDMD, MRC, FAO Regional Office for Asia and the Pacific (FAO/RAP), JICA, University College of Science & Technology Malaysia (KUSTEM) and Universiti Sains Malaysia (USM). Ten pilot projects (Table 1) were identified for implementation based on a cost-sharing basis. Due to budget constraints in 2003, the projects can only be implemented in 2004.

3.2 Publications

- a) Report of the First ASEAN-SEAFDEC Regional Technical Consultation (RTC) on Information Gathering for Inland Capture Fisheries in ASEAN Countries is in press and will be disseminated to member countries in January 2004.
- b) A special report, "Current Information on Inland Capture Fisheries in ASEAN Countries" containing information gathered during the first RTC is in the final stage of editing and will be published in February 2004.

3.3 Website development on Information Gathering for Inland Capture Fisheries

The website will be developed by TD in December 2003. The website will be regularly updated with information gathered from the studies.

3.4 Compilation of Inland Fishing Gear and Methods in Southeast Asia: Lao P.D.R. and Myanmar

Monographs on fishing gear and their operations will be developed to support planning, development and inland fisheries management in Lao P.D.R. and Myanmar. Initial surveys were conducted in Luang Prabang, Lao P.D.R. from 25 to 28 August 2003 and in Myanmar 15 to 19 September 2003. The results of the surveys provided preliminary information for the formulation of guidelines for data collection and the development of the monographs. These guidelines will assist the national project staff and other local fisheries officials to conduct similar surveys in other selected areas.

3.5 Inland Fish Taxonomy in Myanmar Phase II

The first taxonomic survey of this activity was conducted in December 2002 and another survey was conducted October/November 2003 in southern Myanmar. The survey was aimed at collecting and identifying specimens of inland fishes and collecting related data/information for the publication on "Inland Fishes in Myanmar". These surveys also served as training for Fishery Officers in Myanmar.

3.6 Inland Fisheries Resources Evaluation of the Fishery Management in Myanmar

The project on Inland Fisheries Resources Evaluation of the Fishery Management in Myanmar was proposed at the first RTC on Information Gathering for Inland Capture Fisheries. SEAFDEC Secretariat will allocate funds for this activity subject to agreement in technical aspects by MFRDMD.

4. PROPOSED PROJECT ACTIVITIES

Eight activities are proposed to be conducted in 2004. These activities include publishing information collected during the first Regional Technical Consultation, held in August 2003 and implementing nine pilot projects in member countries. The riverine system will be studied in Cambodia, Lao P.D.R and Malaysia (Peninsular Malaysia and Sabah). Lakes will be studied in the Philippines and Malaysia (Sarawak) while a reservoir will be studied in Thailand. Cambodia and Viet Nam will cover the floodplain and riverine systems. In collaboration with TD, all information gathered during the pilot studies will be compiled and a database will be developed for all the information on inland capture fisheries of member countries. Training on data entry, listing and archiving information on inland capture fisheries is also being planned for 2004. The SEAFDEC Secretariat will assist MFRDMD in the compilation and documentation of inland fishing gear and methods in Lao P.D.R and Myanmar and this project is to be conducted in 2004. The Secretariat will also assist in the collection of specimens of inland fishes of Myanmar for documentation.

The expected outputs from this project are compilation on fishing gear and methods used, list of freshwater species and fish larvae, biological information of commercially important species and social and economic information on capture inland fisheries in ASEAN countries. Other expected outputs are the Monographs of Inland Fishing Gear and Methods of Lao P.D.R. and Myanmar. A database and website containing information at both the regional and localized levels will be established for information dissemination. A GIS base map for water resources of the ASEAN region will also be produced and posted through the website. Based on data sharing through the website and publications, the network for inland capture fisheries among ASEAN member countries will be strengthened.

4.1 Documentation

During the first part of the year, the project will focus on publishing information collected during RTC, held in August 2003.

4.2 Implementation of pilot projects

The second activity of the year is to implement pilot projects. MFRDMD has initiated a pilot project at Pahang River since February 2003 and the project will be continued until the end of 2004. Eight other pilot projects will also be implemented in Cambodia, Lao P.D.R., Malaysia (Sabah and Sarawak), Myanmar, the Philippines, Thailand and Viet Nam. These pilot projects will be implemented in 2004. Indonesia has yet to confirm the implementation the pilot project.

4.3 Establishment of database on inland capture fisheries

The third activity is to establish database for data entry, listing and archiving of information on inland capture fisheries, focusing on data collected from pilot projects. Findings gathered from the pilot study in Pahang River in 2003 will be used as an initial input to this activity. Remote sensing and GIS techniques would be used in presenting and documenting the output. The results will be interpreted and possible options for fisheries management of Pahang River will be formulated as an example for the project.

4.4 Capacity building/ on-the-job training

In collaboration with TD, capacity building/on-the-job training for the database on inland capture fisheries will be conducted in April 2004 at TD, Bangkok, Thailand. The staff will also be exposed to the techniques of remote sensing and GIS in the production and dissemination of outputs from the project.

4.5 Meetings/ Consultation Visits

Regular meetings with participating countries and visits will be carried out from time to time to strengthen data compilation and assist in the implementation of the pilot projects in each respective country.

4.6 Compilation of Inland Fishing Gear and Methods in Southeast Asia: Lao P.D.R. and Myanmar

In collaboration with TD, training in graphics and the preparation of Monographs of Inland Fishing Gear and Methods for Lao P.D.R. and Myanmar will be conducted in 2004. This is to enhance human resource development for the staff of DOF Lao P.D.R. (DLF) and Myanmar. At the end of the training, it is expected that the relevant staff members can build up capacity on the drafting of the monographs based on the data collected during the surveys.

Follow-up surveys will be conducted in Lao P.D.R. and Myanmar with aims to review the data that had been collected. This will include clarification on linkage between collected data and management of inland capture fisheries in the countries concerned. SEAFDEC staff will also provide technical support for the preparation and publication of the monographs. It is also suggested that staff from Lao P.D.R. and Myanmar who are conducting the similar activities should take part in the surveys to exchange and share experiences on inland fishing gear.

Expert Meetings on Inland Fishing Gear and Methods in Southeast Asia: Lao P.D.R. and Myanmar will be conducted after the data collection process has been completed. These Meetings will provide a forum to discuss the outcomes of the surveys and finalize the publications on inland fishing gear and methods in Lao P.D.R. and Myanmar as well to provide suggestions for the formulation of future management strategies in both countries.

Publications and posters on “Inland Fishing Gear and Methods in Southeast Asia: Lao P.D.R. and Myanmar” will be disseminated to member countries and SEAFDEC Departments.

4.7 Collection of specimens for Inland Fish Taxonomy of Myanmar

In 2004, specimen collection and identification will be conducted in northern Myanmar.



A one-week on-the-job training on Inland Fish Taxonomy will be conducted for a curator from Myanmar will attend the training on fish classification, identification and preservation, fish cataloguing system and its usage with experts from DOF Thailand.

A manuscript on Inland Fishes of Myanmar will be prepared once specimen collection and identification have been completed. The manuscript will be published and disseminated to all member countries and SEAFDEC Departments.

5. ENVISAGED OUTCOMES OF THE FUTURE PROGRAM

1. Compilation on fishing gears and methods used in capture inland fisheries in ASEAN countries.
2. Compilation on freshwater species and biological information of commercial important species.
3. Compilation on fish larvae and distribution.
4. Compilations on social and economic information on inland fisheries in ASEAN member countries.
5. Graphic and monograph of Inland Fishing Gear and Methods for Lao P.D.R. and Myanmar.
6. Publication on Inland Fishes Taxonomy of Myanmar.
7. Database on lists of freshwater fishes, fishing gears and methods in ASEAN region.
8. GIS base map for water resources of the ASEAN region.
9. Reports of Regional and National workshops.
10. Network among ASEAN member countries on inland capture fisheries.

Table 1: Proposed pilot projects to be conducted in 2004 on Information Gathering for Inland Capture Fisheries in the Southeast Asian Region

No.	Country/ Project Title	System	Project Coordinator
1.	Cambodia Biodiversity, Fishery and Socio-Economic of Fisheries in Stung Treng Province, Cambodia	Riverine	Mr. Lieng Sopha
2.	Indonesia Fishery Information on Rawa Pening reservoir, Central Java, Indonesia	Reservoir	Not confirmed
3.	Lao PDR Biodiversity and Fishery of Mekong River (Siphan Done), Lao PDR	Riverine	Mr. Duangkham Sihanouvong Mr. Bounma Luangamath
4.	Malaysia: Peninsular Malaysia Project 1: Biodiversity, Limnology and Fishery of Pahang River, Malaysia Project 2: River Catfish (<i>Pangasius</i> sp.): Status, Abundance and its relationship with Macrobenthos and Other Environmental Factors from middle to lower reaches of Pahang River, Malaysia	Riverine	Ms. Mahyam Mohd. Isa Mr. Jamaluddin Ibrahim
5.	Malaysia: Sabah Biodiversity, Socio-economics, and Fishery of Kinabatangan River in Sabah, Malaysia	Riverine	Mr. Jephirin Wong Dr. Ahmade Sade
6.	Malaysia: Sarawak Diversity, Ecology and Utilization of Fishery Resources of Loagan (Lake) Tujuh, Baram, Sarawak, Malaysia	Lake	Mr. Stephen Sungan Mr. Ken Edward
7.	Myanmar: Inland Fisheries Resources and Evaluation of the Fishery Management	Floodplain and Riverine	Mr. Myint Oo
8.	Philippines: Fisheries Ecological Assessment of Lake Naujan, Oriental Mindoro, Philippines	Lake	Mr. Abundio Galicia Jr. Mr. Fileonor Eleserio
9.	Thailand: Management of Economically Important Fisheries Resource in Vachiralongkorn Reservoir, Kanchana Buri Province, Thailand	Reservoir	Mr. Boonsong Sricharoendham Ms. Jintana Damrongtripob
10.	Viet Nam: Data Collection and Information of Inland Capture Fisheries For Management in the Mekong Delta	Floodplain and Riverine	Mr. Nguyen Van Trong

PROJECT DOCUMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism

Program Title: The Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region

Component Title: Component I: Fisheries Management

Project Title: Harvesting of Under-exploited Resources (SDI-7)

Lead Department: Training Department

Lead Country: Thailand

Total Duration: 4 Years (2003-2006)

Proposed 2004 Budget: USD 60,000

1. INTRODUCTION

Many fisheries resources in the Southeast Asian 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 a regional context, under-exploited resources are defined as those resources 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, little is known scientifically about their 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, but include difficulties in accessing the resources and developing the appropriate infrastructure, lack of suitable harvesting methodologies and a low market demand.

Improvement of fish handling technology for fishing vessels is an important issue that needs to be developed and promoted to fishermen in the region in order to promote their use in a precautionary manner.

This program supports the plan and action of sustainable fisheries for food security for the ASEAN region.

2. PROGRAM

2.1 Objectives

1. To investigate the potential of under-exploited fisheries resources and promote their exploitation in a precautionary manner based upon analysis of the best available scientific information.
2. Development of appropriate fish handling technology to improve fish preservation techniques for high quality/freshness of fish.
3. Training and promotion of fish handling technology at sea.

4. Training and promotion of new and under-exploited fisheries.

2.2 Program Description

This year activities will be focused on the development for appropriate fish handling technology based upon the fishing vessel facilities survey information in Thailand and Indonesia where it were observed to be poor in fish preservation due to very poor quality/freshness of fishes. In addition, some fishing vessel in Thailand are using chemical solution for fish preservation which are extremely un-safety for consumer. In this regards, to harvest fish and preserve them in the proper manner are urgent requirement.

Investigation of the potential of under-exploited fisheries resources such as deep sea shrimp, oceanic squid and some pelagic species in the Andaman sea and Indian Ocean and commercial fishes on the non-trawlable grounds will be conducted within this year by new M.V. SEAFDEC2 in collaboration with the MFRDMD and members countries.

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

Research Component:

- Activity 1: Exploration of Under-Exploited Resources in the Southeast Asian Region: Phase I: Pelagic and Demersal Resources in the Andaman Sea (IMMT countries).
- Activity 2: Improvement/Implementation of Fish Handling Technology for Medium and Large-Scale Fishing Vessels: Case studies in Thailand and Indonesia.

Training/Workshop Component:

- Activity 3: Onsite Training on Fish Handling Technology: Thailand and Indonesia.
- Activity 4: Shipboard Training for Fishermen and Training on Appropriate Fishing Technology for the Harvesting of Under-Exploited Resources.

Information Component:

- Activity 5: Production of Training and Information Packages.

3. PROGRESS

Research:

- Exploratory surveys on tuna and by-catch in the Eastern Indian Ocean using purse seine and pelagic longline by MV SEAFDEC were carried out from Nov-Dec 2003. All data was recorded in the SEAFDEC database.
- Fishing trials on pelagic longline fishing technology in the Gulf of Thailand on board MV Plattoo during July 2003.
- Fishing vessel survey under the improving of fish handling technology for SEAFDEC member countries, case studies in Thailand and Indonesia.
- Improving appropriate fish handling technology for member countries.



Training/Workshop:

- Regional Shipboard Training on Tuna Fishing Technology in the Eastern Indian Ocean using MV SEAFDEC from 4-31 December, 2003. Eighteen participants from 7 countries joined the training.
- Regional Workshop on Harvesting of Under-Exploited Resources on Jan 2nd, 2004.

Information:

- Published the book “Review of Tuna Purse Seine Fishing in the Eastern Indian Ocean”.
- A manual entitled “Pelagic Longline” was published as a guide for pelagic longliners.

4. PROPOSESD FUTURE ACTIVITIES:

Activities to be implemented in the year 2004 are listed as follows:

- Exploration of under-exploited resources in Southeast Asian Region, Phase I: Andaman Sea (IMMT countries).
- Improvement/Implementation of Fish handling Technology for Medium and Large-scale Fishing Vessels: Case Studies in Thailand and Indonesia.
- On Site Training on Fish Handling Technology: Thailand and Indonesia.
- Regional Shipboard Training on Appropriate Fishing Technology for Harvesting of Under-Exploited Resources.
- Production of Training and Information Packages

PROJECT DOCUMENT

Project Title: Harvesting of Under-Exploited Resources (SDI-7) - Special Component

1. INTRODUCTION

1.1 Background

At its thirty fifth session of the SEAFDEC Council Meeting held in Manila in 2003, SDI-7 “The Harvesting of Under-Exploited Resources (the Project)” was endorsed as an additional component of the Special 5-year Program as well as FCG Program under the technical and managerial responsibilities by the Training Department (TD). The objectives of the project are related to the priority issues included in “the Resolution and Plan of Action”.

1.2 Rationale

During the Millennium Conference and other regional opportunities, it was discussed about the works on the resource survey and assessment at regional and national levels. It has been more clarified that assessment of the national resource assessment may not be priority areas in relation to the fisheries management as the regional program, while assistance to national resource assessment may be dealt in different way. In other opportunities, the region have discussed the potential innovation on the fisheries management considering multi-species composition of catch, multi-gears on the exploitation, fisheries structure that major fisheries sector are composed of small-scale sub-sector and prevailing tropical ecosystem relating to replenishment of the stocks and habitat.

Under above regional understanding on the promotional works of the innovated fisheries management, above requirements on the resource surveys and assessment works have obtained clearer objectives. Instead of obtaining the national Total Allowable Catch (TAC) or National Maximum Sustainable Yield (deviation of the original concept of the MSY, but more similar concept of TAC covering all species), the focus will be more clearly given to understand how to enhance maximum utilizations of multi-species composition of fisheries resources taking into account of existence of under-exploited resources in the particular areas of the countries.

Considering the undertakings of the resource surveys are very costly work, the outcomes of such research work should be fully used by the national authorities achieving sustainable fisheries. In this connection, “the Resolution and Plan of Action” has clearly set the target on the harvesting of under-exploited resources” as a promotional work on fisheries, leaving the fully and over-exploited resources to the appropriate management intervention either to maintain or reduce fishing capacity provided to these resources.

2. PROGRAM

2.1 Objectives

The objectives of the component are:

1. To understand the status of the fisheries resources in particular areas of the ASEAN Member Countries fully taking into account the existing and potential fisheries. The areas providing efforts in thinner manner can be avoided;



2. To identify the under-exploited fisheries resources mobilizing potential fishing technologies;
3. To enhance the ownership of the research work of the host government with mutual financial cooperation through cost sharing mechanisms; and
4. To flexibly conclude with the host governments on the outcomes of the research work including confidentiality of the reports of the research, considering the host countries following up activities including promotional works and the fisheries management interventions.

2.2 Program Description

M.V. SEAFDEC 2 is under construction at the Japanese shipyard and completed its launching ceremony in December 2003. M.V. SEAFDEC 2 will be provided to SEAFDEC under the Japanese Regional Grant Aid Program in March 2004 as a replacement of the existing M.V. PLATOO, but with a larger capacity (approximate of 200 G/T) enabling research work in all ASEAN Member Countries navigating by herself. The design of the research vessel has been conducted by the consulting company employed under the Regional Grant Aid Program in full consultation with the technical staff of the Training Department (TD). The research vessel is equipped with various fishing gears including trawl (main fishing gear), long lines, mid water trawl, drift gill net and squid jigging together with various scientific research and navigation equipment including scientific echo sounder.

Under the Special Component of the project, it is planned that M.V. SEAFDEC 2 will be fully mobilized as well as M.V. SEAFDEC to conduct the required joint resource survey work in the national water with the concerned staff of the respective ASEAN Member Countries.

2.3 Schedule of the research vessel operation

After formally handed over the M.V. SEAFDEC 2 from the Government of Japan to SEAFDEC in the end of March 2004, it is envisaged that the crew and research staff of Training Department (TD) in collaboration with the relevant staff of MFRDMD will initiate the series of navigations for customization to familiarize with the new vessel including identifying problems within the warranty period. It is envisaged that these inaugural navigation may continue for 3-6 months.

It is envisaged that the M.V. SEAFDEC 2 will be available in August 2004 for the required research activities in ASEAN national waters that will be more technically and administratively decided through the appropriate meetings to be conducted between April and August 2004.

2.4 Conclusion

Member of the Program Committee are invited to provide comments on the above proposal that is to facilitate the required joint research work mobilizing the newly granted research vessel, M.V. SEAFDEC 2 under the Special 5-year Program on “SDI-7 Harvesting of Under-Exploited Resources”. Since the implementation of the project involve various factors including formulation of national priority resource assessment program, mobilization of research vessel, M.V. SEAFDEC 2 and the requirement of cost sharing scheme, it is sincerely believed that full mutual understandings of the project, sharing responsibility and advance planning are really needed.

The Collaborative Research Work Scheme with ASEAN Member Countries

Under the Special Component of the Special 5-year Program on “SDI-7 Harvesting Under-Exploited Resources” as well as other projects, it is proposed that the M.V. SEAFDEC 2 will be mobilized in order to conduct and support the required national research works on the resource and other relevant factor assessment in achieving sustainable fisheries in ASEAN Member Countries.

Bearing the proposed objectives in mind, the following steps on the collaborative works are proposed:

- 1. Formulation of the research program in the respective ASEAN Member Countries:** With brief information and under the broad objectives mentioned above, the interested ASEAN Member Countries start to prepare the draft proposals on the research activities. According to the proposed objectives and effective mobilization of the M.V. SEAFDEC 2, it is suggested that the duration of research period (Staying time of M.V. SEAFDEC 2 can be limited at maximum one month) will be carefully considered and identify the priority areas and research objectives.
- 2. Finalization of the annual cruise schedule of M.V. SEAFDEC 2 and individual research programs at least in the period of one year advance:** The regional Technical Meeting will be conducted between April – September 2004 in order to finalize the annual cruise schedule and research programs. It is therefore proposed that interested ASEAN Member Countries should prepare the research proposal together with cruise schedule after September 2004. The Regional Meeting will finalize the research program together with schedule with the priority of the timing based on the completeness and readiness on the proposed research programs.
- 3. Financial requirement of the joint research work:** As previously agreed, the operation of M.V. SEAFDEC 2 will be conducted in cost shared scheme between SEAFDEC and the beneficiary ASEAN Member Countries. Due to the declining financial resource of SEAFDEC, this arrangement is indispensable for sustainable use and mobilization of the research vessel, M.V. SEAFDEC 2 in support of ASEAN Member Countries. While the salary and allowances of crew and SEAFDEC staff and required navigation costs from Bangkok to the proposed research base port will be born by SEAFDEC, it is proposed that beneficiary countries will share the fuel costs for the research operation, the supply of foodstuff and water and on board allowance of the local researchers. Considering the cruise schedule, it is suggested that the beneficially countries to secure the required budget either through the national budget or fund that can be made available from other donor supported projects, if the donors agree on the joint operation. Since the financial cost sharing condition can be considered as one of the condition measuring the readiness the host countries, implementation schedule might be adjusted to next priority countries and postponing the research program until cost sharing scheme become ready. By the Regional Technical Consultation or even earlier than this time, SEAFDEC will roughly estimate the costs including fuel operating one month time in beneficiary countries.
- 4. Detailed discussion on the research program and cruise program:** Two months prior to the starting day of the finalized research program, the staff of the Training Department will visit envisaged each beneficiary country to discuss with local technical and administrative staff on the detailed arrangement of the cruise and research program.



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

COMPONENT III: UTILIZATION OF FISH AND FISHERY PRODUCTS

As a follow-up of the outcome of the ASEAN-SEAFDEC Conference on Sustainable Fisheries in the Third Millennium: Fish for the People in Bangkok, Thailand in November 2001, SEAFDEC implements the ASEAN-SEAFDEC Special 5-year Program on the Contribution of Sustainable Fisheries to Food Security in the ASEAN Region. The Aquaculture Component of this Special 5-year Program is also known as the Integrated Regional Aquaculture Program (IRAP) with AQD is the Lead Department.

IRAP has two components, SDII-1: Aquaculture for Rural Development; and SDII-2: Supply of Good Quality Seeds. Vietnam has been identified as the ASEAN Lead Country for SDII-1, while Indonesia is the ASEAN Lead Country for SDII-2. The ASEAN-SEAFDEC member countries are the participating and beneficiary countries of the Program.

IRAP aims to: (1) assure a supply of quality seed stocks of various aquatic commodities; (2) promote environment-friendly aquaculture; and (3) assure that the development of aquaculture will benefit the rural populace through consultation, demonstration and dissemination of specific aquaculture technologies. IRAP also intends to launch an information dissemination campaign to make the people of the region aware of the tremendous potential that aquaculture can offer to produce low-cost protein and generate livelihood opportunities for the rural poor.

SDII-1 (Aquaculture for Rural Development) expects to come up with appropriate responsible aquaculture technologies that will help alleviate poverty and ensure food security for peoples in the rural areas of the ASEAN region. Specifically, SDII-1 aims to: (1) verify aquaculture technologies for appropriate species in various ecosystems; and (2) disseminate the aquaculture technologies to small-scale fish farmers. Refer to Annex 1 for the detailed Project Document for SDII-1.

SDII-2 (Supply of Good Quality Seeds) is expected to come up with appropriate and responsible seed production technologies in support of the aquaculture and stock enhancement programs in the ASEAN region, and eventually contribute to food security and sustainable development of the fisheries sector in the region. The specific objectives of SDII-2 are to: (1) verify and demonstrate appropriate seed production technologies of target species; (2) verify on-farm broodstock management techniques; and (3) disseminate seed production technology to fish farmers. Refer to Annex 2 for the detailed Project Document for SDII-2.

MAIN ACTIVITIES OF IRAP

Site Visitation and Survey

Site Visitation and Survey was conducted from May 2003 and continued until September 2003, in order to: (1) confirm the project sites that were proposed during the September 2002 IRAP Seminar-Workshop; (2) assess the technical capability of beneficiary countries and determine their need for counterpart external expertise; and (3) discuss the detailed activities to be conducted in the project sites.

Pilot Demonstration and Verification

Intended to adapt, verify and promote existing technologies on various species for the sustainable development of aquaculture for the rural livelihoods in the region, pilot

demonstration and verification activities will be conducted in some countries as early as possible. But in some countries the experiences of other countries transferred through training shall serve as basis for the conduct of the pilot demonstration.

Research

Under IRAP, technologies that have been developed by some institutions in the region especially on hatchery rearing need to be refined for adoption by certain countries. In addition, since a common problem in aquaculture is feeds and feeding management, some studies on environment-friendly and low-cost feed formulations will be conducted. Testing of low-cost feeds based on formulations already developed by AQD would also be conducted in conjunction with the activities on pilot demonstration and verification. In addition, since three countries have proposed to conduct genetic improvement of *M. rosenbergii* during the September 2002 IRAP Seminar-Workshop, it was decided that the resources and expertise from these countries would be pooled to develop a collaborative research on the genetic improvement and seed production of *M. rosenbergii*.

Training

Transfer of specific technologies from one ASEAN country to another, targeting mainly the trainers as participants for their multiplier effect, would be promoted through IRAP. Three types of training will be implemented: (1) on-site training for technicians and farmers in beneficiary country utilizing expertise from other ASEAN countries; (2) training at AQD in the Philippines especially for technologies that have already been developed by AQD; and (3) attachment training in other countries where specific technologies required by another country have already been developed. In particular cases, the outcome of the training could be the basis for the conduct of the pilot demonstration activities.

Information

As a means of optimizing resources while achieving the objectives of IRAP, information dissemination in the form of workshops and consultations will be conducted. In addition, manuals and extension materials will be produced and disseminated. The main objective is to promote the exchange of information and experiences on specific technologies and disseminate information on the activities of the Program for the benefit of the fisherfolk in the ASEAN region.

PROGRESS OF ACTIVITIES

The status of the activities under IRAP from January to December 2003, is shown in Table 1.

Table 1. Status Report on the ASEAN-SEAFDEC Special 5-year Program on the Contribution of Sustainable Fisheries to Food Security in the ASEAN Region (Aquaculture Component)

SDII-1: Aquaculture for Rural Development

Programs/Activities	Duration (Period)	Status (% Completed)	Accomplishment (Jan-Dec 2003)	Remaining Activity
I. Site Visitation and Survey				
1.1 Site Visitation and Survey	May-Sept 2003	90%	Countries covered were: Brunei Darussalam (16-19 May 2003), Indonesia (11-16 May 2003), Malaysia (19-23 May 2003), Myanmar (28 June-1 July 2003), Cambodia (7-10 July 2003), Lao PDR (3-6 July 2003), Vietnam (29 July-4 August), Thailand (4-8 August 2003).	To continue site visitation and survey in the Philippines
II. Pilot Demonstration				
2.1 Pilot Demonstration	2003-2004	10%	Activities to be carried out as well as pilot project sites were confirmed during the Site Visitation and Survey. Technical expertise will be provided through the Program funds while local costs will be shouldered by respective countries.	Technical assistance will be provided as needed, for the identified pilot demonstration activities
2.2 Verification of low-cost feeds for aquaculture	2003- 2004	10%	The activity at AQD has just started.	The activity will continue until 2004 and beyond.
2.3 Social laboratory for rural development	2003-2004	10%	The activity started in November 2003	The activity will continue until 2004 and beyond
III. Research				
3.1 Development of low-cost feeds for aquaculture	2003-2004	10%	Activity at AQD has just started.	To continue research activity

Programs/Activities	Duration (Period)	Status (% Completed)	Accomplishment (Jan-Dec 2003)	Remaining Activity
IV. Training				
4.1 On-site training				
(i) <u>Cambodia</u> : Technicians training on water quality analysis using standard methods	30 Nov – 4 Dec 2003	100%	Training was conducted in Phnom Penh with 14 participants. The Resource Person was sourced from AQD.	Technical expertise for the pilot demonstration activity, will be provided through
(ii) <u>Indonesia</u> : Farmers training on grow-out culture of <i>Pangasius djambal</i> with value adding	16-20 Feb 2004	20%	Promotion of Patin products conducted in Jambi, Sumatra.	On-site training will be conducted. Resource Person to be sourced from DOF Thailand.
(iia) Promotion of Patin products	20-22 October 2003	100%	In preparation for the on-site training (above), a demonstration and promotion of Patin products and preparations was conducted in Jambi, Indonesia. Resource Person was sourced from DOF Thailand. The products introduced were: semi-dried catfish sticks, seasoned sliced catfish, and dried minced catfish sheet.	
(iii) <u>Lao PDR</u> : Farmers training on rice-fish culture and small pond aquaculture	8-12 March 2004	10%	Preparations ongoing. Resource Persons to be sourced from Philippine private sector and AQD.	Conduct of training in Vientiane
(iv) <u>Myanmar</u> : Technicians training on proper handling and transport of sea bass broodstock	23-27 Oct 2003	100%	Conducted in Yangon with practical session conducted in Ayarwaddy, the training had 33 participants. The Resource Person was sourced from AQD.	Technical expertise for the pilot demonstration activity, will be provided through
(v) <u>Thailand</u> : Farmers training on culture of abalone and <i>Babylonia</i> shells	8-12 March 2004	10%	Preparations ongoing. Resource Persons to be sourced from AQD and DOF Thailand.	Conduct of training in Rayong and Phrachuap Khiri Khan.

Programs/Activities	Duration (Period)	Status (% Completed)	Accomplishment (Jan-Dec 2003)	Remaining Activity
(vi) <u>Vietnam</u> (Binh Dinh): Technicians training on milkfish fry collection, handling, transport and nursery operations	19-22 Oct 2003	100%	The training was conducted in Qui Nhon, Binh Dinh with 27 participants. The Resource Person was sourced from AQD.	Technical expertise for the pilot demonstration activity, will be provided through
(vii) <u>Vietnam</u> (Hue): Technicians training on feed formulation for siganid culture	15-19 March 2004	5%	Preparations started. Resource Person to be sourced from AQD.	Conduct of training in Hue City.
4.2 Training at AQD				
(i) Training of two technicians from Lao PDR on rice-fish culture and small pond aquaculture	7-19 Dec 2003	100%	Training was conducted at AQD's Jalajala Station and at the Central Luzon State University (CLSU), Nueva Ecija, Philippines. Resource Persons were sourced from CLSU, AQD and Philippine private sector.	Technical expertise for the pilot demonstration activity, will be provided through
(ii) Training of one technician from Hue (Vietnam) on feed formulation for siganid culture	16-20 Feb 2004	10%	Preparations ongoing. Resource Persons to be sourced from AQD.	Conduct of training at AQD's Tigbauan Station.
(iii) Observation study of the Director of Rayong Station, Thailand to AQD's Tigbauan Station	8-12 March 2004	10%	Preparations ongoing. Resource Persons to be sourced from AQD.	To be conducted at AQD's Tigbauan Station, Dumangas Brackishwater. Station and Igang Marine Substation.
4.3 Attachment Training				
(i) Attendance in International Prawn Symposium in India for two persons from the Philippines	21-23 August 2003	100%	This was in preparation for the implementation of the activity in the Philippines, which focuses on <i>Macrobrachium rosenbergii</i> .	Pilot demonstration will be implemented with technical expertise to be provided through the Project.

Programs/Activities	Duration (Period)	Status (% Completed)	Accomplishment (Jan-Dec 2003)	Remaining Activity
(ii) Commercial propagation of tilapia in Thailand for three farmers and one technician from Cambodia	1-18 Oct 2003	100%	Training was conducted at the Surat Thani Inland Fisheries Research and Development Center of DOF Thailand. Resource Persons were sourced from the Center (DOF Thailand).	Technical expertise for the pilot demonstration activity, will be provided through
(iii) Freshwater fish breeding and culture in Thailand for four technicians from Kelantan, Malaysia	7-19 Dec 2003	100%	Training was conducted at the Surat Thani Inland Fisheries Research and Development Center of DOF Thailand. Resource Persons were sourced from the Center (DOF Thailand).	Technical expertise for the pilot demonstration activity, will be provided through
(iv) Cage culture of abalone in the Philippines for one technician from Thailand	10-28 Nov 2003	100%	Training was conducted at AQD's Tigbauan Station and Igang Marine Substation. Resource Persons were sourced from AQD.	Technical expertise for the pilot demonstration activity, will be provided through
(v) Grow-out culture of <i>M. rosenbergii</i> in Thailand for one technician from Brunei Darussalam	5-16 Jan 2004	5%	Preparations ongoing. Resource person to be sourced from DOF Thailand.	Conduct of training in a center to be identified through DOF Thailand.
V. Information				
(i) Reports and Other Information Materials	2003-2004	100%	Report of the Seminar-Workshop on Integrated Regional Aquaculture Program, 17-20 September 2002, Bangkok, Thailand, published in January 2003, was disseminated to all ASEAN-SEAFDEC members countries	More information materials will be published and distributed to the countries in the region.

1.1 Supply of Good Quality Seeds

Programs/Activities	Duration (Period)	Status (% Completed)	Accomplishment (Jan-Dec 2003)	Remaining Activity
I. Site Visitation and Survey				
1.1 Site Visitation and Survey	May-Sept 2003	90%	Countries covered were: Brunei Darussalam (16-19 May 2003), Indonesia (11-16 May 2003), Malaysia (19-23 May 2003), Myanmar (28 June-1 July 2003), Cambodia (7-10 July 2003), Lao PDR (3-6 July 2003), Vietnam (29 July-4 August), Thailand (4-8 August 2003).	To continue site visitation and survey in the Philippines
II. Pilot Demonstration				
2.1 Pilot Demonstration	2003-2004	10%	Activities to be carried out as well as pilot project sites were confirmed during the Site Visitation and Survey. Technical expertise will be provided through the Program funds while local costs will be shouldered by respective countries.	Technical assistance will be provided as needed, for the identified pilot demonstration activities
2.2 Verification of larval diets	2003- 2004	10%	Activity at AQD has just started.	The activity will continue until 2004 and beyond
III. Research				
3.1 Collaborative Research on Genetic Improvement of <i>M. rosenbergii</i>	2003-2004	10%	The Round Table Discussion on the Development of a Genetically Improved Strain of Macrobrachium was convened at the Balai Budidaya Air Tawar (BBAT), Sukabumi, Indonesia, 17-19 November 2003 with 23 participants from Indonesia, Thailand, the Philippines and AQD.	Follow-up detailed proposals from each participating country for submission to AQD

Programs/Activities	Duration (Period)	Status (% Completed)	Accomplishment (Jan-Dec 2003)	Remaining Activity
			Planning of the detailed activities of the collaborative research as well as developing the role and coverage of each participating country was tackled during the Discussion.	
3.2 Seed production studies	2003-2004	10%	Activities have been ongoing at AQD.	The activity will continue until 2004 and beyond
3.3 Larval feed development	2003-2004	10%	Activities have been ongoing at AQD.	The activity will continue until 2004 and beyond
IV. Training				
4.1 On-site Training				
(i) <u>Cambodia</u> : Hands-on training on the propagation of <i>Pangasius hypophthalmus</i>	4-17 Aug 2003	100%	The training was conducted at Bati Fish Seed Production and Research Station, Prey Veng Province, Cambodia, with seven participants, one each from Takeo Province and Svay Rieng Provinces, two from Prey Veng, and three technicians from DOF Cambodia.	Technical expertise for the pilot demonstration activity, will be provided through the Project.
			The Course Organizer and Main Lecturer was <i>Mr. Ngan Heng</i> , the Director of the Station. <i>Mr. Sujin Nukwan</i> of DOF Thailand served as the Resource Person.	
(ii) <u>Indonesia</u> : Farmers training on hatchery and seed production of <i>M. rosenbergii</i>	8-12 March 2004	10%	Preparations ongoing. Resource Person to be sourced from DOF Thailand.	Conduct of training in Sukamandi, West Java, Indonesia



Programs/Activities	Duration (Period)	Status (% Completed)	Accomplishment (Jan-Dec 2003)	Remaining Activity
(iii) <u>Lao PDR</u> : Technicians training on water quality analysis using standard methods	25-29 Nov 2003	100%	Training was conducted at the Namxuoang Aquaculture Development Center, Vientiane with 19 participants. Resource Person was sourced from AQD.	Technical expertise for the pilot demonstration activity, will be provided through
(iv) <u>Malaysia</u> : Technicians training on grouper seed production	7-13 Dec 2003	10%	Training was conducted at the Marine Finfish Production and Research Center, Terengganu with 32 participants. Resource Person was sourced from Indonesia.	Technical expertise for the pilot demonstration activity, will be provided through
(v) <u>Vietnam (Hue)</u> : Training on siganid hatchery operations	8-12 March 2004	5%	Preparations ongoing. Resource Persons to be sourced from AQD.	Conduct of training in Hue City.
(vi) <u>Vietnam (Binh Dinh)</u> : Training on marine fish breeding and nursery operations	15-19 March 2004	5%	Preparations ongoing. Resource Persons to be sourced from AQD.	Conduct of training in Qui Nhon, Binh Dinh
4.2 Training at AQD				
(i) Training on tilapia and carp breeding for two technicians from Cambodia	1-18 Oct 2003	100%	Training was conducted at AQD's Jalajala Station. Resource Persons were sourced from AQD.	Technical expertise for the pilot demonstration activity, will be provided through
(ii) Training on tilapia and carp breeding for two technicians and one farmer from Lao PDR	1-18 Oct 2003	100%	Training was conducted at AQD's Jalajala Station. Resource Persons were sourced from AQD.	Technical expertise for the pilot demonstration activity, will be provided through
(iii) Training on detection of VNN using PCR for one technician from Malaysia	12-18 Oct 2003	100%	Training was conducted at AQD's Tigbauan Station. Resource Person was sourced from AQD.	

Programs/Activities	Duration (Period)	Status (% Completed)	Accomplishment (Jan-Dec 2003)	Remaining Activity
(iv) Training on hatchery and nursery operations of marine fishes for one technician from Myanmar	2 June-27 July 2003	100%	One technician from DOF Myanmar undertook the regular training course at AQD's Tigbauan Station. The training was extended for two weeks to enable the trainee to conduct more hands-on and practical sessions. Resource Persons were sourced from AQD.	Technical expertise for the pilot demonstration activity, will be provided through
(v) Training on crab seed production for one technician from Myanmar	March or April 2004	5%	Preparations ongoing. Resource Persons to be sourced from AQD.	Conduct of training at AQD's Tigbauan Station.
(vi) Training of one technician from Hue (Vietnam) on siganid larval rearing	30 Oct-11 Nov 2003	100%	Training was conducted at AQD's Tigbauan Station. Resource Persons were sourced from AQD.	Technical expertise for the pilot demonstration activity, will be provided through
(vii) Training for one technician from Binh Dinh (Vietnam) on hatchery and nursery operations of marine fishes	June 2004	5%	Preparations ongoing. Resource Persons to be sourced from AQD.	Conduct of training at AQD's Tigbauan Station.
4.3 Attachment Training				
(i) Seed production of <i>M. rosenbergii</i> in Thailand for one technician from Brunei Darussalam	5-16 Jan 2004	5%	Preparations ongoing. Resource person to be sourced from DOF Thailand.	Conduct of training in a center identified by DOF Thailand.
V. Information				
5.1 Reports and Other Materials	2003-2004	10%	Draft of information materials have been prepared for printing.	More information materials will be published.

PROJECT DOCUMENT

Program Category: ASEAN-SEAFDEC FCG Mechanism

Program Title: ASEAN-SEAFDEC Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region

Component Title: Component II: Aquaculture

Project Title: Aquaculture for Rural Development (SDII-1)

Lead Department: Aquaculture Department

Lead Country: Vietnam

Total Duration: 3 years (2003-2005)

Proposed 2004 Budget: USD 80,000

1. INTRODUCTION

As the Aquaculture Component of the ASEAN-SEAFDEC Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region, the Integrated Regional Aquaculture Program (IRAP) was conducted by AQD starting in 2003. IRAP has two component projects: (1) Aquaculture for Rural Development; and (2) Supply of Good Quality Seeds. Five major activities are implemented for each component project. These are: (1) Site Visitation and Survey; (2) Pilot Demonstration; (3) Research; (4) Training; (5) Information.

Site Visitation and Survey has been conducted in the participating countries in order to confirm the pilot demonstration and other activities that will be conducted in the respective countries. Pilot demonstration, a major component of IRAP, is aimed at adapting, verifying and promoting existing technologies on various species. This will be implemented on cost-sharing basis with the participating country bearing the operational costs of the activity.

Research shall be in the form of support studies for especially for the pilot testing of low-cost feeds for aquaculture. Training is of three types: (1) on-site training in beneficiary country on cost-sharing basis and utilizing technical expertise from another ASEAN country; (2) training at AQD in the Philippines for technologies that have been developed at AQD; and (3) attachment training in another ASEAN country for specific technologies that have been developed in such country. Information includes publication of manuals and other extension materials. A pilot social laboratory for rural development is being implemented by AQD to demonstrate institutional arrangements in addressing issues of aquaculture for rural development.

2. AQUACULTURE FOR RURAL DEVELOPMENT PROJECT

2.1 Objectives

The objectives of the Project are:

1. To verify aquaculture technologies for appropriate species in various ecosystems; and
2. To disseminate the verified aquaculture technologies to small-scale fish farmers.

2.2 Project Description

The Project implements the following activities:

1. Site Visitation and Survey
2. Pilot Demonstration
3. Research
4. Training
5. Information Dissemination

3. PROGRESS OF PROJECT ACTIVITIES

The participating countries in SDII-1 are: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Thailand, and Vietnam. Although Japan and Singapore opted not to join IRAP, these countries have been considered as source for technical expertise in the implementation of the activities under IRAP.

(1) Brunei Darussalam

The activity considered for Brunei Darussalam under SDII-1 is: **Grow-out Culture of *Macrobrachium rosenbergii***, which aims to demonstrate the viability of *M. rosenbergii* culture in ponds. In the implementation of the program, the Site Visitation and Survey Team comprising two AQD staff and a Thai Expert dispatched for the Program by the Department of Fisheries, Thailand, visited Brunei Darussalam from 16 to 19 May 2003.

Based on two farms visited, the Usaha Tani Deli Duman Sdn. Bhd. Fish Farms in Rampayoh, Kuala Belait (owned and operated by Mohd. Saidi Bin Abdullah, a former farmer-trainee of AQD in freshwater aquaculture) could be considered as the site for the pilot demonstration and verification activity for SDII-1. His farm integrates agriculture, fishponds, mango plantation, banana, durian, orange, etc. He cultures carp, tilapia, *M. rosenbergii* in his fishponds, which are provided with aerators.

In view of the need to transfer *M. rosenbergii* culture technology in Brunei Darussalam and in order to be able to be able to implement the pilot demonstration activity in Brunei Darussalam, the following recommendation was made:

- SDII-1.1 Training on *M. rosenbergii* grow-out culture in ponds in Thailand. (*Note:* The DOF Thailand was asked to identify the venue and provide data on the cost of the training)

(2) Cambodia

The activity considered for Cambodia under SDII-1 is: **Polyculture of Indigenous Freshwater Fishes in Ponds (e.g., *Pangasius* sp., etc.)**, aimed at increasing fish supply in the rural areas, considering that small-scale culture using extensive and semi-intensive systems, is already being practiced by the rural fisherfolk but with low production. The Site Visitation and Survey Team comprising two AQD staff, one AQD Researcher, and a Thai Expert dispatched for the Program by the Department of Fisheries, Thailand, visited Cambodia from 7 to 10 July 2003. The Survey Team visited the Province of Takeo in the southern part of the country near the Vietnam border. Takeo has been chosen by Cambodia as the site for the pilot demonstration and verification activity for SDII-1.

Aquaculture is now being promoted in Cambodia not only for food security but also as a means to provide additional income to families in the rural areas. Cambodians traditionally prefer fish caught from Tonle Sap Lake and river systems so there has been no strong tradition for aquaculture due to the abundance of fish from natural waters. In order to promote fish culture, the Department of Fisheries (DOF), Cambodia conducts training in the provinces.

In the Province of Takeo, these programs have borne fruits in the development of two successful fish farmers. Due to their interest and with their initiative in setting up their own farms, they were brought to northeast Thailand in 2002 for an observation study tour of fish farms, sponsored by the Asian Institute of Technology. These two fish farmers are success stories that the DOF Cambodia would like to replicate in more areas in the country,

considering these two farmers succeeded in an area far from a river and without the benefit of an irrigation system or a well, by relying completely on rainfalls. Indeed, these farmers are worthy to be emulated anywhere else in Southeast Asia.

Although the culture of *Pangasius* is being promoted in the country, the DOF Cambodia has apparently not given consideration on the problem of feeding them. *Pangasius* is a voracious feeder, which accounts for its rapid growth. Promoting its culture could possibly result in farmers using up low-value and small fish, which could either grow to larger sizes or could be directly consumed as food. The use of fish biomass as food will likely make it economically not viable to produce. Fortunately as an omnivore, *Pangasius* can eat a wide range of feed and when cultured in earthen ponds can subsist completely on vegetable materials such as agricultural byproducts. It is only when cultured in cages that some amount of feed is necessary. Thus, there is a need to develop a feed development activity for *Pangasius* culture, under the Special 5-year Program.

In view of the need to upgrade the capability of the DOF Cambodia as well as that of the fish farmers, the following recommendations were made:

- SDII-1.2 Training of three farmers and one technician to observe fish farming practices in Thailand.
- SDII-1.3 AQD to assist DOF Cambodia in building up its capability for water quality analysis using standard methods.
- SDII-1.4 Development of a feed development activity using farm-based feed materials and feeding management especially for *Pangasius* sp.

(3) Indonesia

The activity considered for Indonesia under SDII-1 is: **Catfish (*Pangasius* sp.) Culture in Rural Areas with Value-Adding**, aimed at optimizing the utilization of water bodies including marginal lands in support of food security program for the rural people, creating job opportunities, and promoting poverty alleviation. The Site Visitation and Survey Team for Indonesia comprising two AQD staff and a Thai Expert dispatched for the Program by the Department of Fisheries, Thailand, visited Indonesia from 11 to 16 May 2003.

The Survey Team flew from Jakarta (Central Java) to Jambi (Sumatra) to visit the Balai Budidaya Air Tawar (BBAT) in Jambi. The BBAT in Jambi is a 50 ha complex complete with laboratories, hatcheries/nurseries (concrete ponds), offices and training rooms, library, living quarters, grow-out (concrete). The Center has collaborative projects with JICA and IRD (ex. ORSTOM), France. The activities of BBAT Jambi include technology development and extension, laboratory services, feed development, and research on species indigenous to Sumatra (e.g. *Leptobarbus hoevenii*, *Tor douronensis*, arowana (*Sclerophages formosus*), *Anabas testudineus*, *Mystus nemurus*, *Botia macracanthus*, *Helostoma temminck*, *Pangasius djambal*, *Notopterus* sp., *Thynnichthys thynnoides*, *Trichogaster pectoralis*, *Macrobrachium rosenbergii*, *Oxyeleotris marmorata*); and introduced species (e.g. patin siam (*Pangasius hypophthalmus*), *Rana catesbiana*, *Oreochromis niloticus*, *Cyprinus carpio*, *Ctenopharyngodon idella*).

For the development of Patin (*Pangasius* sp.) culture, the site selected is in Tangkit Baru where the culture of *Pangasius djambal* is still in early stage of development but *Pangasius hypophthalmus* seed production and grow-out technologies are already developed and ready for dissemination to rural fish farmers. The Team noted that *P. hypophthalmus* grow-well in ponds while *P. djambal* grows well in river cages.

In view of the need to strengthen the marketing of *Pangasius* in Indonesia, the following recommendations were made:

- SDII-1.5 Promotion of Patin products/preparations through PISTA PATIN (during the World Food Day, October 2003) in collaboration with the local government.
- SDII-1.6 Training of farmers and government officials on grow-out of *P. djambal* (later part of 2004), complementing with the JICA activities and continuing where IRD has left as regards to aquaculture of *P. djambal*.

(4) Lao PDR

The activity considered for Lao PDR under SDII-1 is: **Aquaculture in Rural Areas**, focusing on rice-fish culture, aimed at promoting fish culture in rural areas through the provision of appropriate technologies, equipment, training and micro-financing. The Site Visitation and Survey Team comprising two AQD staff, one AQD Researcher, and a Filipino Expert dispatched for the Program by the private sector, visited Lao PDR from 3 to 6 July 2003.

The Survey Team visited Vang Vieng District in Vientiane Province north of Vientiane Municipality. Vang Vieng has been chosen by Lao PDR as the site for the pilot demonstration and verification activity for SDII-1.

The development of fisheries in Lao PDR is still in the young stage. The Department of Livestock and Fisheries (DLF) of Lao PDR considers poverty alleviation as the main objective of the country's aquaculture development.

There are a number of foreign agencies currently providing technical and development support for fisheries and aquaculture particularly at the Namxuoang Aquaculture Development Center. Among them are: JICA (AQIP) – operating in the central/northern part of the country; AIT/ICLARM/NACA/AAHRI – working on the regional development in the six provinces in the southern Lao PDR; DANIDA – working on aquaculture of indigenous fish species; and Singapore Government – recently established a Provincial Fish Hatchery (Red Tilapia) in Vientiane Province.

In view of the need to improve the capability of technicians and farmers in Lao PDR on rice-fish culture, the following recommendations were made:

- SDII-1.7 Training of two technicians on rice-fish and small fishpond culture preferably in the Philippines, focusing on common carp and tilapia culture, to include pond preparation and water quality management, considering that there is a need to develop affordable system that can produce the 0.5 kg size fish in grow-out rice fields or small ponds.
- SDII-1.8 The stopping of irrigation water flow every December by the Government should not hinder the farmers from engaging in rice-fish farming. Rice-fish grow-out should use the pond refuge method in order to stretch the growing/culture period of tilapia/common carp in the rice field until the irrigation water stops in December, particularly if Vang Vieng is the site of operation. Other areas with continuous irrigation (2 rice crops per year) should also be considered.
- SDII-1.9 The pond refuge method (or combination of small pond and rice field) will enable farmers to grow at least 0.5 kg of fish (especially common carp) in rice field at low stocking density (500-1000 pc/hectare) from May/June-November. Fish should be marketed by December/January when water temperature becomes relatively low – which would result in slow growth.



Common carp performs better than tilapia in elevated areas in the Northern part of Lao PDR, one of which is Vang Vieng.

- SDII-1.10 The DFL should do more legwork in establishing the number of farmers who are interested in rice field and pond fish farming in Vang Vieng and its vicinity, and identify key farmers to serve as cooperators, to be trained as farmer leaders to help in extending and adapting the technology.

(5) Malaysia

The activity considered for Malaysia under SDII-1 is: **Pen Culture of Tilapia, etc.**, using improved pen culture technologies, aimed at increasing household incomes and maximizing the usage of irrigation canals. The Site Visitation and Survey Team for Malaysia comprising two AQD staff, one AQD Scientist, and a Thai Expert dispatched for the Program by the Department of Fisheries, Thailand, visited Malaysia from 19 to 23 May 2003.

The Survey Team visited the KADA Canal in Pasir Puteh, Province of Kelantan. The KADA Canal has been chosen by Malaysia as the site for the pilot demonstration and verification activity for SDII-1. In the fish pens and cages at KADA Canal, the species cultured are *Pangasius* spp., tilapia, carp, *M. nemurus* (bain), *P. gonionotus* (Ilapam Jawa), walking catfish, colossoma (bawal), and climbing perch. KADA Canal is 625 km long and at least 50 km is intended for aquaculture, where 40 units of cages were set up by the Sultan of Kelantan. The present facility is being operated by five farmers using seeds from Government hatcheries, which were free of charge on first run, but during the succeeding runs seeds are for a fee. The typical pens are constructed to cover the whole 60 m width of the canal, where pens are about 300 meters apart. Species cultured are *Mystus* sp., *Pangasius*, tilapia, Java barb, catfish, colossoma.

In view of the need to build up the capability of technicians and farmers in Kelantan, Malaysia, the following recommendation was made:

- SDII-1.11 Training of technicians from Kelantan on freshwater fish culture techniques in southern Thailand, to be followed by observation study tour of freshwater fish farms in Thailand.

(6) Myanmar

The activity considered for Myanmar under SDII-1 is: **Coastal Aquaculture** focusing on grouper and sea bass culture in ponds or cages and mud crab in mangrove areas, aimed at utilizing the coastal and marine resources for aquaculture in order to alleviate the social economy of the rural communities. The Site Visitation and Survey Team for Myanmar comprised two AQD staff and two AQD Scientists. The Team visited Myanmar from 28 June to 1 July 2003. The Survey Team flew from Yangon to Thantwe Township in Rakhine State (facing Bay of Bengal) to visit the proposed site for the pilot demonstration and verification activity for SDII-1.

The Department of Fisheries (DOF) Myanmar considers the development of the sea bass culture industry in Myanmar as a priority project followed by grouper and mud crab. There is one sea bass farm in Chaung Tha at the Irawady Division but the fingerlings used were imported from Thailand. The DOF has established a sea bass hatchery at Chaung Tha but attempt to bring broodstock to the hatchery has not been successful with all the fish dying within a few days after delivery.

There is also considerable interest of the private sector in grouper culture to the extent that one group was importing some 5,000 humpback or mouse grouper (*Cromileptis altivelis*)

fingerlings from Indonesia. Grouper farming is ongoing in southern Myanmar facing the Andaman Sea.

Juveniles of various grouper species (mostly *E. coioides* and *E. malabaricus*) are caught from the wild and grown to marketable size in floating net cages. Groupers are transported live by boat to markets in Hongkong and Southern China. The DOF would also like to develop the capability to propagate groupers but has not specified the species preferred for initial development.

In view of the need to build up the capability of DOF technicians and farmers in Rakhine State, the following recommendations were made:

SDII-1.12 AQD to provide DOF Myanmar with the specifications for the development of cages, which can be used by the DOF to estimate the development cost. However, the DOF should obtain more definite information on the market price of sea bass and the cost of low-cost fish biomass that can be used as feed as well as the cost of fabricating the fish cages required. Using such information a preliminary study on the economics of sea bass production should be made to see if the culture is viable.

SDII-1.13 DOF Myanmar should verify and demonstrate the viability of producing sea bass fingerlings in rice fields together with rice using wild-caught fry.

SDII-1.14 AQD should send a copy of the Manual on Husbandry of Grouper and other materials to DOF Myanmar.

(7) Philippines

The activity considered for the Philippines under SDII-1 is: **Grow-out Culture of *M. rosenbergii* in ponds**, aimed at promoting its culture for rural development by disseminating the technology to more fish farmers. The Site Visitation and Survey for the Philippines will be conducted in early 2004.

(8) Thailand

The activity considered for Thailand under SDII-1 is: **Cage culture of Abalone**, which aims to study the growth and survival rates and FCR of abalone cultured in cages in order to assess the possibility of extending the technique to the fisherfolk in coastal areas. The Site Visitation and Survey Team for Thailand, comprising two AQD staff, visited Thailand from 5 to 8 August 2003.

The Survey Team visited the Rayong Coastal Fisheries Research and Development Center in Rayong Province about 180 km southeast of Bangkok facing the eastern side of the Gulf of Thailand. The Center in Rayong is one of the sites proposed by DOF Thailand for the pilot demonstration and verification activity for SDII-1. The other site also identified is the Prachuap Khiri Khan Coastal Fisheries Research and Development Center in Prachuap Khiri Khan Province about 280 km south of Bangkok facing the western side of the Gulf of Thailand, which could serve as an alternative site for verification during the later part of the Program.

The main species being researched on at the Rayong Center include the oceanic squid (*Thysanoteuthis rhombus*, Cephalopoda:Teuthoidea), abalone (*Haliotis asinina*), grouper (*Cromileptis altivelis*), shrimp (*Penaeus monodon*), Babylonia shell (*Babylonia zeylanica*), and other marine fishes. The Rayong Center's abalone cage culture project is in Sukumwit Island in front of the Center about one hour by boat. The abalone seeds used for this project

are transported from the Prachuap Khiri Khan Center. The project has not progressed much, thus the need for the upgrading of the capability of the Center's researchers on the cage culture of abalone.

A very interesting species being researched on at the Rayong Center is the Babylonia shell. Its breeding, nursery and grow-out culture technologies have already been developed. The Center now plans to extend such technologies to the coastal fish farmers to increase their incomes. The Rayong Center is now planning to research on non-conventional species, such as sea cucumber, sea urchins, *Tridacna* sp., and sea horses. However, it will need more information about the culture of such species especially the sea horses, which are available at AQD in the Philippines.

In view of the need to build up the capability of DOF technicians and farmers in Rayong Province as well as in Prachuap Khiri Khan later, the following recommendations were made:

- SDII-1.15 Training of one staff from Rayong Center on cage culture of abalone in Philippines.
- SDII-1.16 Farmers training on culture of abalone and Babylon shell, for farmers beneficiaries from Rayong Province and with Rayong Center staff as lecturers and resource persons.
- SDII-1.17 Observation study tour to AQD of the Director of Rayong Center to exchange information on the aquaculture of marine species.

(9) Vietnam

The activity considered for Vietnam under SDII-1 is: **Pond Culture of Milkfish and Siganids**, aimed at promoting the adoption of their culture technologies in the coastal areas. The Site Visitation and Survey Team comprising two AQD staff and one AQD Scientist, visited Vietnam from 29 July to 4 August 2003. The Survey Team went to Hue and Bin Dinh Provinces. The Ministry of Fisheries has identified siganids as the most appropriate species to promote in the province of Hue and milkfish in the province of Binh Dinh. The Ministry of Fisheries has approved the promotion of the two species in the said provinces in order to diversify aquaculture production in the coastal areas, which is now overwhelmingly dominated by shrimp culture.

Hue Province is endowed with a 22,000 ha lagoon (Pha Tam Giang) that is now being used for aquaculture using both pond and pen systems. *P. monodon* is the major species but siganids and mud crab are also being farmed. Siganid fry can be collected in Pha Tam Giang lagoon.

The Province of Binh Dinh has three lagoons, Dam De Gi with 1,600 ha, Dam Tra O with 1,200 ha (freshwater), and Dam Thi Nai, the biggest with 5,600 ha. There is a total of 2,500 ha of shrimp farms in the province of which 40% practiced either intensive or semi-intensive culture and the rest extensive culture system. There is also some 600 ha of farms in De Gi lagoon where the shrimps are being reared in polyculture with milkfish. Milkfish fry are found in Dam De Gi and Dam Thi Nai. The milkfish growers in Dam De Gi prefer to grow milkfish in polyculture with *Penaeus monodon*.

In view of the need to build up the capability of the provincial technicians and farmers in Hue and Binh Dinh, the following recommendations were made:

- SDII-1.18 To develop local capability to produce formulated feed if the culture of siganid is to take off.
- SDII-1.19 Increase utilization of natural milkfish fry by improving its collection. AQD to assist Binh Dinh in conducting a milkfish fry survey within the

Dam De Gi area. The most convenient time is September to October during the second fry season.

SDII-1.20 AQD to assist in developing local capability in milkfish fry collection, handling, transport, nursery operation and fingerling harvest and transport.

Another major activity under SDII-1 is the Verification of Low-cost Feeds for Aquaculture, which is being implemented at AQD. For this activity, the testing of low-cost feeds based on formulations already developed at AQD will be conducted in conjunction with activities on pilot-demonstration and verification. This is intended to help solve a common problem in aquaculture which is feeds and feeding management, and to promote the need for environment-friendly and low-cost feed formulations.

The following three types of training have been conducted in 2003 for SDII-1.

(1) On-site Training

Cambodia: Technicians training on water quality analysis using standard methods conducted at the Department of Fisheries, Phnom Penh, 30 November – 4 December 2003, 14 participants. Resource Person was provided by AQD.

Indonesia: In preparation for the actual on-site training, a demonstration and promotion of Patin (*Pangasius* sp.) products and preparations was conducted in Jambi, Sumatra, 20-22 October 2003 with farmers and fish traders as participants. Resource Person was provided by DOF Thailand.

Myanmar: Technicians training on proper handling and transport of sea bass broodstock was conducted at DOF Office in Yangon with practical sessions in Ayarwaddy Division, 23-27 October 2003 with 33 participants. Resource Person was provided by AQD.

Vietnam: Technicians training on milkfish fry collection, handling, transport and nursery operations was conducted in Binh Dinh, 19-22 October 2003 with 27 participants. Resource Person was provided by AQD.

(2) Training at AQD, Philippines

On-line training on Aquaculture Health Management, 2 June-12 October 2003, with 17 participants

On-line training on Aquaculture Nutrition, 21 July-15 November 2003, with 22 participants

Lao PDR: Training of two technicians from DLF Lao PDR on rice-fish and small fishpond culture focusing on common carp and tilapia to include pond preparation and water quality management, 16-23 November 2003.

(3) Attachment Training in Other Countries

Cambodia: Training on commercial breeding of tilapia and other freshwater fishes for three farmers and one DOF Cambodia technician at the Surat Thani Inland Fisheries Research and Development Center, Thailand, 1-18 October 2003. Resource Persons were provided by the Surat Thani Inland Fisheries Research and Development Center of DOF Thailand.

Malaysia: Training on commercial breeding of tilapia and other freshwater fishes for four technical staff from DOF Malaysia at the Surat Thani Inland Fisheries Research and Development Center, Thailand, 7-20 December 2003. Resource Persons were provided by the Surat Thani Inland Fisheries Research and Development Center of DOF Thailand.

Philippines: Attendance of two technicians from the Philippine Bureau of Fisheries and Resources in the International Freshwater Prawn Symposium in Kerala, Kochi, India, 21-23 August 2003. This was in preparation for the implementation of the pilot demonstration activity in the Philippines.



Thailand: Training for one staff from Rayong Coastal Fisheries Research and Development Center (Thailand) on cage culture of abalone at AQD's Tigbauan and Igang Stations, 10-28 November 2003. Resource persons were provided by AQD.

For the development of the activities, AQD officers involved in the Program attended workshops, meetings and consultations. Moreover, in view of the need for aquaculture information materials such as books, manuals, newsletters, etc. especially at the project sites visited during the Site Visitation and Survey, the necessary materials were acquired in August 2003 and dispatched immediately to those concerned. A calendar for 2004 indicating the activities of the Aquaculture Component of the Special 5-year Program in the beneficiary countries will be printed for dissemination in early January 2004.

4. PROPOSED FUTURE ACTIVITIES

The detailed activities under SDII-1 are shown in Table 2.

4.1 Pilot Demonstration

Through the Site Visitation and Survey conducted in participating ASEAN countries, pilot demonstration and verification activities for respective countries have been confirmed. In the implementation of the pilot demonstration activities, the services of appropriate ASEAN experts external to the participating country will be tapped as technical resource persons. This is to ensure that certain more advanced technologies developed by other ASEAN countries available for adoption, are availed of by another ASEAN country, thus making the transfer of technology faster.

4.2 Research

AQD has developed or refined some technologies that would cater to the needs of the other ASEAN countries especially in the implementation of the pilot demonstration activities. However, AQD needs to continue refining such technologies in order to demonstrate their sustainability in the beneficiary countries. Thus, a number of support research studies have been conducted by AQD to cater to the needs of the countries.

4.3 Training

The main objective of the training is to transfer specific technologies from one ASEAN country to another, targeting mainly the trainers as participants. Training at AQD would also hasten the transfer of technologies that AQD has already developed, while attachment training will facilitate the faster transfer of technologies from one country to the other countries in the region.

4.4 Information

Publication of various information materials will be continued, including manuals. This activity aims to promote the exchange of information and experiences on specific technologies; and disseminate information on the activities of IRAP for the benefit of the fisherfolk in the region.

5. ENVISAGED OUTCOMES OF THE PROGRAMS

It is expected that the implementation of the Project will lead to the development of aquaculture technologies for equitable economic development and poverty alleviation in the ASEAN region. Specifically, this project is expected to come up with appropriate and responsible aquaculture technologies that will help alleviate poverty and ensure food security for peoples in the rural areas in the ASEAN region. Considering that most of the aquaculture

technologies and expertise may be already available in some countries in the region, IRAP is expected to facilitate the transfer of such technologies to other countries for the fast development of their aquaculture industry.

Table 2. Proposed Programs for the Year 2004 for the ASEAN-SEAFDEC Special 5-year Program on Sustainable Fisheries to Food Security in the ASEAN Region (Aquaculture Component)

SDII-1: Aquaculture for Rural Development

Programs Title	Projects/Activities Title	Duration (Period)	Remarks
Site visitation			
	1. Philippines	2003-2004	To be continued in 2004
Pilot demonstration			
	2. Brunei Darussalam: Grow-out culture of <i>Macrobrachium rosenbergii</i>	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	3. Cambodia: Polyculture of indigenous freshwater fishes in ponds	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	4. Indonesia: Catfish culture (<i>Pangasius</i> sp.) in rural areas including post-harvest	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	5. Lao PDR: Rice-fish culture (improvement of existing technique)	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	6. Malaysia: Pen culture of tilapia, catfish, etc. in canals	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	7. Myanmar: Coastal aquaculture (sea bass, mud crab)	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	8. Philippines: Grow-out culture of <i>Macrobrachium rosenbergii</i>	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	9. Thailand: Cage culture of abalone	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	10. Vietnam: Culture of milkfish and siganids	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	11. Verification of low-cost feeds for aquaculture	2003- 2005	Conducted at AQD. To be continued in 2004.
	12. Social laboratory for rural development	2003-2005	Conducted at AQD. To be continued in 2004.

Programs Title	Projects/Activities Title	Duration (Period)	Remarks
Research			
	13. Development of low-cost feeds for aquaculture	2003-2005	Conducted at AQD. To be continued in 2004.
Training			
I. On-site training	14. Indonesia: Farmers training on grow-out culture of <i>Pangasius djambal</i> with value adding	16-20 Feb 2004	Resource Persons to be sourced from DOF Thailand
	15. Lao PDR: Farmers training on rice-fish culture and small pond aquaculture	8-12 March 2004	Resource Persons to be sourced from Philippine private sector and AQD
	16. Thailand: Farmers training on culture of abalone and Babylonia shells	8-12 March 2004	Resource Persons to be sourced from AQD and DOF Thailand
	17. Vietnam (Hue): Technicians training on feed formulation for siganid culture	15-19 March 2004	Resource Persons to be sourced from AQD
II. Training at AQD	18. Vietnam (Hue): Training of one technician on feed formulation for siganid culture	16-20 Feb 2004	Resource Persons to be sourced from AQD
	19. Thailand: Observation study of the Director of Rayong Station, Thailand to AQD's Tigbauan Station	8-12 March 2004	Resource Persons to be sourced from AQD
III. Attachment Training	20. Brunei Darussalam: Grow-out culture of <i>M. rosenbergii</i> in Thailand for one technician	March 2004	Resource persons to be sourced from DOF Thailand
Information			
	21. Publication of information materials	2002-2005	To be continued in 2004

PROJECT DOCUMENT

Program Category: Program under the ASEAN-SEAFDEC FCG Mechanism

Program Title: ASEAN-SEAFDEC Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region

Component Title: Component II: Aquaculture

Project Title: Supply of Good Quality Seeds (SDII-2)

Lead Department: Aquaculture Department

Lead Country: Indonesia

Total Duration: 3 years (2003-2005)

Proposed 2004 Budget: USD 80,000

1. INTRODUCTION

As the Aquaculture Component of the ASEAN-SEAFDEC Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region, the Integrated Regional Aquaculture Program (IRAP) was conducted by AQD starting in 2003. IRAP has two component projects: (1) Aquaculture for Rural Development; and (2) Supply of Good Quality Seeds. Five major activities are implemented for each component project. These are: (1) Site Visitation and Survey; (2) Pilot Demonstration; (3) Research; (4) Training; (5) Information.

Site Visitation and Survey has been conducted in the participating countries in order to confirm the pilot demonstration and other activities that will be conducted in the respective countries. Pilot demonstration, a major component of IRAP, is aimed at adapting, verifying and promoting existing technologies on various species. This will be implemented on cost-sharing basis with the participating country bearing the operational costs of the activity.

Research shall be in the form of support studies for broodstock management and improved production of quality seeds. The collaborative research on genetic improvement and seed production of *Macrobrachium rosenbergii* will form a major component of research, where closely related activities will be conducted in each participating country, such as Indonesia, Thailand and the Philippines. This collaborative research aims to improve the genetic characteristics and the existing seed production technology for *M. rosenbergii* in order to produce quality eggs for culture.

Training is of three types: (1) on-site training in beneficiary country on cost-sharing basis and utilizing technical expertise from another ASEAN country; (2) training at AQD in the Philippines for technologies that have been developed at AQD; and (3) attachment training in another ASEAN country for specific technologies that have been developed in such country. Information includes publication of manuals and other extension materials. Information includes publication of manuals and other extension materials.

2. AQUACULTURE FOR RURAL DEVELOPMENT PROJECT

2.1 Objectives

The objectives of the Project are:

1. Verify and demonstrate appropriate seed production technologies of target species;
2. Verify on-farm broodstock management techniques; and
3. Disseminate seed production technology to fish farmers.



2.2 Project Description

The Project implements the following activities:

1. Site Visitation and Survey
2. Pilot Demonstration
3. Research
4. Training
5. Information Dissemination

3. PROGRESS OF PROJECT ACTIVITIES

The participating countries in SDII-2 are: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Thailand, and Vietnam. Although Japan and Singapore opted not to join IRAP, these countries have been considered as source for technical expertise in the implementation of the activities under IRAP.

(1) Brunei Darussalam

The activity considered for Brunei Darussalam under SDII-2 is: **Hatchery Verification of *Macrobrachium rosenbergii***, aimed at producing sufficient supply of quality seeds of *M. rosenbergii* to meet local requirements. The Site Visitation and Survey Team comprising two AQD staff and a Thai Expert dispatched for the Program by the Department of Fisheries, Thailand, visited Brunei Darussalam from 16 to 19 May 2003. The Survey Team visited the Government's Freshwater Fisheries Station in Labi, Belait District, the site identified for the pilot demonstration on the seed production of *M. rosenbergii*.

The Freshwater Fisheries Station has hatcheries/nurseries, offices and training rooms, and experimental ponds some of which were still under renovation at the time of the survey. The species being studied at the Station are tilapia, common carp, *Clarias batrachus*, *C. macrocephalus*, ornamental fishes, *M. rosenbergii*, etc. The problems and requirements of the Station included: inadequate water and feeding management, and although breeding and grow-out culture of some species are already developed, there is a need for further training of the Station staff especially in *M. rosenbergii* seed production as well as on the culture of ornamental fishes.

In view of the need to transfer *M. rosenbergii* culture technology in Brunei Darussalam, the following recommendation was made for immediate implementation:

- SDII-2.1 Training on *M. rosenbergii* seed production with observation in Thailand.
(Note: The DOF Thailand was asked to identify the venue and provide data on the coast of the training)

(2) Cambodia

The activity considered for Cambodia under SDII-2 is: **Seed Production of Freshwater Fishes, e.g., *Pangasius sp.*, etc.**, which aims to ensure good quality seeds for the improvement of the freshwater fish culture production.

The Site Visitation and Survey Team for Cambodia comprising two AQD staff, an AQD Researcher, and a Thai Expert dispatched for the Program by the Department of Fisheries, Thailand, visited Cambodia from 7 to 10 July 2003.

The Survey Team visited the Bati Fish Seed Production and Research Station located in Prey Veng Province about 70 km from Phnom Penh at the other side of Tonle Sap River. The

station was established in 1988 with the assistance of the Partnership for Development in Kampuchea (PADEK), a non-governmental group. Until 1997 the station operated under a PADEK funded program. Now, the Station operates under the Prey Veng Provincial Fisheries Office of DOF Cambodia. Since year 2000 the station has been cooperating with the Mekong River Commission as part of its Aquaculture of Indigenous Mekong Species (AIMS) project for the propagation of indigenous species.

The Bati Station was established solely for fish propagation, and until 1997 it was capable only of propagating the silver barb (*B. gonionotus*). In 1998 the station succeeded in propagating the Mekong catfish (*Pangasius hypophthalmus*) and the Station can now routinely produce *Pangasius* fingerlings. It is now working on the propagation of a Trey Krum (*Osteochilus melanopleura*), a local carp species and the gouramy (*Trichogaster pectoralis*) as part of MRC's AIMS project. It will soon undertake the propagation of the giant gouramy (*Ospronemus gourami*) and a local bottom feeding carp species, *Puntiopilus falcifer*. As a sub-component of the World Bank assisted Agricultural Productivity Improvement Project (APIP), the Station is also standardizing procedures for the propagation of a snakehead species, *Channa micropeltes*, with the aim of producing a manual for the culture of such species.

The Bati Station proposed to conduct a hands-on training on the propagation of *P. hypophthalmus*. The three-week training would involve four farmers, two from Prey Veng, one from Takeo, and one from Svay Rieng, and three technicians from DOF Cambodia. Since funds for the purpose have not been released by the Government, the program was requested to provide funds for the training in 2003. Otherwise it would have to be postponed to April 2004, since the absolute last chance to hold the training is the month of August.

The Bati Station is also interested in seed quality improvement through selective breeding of *Pangasius* and in upgrading the capability of the Station staff. In this regard, the DOF Cambodia would like to continue bringing a limited number of technicians and promising fish farmers on study tour to Thailand as well as bring technicians for hands-on training on tilapia and carp breeding possibly to the Philippines. The DOF Cambodia was assured that assistance could only be on the existing species for which it already has the basic knowledge to propagate and culture such as the silver barb, silver and bighead carps, and the common carp, tilapia and *Pangasius*, that requires only refinement and upgrading.

Thus, considering the need to upgrade the capability of the DOF technicians as well as the fish farmers, the following recommendations were made for immediate implementation:

- SDII-2.2 Since the window on the proposed training for farmers on *Pangasius* breeding will end in July, and considering the limited fund required, which is not likely to be released so that the training may have postponed to April 2004 at the earliest, it was therefore recommended that this activity be funded under the Special 5-year Program. For this purpose a Technical Expert from DOF Thailand would be requested to serve as resource person for the spawning and initial larval rearing stage. The local staff at Bati Station can handle the rest of the three-week training period.
- SDII-2.3 Training of DOF Cambodia technicians at AQD for tilapia and carp breeding in the Philippines.



(3) Indonesia

The activity considered for Indonesia under SDII-2 is: **Genetic Improvement of Giant Prawn (*Macrobrachium rosenbergii*)**, aimed at improving the overall quality of giant prawn, specifically for the following traits: vitality of seeds, fast growth, desirable morphological characteristics such as smaller head size and disease resistance. The Site Visitation and Survey Team comprising two AQD staff and a Thai Expert dispatched for the Program by the Department of Fisheries, Thailand, visited Indonesia from 11 to 16 May 2003.

The Survey Team visited the Research Station for Freshwater Breeding and Aquaculture in Sukamandi, near Cikampek, Central Java, is a 60-ha complex, with laboratories, hatcheries/nursery, offices and training rooms, library, living quarters, and grow-out ponds. The problems/requirements of the Station as regards to *M. rosenbergii* seed production included: improved broodstock quality; improved survival rate; farmer training for hatchery of *M. rosenbergii*; occurrence of white muscle disease resulting in mass mortality; nursery is dependent on *Artemia* thus the need to research on the replacement for *Artemia*; need to set up recirculating system for hatchery since the source of sea water more than 50 km away. The Station has developed the GI-Macro (Genetically-Improved *Macrobrachium*) from three local strains of *Macrobrachium rosenbergii*.

The other center visited was the Balai Budidaya Air Tawar (BBAT) in Sukabumi, West Java, a 50-ha complex with laboratories, hatcheries/nurseries and concrete ponds. BBAT Sukabumi's *Macrobrachium* hatcheries are in Pelabuhanratu, some 150 km from Sukabumi. BBAT Sukabumi also operates grow-out ponds (concrete) and floating net cages in Cirata Reservoir, Cianjur. It has offices and training rooms, library, living quarters, and its staff comprises a 50% – 50 % support to technical staff. Its freshwater supply (running water systems) comes from nearby Cisaat river. The activities of BBAT Sukabumi include technology development and dissemination, laboratory services, feed development, research on various freshwater species, e.g. carp, tilapia, *M. rosenbergii*, gouramy, patin, colossoma (freshwater pomfret), arowana, catfish (*C. gariepinus*), grass carp, and restocking activities in open waters.

It has already developed the technologies for seed production of various freshwater fishes as well as grow-out culture of various freshwater fishes. The problems and requirements of the BBAT Sukabumi included: co-management in re-stocking sites not yet adopted, morphological differences of *M. rosenbergii* broodstock, and improvement of *M. rosenbergii* broodstock and seed production technology.

In view of the foregoing, the following recommendations were made:

SDII-2.4 The BBAT Sukabumi could be used as site for the collaborative research, focusing on broodstock development and seed production of *M. rosenbergii*.

SDII-2.5 Farmers training on hatchery of *M. rosenbergii* (For early 2004).

(4) Lao PDR

The activity considered for Lao PDR under SDII-2 is: **Seed Production of Common Carp, Tilapia, etc.**, in order to develop the capabilities of national counterparts in the improvement of the technology through the conduct of extension activities in many parts of the country. The Site Visitation and Survey Team comprising two AQD staff, one AQD Researcher, and a Filipino Expert dispatched for the Program by the private sector, visited Lao PDR from 3 to 6 July 2003. The Survey Team visited the Namxuoang Aquaculture Development Center about

40 km north of Vientiane City, the site proposed for the pilot demonstration and verification activity for SDII-2.

The development of fisheries in Lao PDR is still in the young stage. The Department of Livestock and Fisheries (DLF) of Lao PDR considers poverty alleviation as the main objective of aquaculture development. The DLF seems to be understaff in fisheries. The number and capability of aquaculture technical staff doing research and extension work seem inadequate – especially at the Namxuoang Aquaculture Development Center. The Survey Team visited the Aquaculture Improvement and Extension Project (AQIP), and noted the well-equipped hatchery and laboratory facilities including the well-constructed fishponds. However, as particularly mentioned, there is a need for technical expertise to maximize the use of the laboratory equipment and to conduct technical training on water analysis.

There are a number of foreign agencies currently providing technical and development support for fisheries and aquaculture particularly at the Namxuoang Aquaculture Development Center. One is the Singapore Government, which has recently established a Provincial Fish Hatchery for Red Tilapia in Vientiane Province. This provincial fish hatchery, within the vicinity of the Namxouang Reservoir, was constructed with the assistance of the Government of Singapore. Training in Singapore of the technicians from the hatchery has been provided through this Singapore-Lao hatchery project. The brood fish, which was mainly the red tilapia strain came from Thailand.

In view of the need to improve the capability of technicians and farmers in Lao PDR, the following recommendations were made:

- SDII-2.6 Upgrading/training of technical staff and selected farmer leaders or farmer cooperators in the target area on: enhanced fish breeding, hatchery operation and management focusing on common carp and tilapia. Specifically, two technical persons from the Namxuoang Aquaculture Development Center should come to AQD for intensive training on mass propagation of tilapia, carp and catfish including pond preparation and water quality management.
- SDII-2.7 AQD staff to come to Lao PDR for one week to help and guide the staff of the Namxuoang Aquaculture Development Center on the use of available laboratory equipment and to train the staff on water quality analysis and monitoring (freshwater cases).

(5) Malaysia

The activity considered for Malaysia under SDII-2 is: **Production of Disease-Free Grouper**, which is aimed at producing disease-free grouper seeds by improving broodstock management. The Site Visitation and Survey Team, comprising two AQD staff, one AQD Scientist, and a Thai Expert dispatched for the Program by the Department of Fisheries, Thailand, visited Malaysia from 19 to 23 May 2003.

The Survey Team visited the Marine Finfish Production and Research Centre in Tanjong Demong, Besut, Terengganu. The main functions of the Centre are: research, fry production, training, and extension. It is complete with the following facilities: hatcheries, nutrition laboratory, library, computer facilities, tanks.

The major species studied are: sea bass, grouper, mangrove snapper, pampano, golden snapper. Its extension activities include seed production and grow-out including nursery operations. The Centre has developed some seed production technologies. Sea bass seed

production is already established, while seed production for snapper and grouper is still in development stage.

The problems/requirements of the Centre include meeting the target set for fry production by the Government every year, i.e., 200,000,000 for sea bass; 40,000,000 for grouper; 1,000,000 for snapper; disease occurrence prevalent; broodstock and seeds do not undergo screening of their health status although there is a center for screening but is under-staff to control shipment thus, the need for standard screening procedures to be put in order. There is also the need to harmonize quarantine procedures. The draft guidelines have already been prepared.

In view of the need to build up the capability of technicians at the Marine Finfish Production and Research Centre, the following recommendations were made for immediate implementation:

- SDII-2.8 Attachment training of one Center staff with the Regional Fish Disease project at AQD to specifically undertake 8-day hands-on training on detection of VNN using PCR.
- SDII-2.9 The services of *Dr. Ketut Sugama* would be availed of by the Center. Due to the tight schedule of *Dr. Ketut Sugama*, his visit to Malaysia may be for 2-3 days only.

(6) Myanmar

The activity considered for Myanmar under SDII-2 is: **Seed Production of Marine Fishes**, which is in support of the extension of marine and coastal fish culture techniques through continuous supply of quality seeds and to transfer the technology on seed production of marine fishes to rural communities. The Site Visitation and Survey Team for Myanmar comprising two AQD staff and two AQD Scientists, visited Myanmar from 28 June to 1 July 2003. The Survey Team traveled to Toungguk Township in Rakhine State, one of the identified sites for the pilot demonstration and verification activity for SDII-2. The other sites identified were: Myeik Township (Tanintharyi) and Chaung Tha (Ayarwaddy).

DOF Myanmar has established a sea bass hatchery at Chaung Tha but attempt to bring broodstock to the hatchery has not been successful with all the fish dying within a few days after delivery. There is reportedly a large resource of sea bass fry and fingerlings in the tidal rivers of the Toungguk delta but these are not being systematically gathered and nursed to grow into larger fingerlings for grow-out.

The DOF Myanmar sea bass hatchery is at Chaung Tha but part or all of the Leo Hatchery in Toungguk, which was originally built by DOF as part of an ADB-assisted project and is now being leased by a private company, can be taken back by the DOF anytime if necessary. Part of the hatchery complex is a self-contained smaller hatchery unit that was built with FAO assistance. This hatchery could be used as the site for pilot demonstration.

In view of the need to build up the capability of technicians and farmers in Rakhine, Taninthary and Ayarwaddy, the following recommendations were made for immediate implementation:

- SDII-2.10 One trainee has already undertaken hands-on training at AQD on marine fish hatchery and nursery operations. After such training, AQD should send one expert to Myanmar to demonstrate proper handling and transport of sea bass broodstock so that these can be ready for propagation during the 2004 season. Sea bass being considered the main species for SDII-2 in Myanmar. DOF can in the meantime also decide on a grouper species to

work on and then develop a captive broodstock using wild-caught fish while developing local skills in marine fish propagation using sea bass.

- SDII-2.11 Training of one DOF Myanmar staff on crab seed production, the next time the crab hatchery training shall be held at AQD in Tigbauan, Iloilo (in 2004).

(7) Philippines

The activity considered for the Philippines under SDII-2 is: **Genetic Improvement and Seed Production of *Macrobrachium rosenbergii***, aimed at mass producing quality seeds for distribution to farmers by establishing satellite hatcheries in strategic locations. The Site Visitation and Survey for the Philippines will be conducted during the early part of 2004.

(8) Thailand

The activity considered for Thailand under SDII-2 is: **Genetic Improvement and Seed Production of *Macrobrachium rosenbergii*** in order to reduce the culture period from 8 months to 6 months and to produce monosex male prawn. The Site Visitation and Survey Team comprising two AQD staff, visited Thailand from 5 to 8 August 2003. The Survey Team visited the Aquatic Animal Genetics Research and Development Institute (formerly known as the National Aquaculture Genetics Research Institute) in Pathum Thani about one hour drive from Bangkok. The Institute has been doing research on selective breeding of *M. rosenbergii* and is doing verification in fields and on-farm.

The Institute maintains second generation and is planning to do research on the genetic variation between the generations selected using fingerlings. The Institute signified interest in the proposed collaborative research and is willing to exchange improved strain of *M. rosenbergii* during the collaborative research.

In connection with the proposed collaborative research on *M. rosenbergii*, the following recommendation was made for immediate implementation:

- SDII-2.12 AQD to convene a round table discussion on the development of a genetically improved strain of *Macrobrachium* as soon as possible, to be participated in by Thailand, Indonesia, and the Philippines.

(9) Vietnam

The activity considered for Vietnam under SDII-2 is: **Seed Production of Milkfish and Siganids**, mainly by adopting induced breeding of milkfish and siganids. The Site Visitation and Survey Team comprising two AQD staff and one AQD Scientist, visited Vietnam from 29 July to 4 August 2003. The Survey Team went to Hue and Bin Dinh Provinces. The Ministry of Fisheries officers has identified siganids as the most appropriate species to promote in the province of Hue and milkfish in the province of Binh Dinh. The Ministry of Fisheries has approved the promotion of the two species in the said provinces in order to diversify aquaculture production in the coastal areas, which is now overwhelmingly dominated by shrimp culture.

The Hue Provincial Fisheries Office has a shrimp hatchery in Vinh Hien commune. The hatchery is equipped with 8 units of 5 ton tanks. Roofing is made completely of corrugated asbestos material. The site is suitable for marine finfish breeding. Substantial modification is required to make it suitable for marine fish. The hatchery staff has managed to collect ten pieces of potential brood animals, which appear to be *Siganus guttatus* but do not have the right orange coloration. These are now being maintained and fed with seaweed. Modification will include the replacement of the asbestos roofing with transparent or translucent roofing



material. New tanks will need to be constructed for natural food production. A modification plan detailed enough for the Hue Provincial Fisheries Office to make the necessary cost estimates and construction program will be prepared by AQD. While the hatchery is being modified and the broodstock developed using wild-caught fish a technician from Hue shall be sent to AQD for hands-on training on siganid hatchery operation. AQD shall send a siganid breeding expert for one week and one larval rearing technician for two months to assist in starting up the hatchery.

There is a need to assist Hue technicians on the propagation of siganids. The Chairman of Vinh Hien commune will gladly provide accommodation to any expert or technician who may be sent by AQD to assist in starting up the siganid hatchery operation. In order to be able to produce a million siganid per year the hatchery should build up its broodstock. It is estimated that a total of some 40 fish may be required (at 1 female:1 male ratio) to attain the target production level. This can be done even as the hatchery facilities are being modified. The broodstock will need to be fed with high quality feed such as squid in order to condition them. Conditioning the fish through proper nutrition will enable them to spawn spontaneously without hormone treatment and produce better quality fry and fingerlings.

The Province of Binh Dinh has three lagoons, Dam De Gi with 1,600 ha, Dam Tra O with 1,200 ha (freshwater) and Dam Thi Nai, the biggest, with 5,600 ha. Milkfish fry are found in the lagoons and are collected by fish farmers using stationary filter nets set across tidal rivers. Two fry seasons have been observed: April to May and September to October.

The Binh Dinh Provincial Fishery Office has just acquired a shrimp hatchery in Cac Mon commune from a state enterprise. The hatchery is only two years old but was not fully utilized. It consists of a spawning building and four larval rearing buildings all with corrugated asbestos roofing. A modification of the hatchery/nursery facilities should be undertaken. Binh Dinh Province should start developing local broodstock. AQD was requested to provide the design of such a floating net cage as well as its mooring, training on milkfish broodstock development and maintenance.

The Ministry of Fisheries wants to develop local capability on siganid breeding and produce at least one million fingerlings during the first year of operation. It also intends to develop its local capability on milkfish breeding in the shortest time possible without waiting for a broodstock to be developed locally. This could be done by importing ready to breed adult milkfish.

In view of the need to build up the capability of technicians and farmers in Hue and Binh Dinh, Vietnam, the following recommendations were made for immediate implementation:

- SDII-2.13 Increase utilization of natural milkfish fry by improving collection. AQD can assist Binh Dinh in conducting a milkfish fry survey within the Dam De Gi area. The earliest time may be in September to October during the second fry season. This will enable Binh Dinh to develop its local capability in milkfish fry collection, handling, transport, nursery operation and fingerling harvest and transport.
- SDII-2.14 While waiting for the local broodstock to attain sexual maturity, AQD was asked to assist Binh Dinh in developing its capability to spawn marine finfish and rear the larvae to fingerling stage using other species.
- SDII-2.15 The shrimp hatchery in Cac Mon, which was acquired by the Binh Dinh Fisheries Office, will need considerable modification to make it suitable

for marine finfish breeding. AQD was requested to prepare a modification plan for the Binh Dinh Fisheries Service Office.

Another major activities under SDII-2 are: Verification of Larval Diets, and Verification of Hatchery Techniques for Milkfish and Siganids, which are being implemented at AQD. These studies have been conducted in conjunction with activities on pilot-demonstration and verification.

Moreover, a collaborative research on the genetic improvement and seed production of *Macrobrachium rosenbergii* will be conducted involving the Philippines, Indonesia and Thailand. These countries have identified *M. rosenbergii* as the common species for pilot demonstration and verification. The conduct of the collaborative research would optimize resources and expertise from the participating countries.

In order to plan the detailed activities, the role and coverage in the collaborative research, for each participating country, the Round Table Discussion on the Development of Genetically Improved *Macrobrachium* was convened at the Freshwater Aquaculture Development Center, Sukabumi, West Java, Indonesia from 16 to 19 November 2003. Specifically, the Round Table Discussion was convened in order to: (a) adopt a common criteris for “good quality” *Macrobrachium* seeds; (b) standardize methodology and approach in developing genetically improved strain of *Macrobrachium* among the participating countries; (c) formulate definite work plan; and (d) agree on mechanics of sharing results and genetic materials on *Macrobrachium*. The Round Table had 23 participants representing Indonesia, Thailand, the Philippines and AQD.

At the end of the Round Table Discussion, the participating countries recommended draft guidelines specifically on selective breeding, population dynamics, transfer of *Macrobrachium* stock, strain evaluation, control line, and criteria for quality seeds. Detailed proposal for each participating country was requested for submission to AQD in IDecember 2003, in order to finalize the plan and programs of the collaborative research.

In response to the recommendations made during the Site Visitation and Survey and in order that the participating countries would be able to conduct the pilot demonstration activities for SDII-2, following training sessions were conducted in 2003:

(1) On-site Training

Cambodia: Hands-on training on the propagation of *Pangasianodon hypophthalmus* was conducted at the Bati Fish Seed Production and Research Station, Prey Veng Province, Cambodia from 4 to 17 August 2003. The training, which had seven participants (one each from Takeo Province and Svay Rieng Province, two from Prey Veng Province, and three technicians from DOF Cambodia), included lectures on the fish biology and breeding characteristics; general discussions on hormone calculation and identification of male and female breeders, feeding practices, fish seed sampling, treatment of breeders before releasing them back to ponds; and demonstration on egg and sperm collection and preservation, stripping, fertilization, pond preparation, etc. The Director of Bati Fish Seed Production and Research Station, *Mr. Ngan Heng* served as the Course Organizer and Main Lecturer with *Mr. Sujin Nukwan* of DOF Thailand as the Resource Person. The over-all Coordinator was *Mr. Chin Da*, who is also the Technical Coordinator for Cambodia for Supply of Good Quality Seeds.



Lao PDR: Technicians training on water quality analysis using standard methods conducted at the Namxouang Aquaculture Development Center, 25-29 November 2003 with 16 participants. Resource Person was provided by AQD.

Malaysia: Technicians training on grouper seed production conducted at the Marine Finfish production and Research Center, Terengganu with 35 participants. Resource Person was provided by the Central Research Institute on Aquaculture of the Ministry of Marine Affairs and Fisheries of Indonesia.

(2) Training at AQD, Philippines

Cambodia: Training on tilapia and carp breeding for two technicians conducted at AQD's Jalajala Station, 1-18 October 2003. Resource Persons were provided by AQD.

Lao PDR: Training on tilapia and carp breeding for two technicians and one framer conducted at AQD's Jalajala Station, 1-18 October 2003. Resource Persons were provided by AQD.

Malaysia: Training on detection of VNN using PCR for one technician from the Marine Finfish production and Research Center, Terengganu, 12-18 October 2003. Resource Person was provided by AQD.

Myanmar: Training on hatchery and nursery operations of marine fishes for one technician from DOF Myanmar, 2 June – 27 July 2003. Resource Persons were provided by AQD.

Vietnam: Training for one technician from Hue City on hatchery and nursery operations of marine fishes, 30 October – 11 November 2003. Resource Persons were provided by AQD.

In view of the need for aquaculture information materials such as books, manuals, newsletters, etc. especially at the project sites visited during the Site Visitation and Survey, the necessary materials were acquired in August 2003 and dispatched immediately to those concerned. A calendar for 2004 indicating the activities of the Aquaculture Component of the Special 5-year Program in the beneficiary countries will be printed for dissemination in early January 2004.

4. PROPOSED FUTURE ACTIVITIES

The detailed activities under SDII-2 are shown in Table 3.

4.1 Pilot Demonstration

Through the Site Visitation and Survey conducted in participating ASEAN countries, pilot demonstration and verification activities for respective countries have been confirmed. In the implementation of the pilot demonstration activities, the services of appropriate ASEAN experts external to the participating country will be tapped as technical resource persons.

This is to ensure that certain more advanced technologies developed by other ASEAN countries available for adoption, are availed of by another ASEAN country, thus making the transfer of technology faster.

4.2 Research

AQD has developed or refined some technologies that would cater to the needs of the other ASEAN countries especially in the implementation of the pilot demonstration activities. However, AQD needs to continue refining such technologies in order to demonstrate their sustainability in the beneficiary countries. Thus, a number of support research studies have been conducted by AQD to cater to the needs of the countries.

Specifically for SDII-2, the following studies are being conducted at AQD: (a) Development of practical diets for first-feeding and older larvae of snapper and sea bass, and (b) Verification of hatchery rearing techniques: Use of larval diets and early nursery rearing of hormone induced juveniles. Moreover, the collaborative research on the genetic improvement and seed production of *Macrobrachium* will be conducted with related activities to be implemented in Indonesia, Thailand and the Philippines.

4.3 Training

The main objective of the training is to transfer specific technologies from one ASEAN country to another, targeting mainly the trainers as participants. Training at AQD would also hasten the transfer of technologies that AQD has already developed, while attachment training will facilitate the faster transfer of technologies from one country to the other countries in the region. The conduct of the training sessions is in preparation for the implementation of the pilot demonstration activities in respective countries.

4.4 Information

Publication of various information materials will be continued, including manuals. This activity aims to promote the exchange of information and experiences on specific technologies; and disseminate information on the activities of IRAP for the benefit of the fisherfolk in the region.

5. ENVISAGED OUTCOMES OF THE PROGRAMS

It is expected that the implementation of the Project will lead to the development of aquaculture technologies for equitable economic development and poverty alleviation in the ASEAN region. Specifically for the Supply of Good Quality Seeds, this project is expected to come up with appropriate and responsible seed production technologies in support of the aquaculture programs of the countries in the region.

Considering that most of the aquaculture technologies and expertise may be already available in some countries in the region, IRAP is expected to facilitate the transfer of such technologies to other countries for the fast development of their aquaculture industry.

Table 2. Proposed Programs for the Year 2004 for the ASEAN-SEAFDEC Special 5-year Program on Sustainable Fisheries to Food Security in the ASEAN Region (Aquaculture Component)

SDII-2: Supply of Good Quality Seeds

Programs Title	Projects/Activities Title	Duration (Period)	Remarks
Site visitation			
	1. Philippines	2003-2004	To be continued in 2004
Pilot demonstration			
	2. Brunei Darussalam: Seed production of <i>Macrobrachium rosenbergii</i>	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	3. Cambodia: Seed production of <i>Pangasius</i> sp, other freshwater fishes	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	4. Indonesia: Genetic improvement of <i>M. rosenbergii</i> : Collaborative research with Thailand and the Philippines	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	5. Lao PDR: Seed production of carp, tilapia, other freshwater fishes	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	6. Malaysia: Production of disease-free grouper seeds	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	7. Myanmar: Seed production of sea bass, grouper, mud crab	2003-2005	Cost-sharing scheme: Project provides technical expertise only
	8. Philippines: Genetic improvement of <i>Macrobrachium rosenbergii</i> : Collaborative research with Indonesia and Thailand	2003-2005	To be continued in 2004
	9. Thailand: Genetic improvement of <i>M. rosenbergii</i> : Collaborative research with Indonesia and the Philippines	2003-2005	To be continued in 2004
	10. Vietnam: Seed production of milkfish and siganids	2003-2005	Cost-sharing scheme: Project provides technical expertise only

Programs Title	Projects/Activities Title	Duration (Period)	Remarks
Research			
	11. Verification of hatchery rearing techniques: Use of larval diets and early nursery rearing of hormone induced juveniles	2003-2005	Conducted at AQD. To be continued in 2004.
	12. Larval feed development	2003-2005	Conducted at AQD. To be continued in 2004.
	13. Collaborative research on genetic improvement and seed production of <i>Macrobrachium rosenbergii</i>	2003-2005	To be continued in 2004, among Indonesia, Thailand and the Philippines
Training			
I. On-site training	14. Indonesia: Farmers training on hatchery and seed production of <i>M. rosenbergii</i>	March 2004	Resource Persons to be sourced from DOF Thailand
	15. Vietnam (Hue): Training on siganid hatchery operations	March 2004	Resource Persons to be sourced from AQD
	16. Vietnam (Binh Dinh): Training on marine fish breeding and nursery operations	March 2004	Resource Persons to be sourced from AQD
II. Training at AQD	17. Myanmar: Technician training on crab seed production	March 2004	Resource Persons to be sourced from AQD
	18. Vietnam (Binh Dinh): Training on hatchery and nursery operations of marine fishes	June 2004	Resource Persons to be sourced from AQD
III. Attachment Training	19. Brunei Darussalam:) Seed production of <i>M. rosenbergii</i> in Thailand for one technician	March 2004	Resource persons to be sourced from DOF Thailand
Information			
	20. Publication of information materials	2002-2005	To be continued in 2004



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

COMPONENT III: UTILIZATION OF FISH AND FISHERY PRODUCTS

Under the Special 5-year Program, MFRD will execute Component 3 on Utilization of Fish and Fishery Products. Under this Component Program there are 2 Projects. The first project is on Maximising the Utilization of Fish Catch and the second project is on Fish Quality and Safety Management Systems.

Under the first project on Maximizing the Utilization of Fish Catch, for 2004 MFRD will initiate Activity 1.2 on the “Use on under-utilized freshwater fish species for the development of value-added fish products” has been scheduled to be conducted from 2004-2005. Under this activity, the Cambodia has been identified as the project site. There will be 8 sub-activities under Activity 1.2 of this project of which 3 will be conducted in 2004.

Under Project 2 on Fish Quality and Safety Management Systems, two activities will be continued in 2004. The objective of Project 2 is to assist the fish inspection and technology laboratories in the region to implement good laboratory practices, validate their methods and harmonize methods through inter-laboratory testing programs. The 1st Activity on the Harmonization and Validation of Methods will continue into its 3rd year in 2004 where key laboratories will continue to validate the methods decided at the 1st and 2nd Workshops on Good Laboratory Quality Management Practices held in September 2002 and 2003 respectively, and submit the results to MFRD for evaluation and compilation. A third Workshop is scheduled in September tentatively in Thailand to train the laboratory officer in good laboratory practices and methods validation as well as to review the work done on methods validation. There are seven sub-activities under Activity 2.1.

The second proposed activity is on the Implementation of Good Laboratory Practices (GLP) in the key laboratories in the region and under this Activity, the key laboratories are to complete their Laboratory Quality Management Manuals. The key laboratories are to provide status reports on the extent of implementation of GLP in their laboratories as well as the problems faced. There are three sub-activities under Activity 2.2.

OVERALL REVIEW OF PROPOSED PROGRAM

1. Overview of Future Programs

In 2004, 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 fresh water 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 maximised 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 globalisation 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 the 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 2004 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 2004 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.

2. Envisaged outcomes of the program

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 2004, 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.

PROJECT DOCUMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism
Program Title: The Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region
Component Title: Component III: Utilization of Fish and Fishery Products
Project Title: Maximizing the Utilization of Fish Catch (SDIII-1)
Lead Department: Marine Fisheries Research Department
Lead Country: Singapore
Total Duration: 4 years (2002-2005)

1. INTRODUCTION / BACKGROUND

The development of a new range of products, which are acceptable to the palate of Southeast Asian peoples, 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 Guidelines 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. PROGRAM

2.1 Objectives

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

2.2 Program Description

This is the 3rd year of the 4-year project. Under this project there are two research activities, three annual project evaluation reports and two End-of-Activity Seminars. The first objective

has been accomplished under the first 2 years of the project, on utilization of marine species, where the first research project and End-of-Activity Seminar have been conducted with Indonesia as the project site.

For 2004, 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. Cambodia will be the project site for Activity 2 on the utilization of freshwater species.

The project will comprise of research activities carried out at the project site for Activity 1.2. MFRD would take the lead in providing technical expertise for the research project in Cambodia. The project site for Activity 2 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 and cost for shelf life studies.

3. PROPOSED FUTURE ACTIVITIES

Activity 1.2: Utilization of under-utilized freshwater species for development of value added fish products

<i>PERIOD</i>	Activities
Jan 2004:	Identifying project site and soliciting the participation of Cambodia as project site.
Mar 2004:	Sub-Activity 1.2.1: 1 st Meeting with participating country to plan details of project (to meet in Cambodia) and identify species to be used.
Mar-May 2004:	For Cambodia to prepare facilities for processing trial.
Jun-Nov 2004:	Sub-Activity 1.2.2: Preliminary processing trials
Dec 2004:	Sub-Activity 1.2.3: 1 st Evaluation of progress of project, finalizing formulation and planning for actual production and shelf life studies.
Jan-May 2005:	Sub-Activity 1.2.4: Actual production trials Sub-Activity 1.2.5: Shelf life and quality studies of new products
Jun-Oct 2005:	Sub-Activity 1.2.6: Preparation of Manual on the processing of value added fish products from under-utilized freshwater species
Nov 2005:	Sub-Activity 1.2.7: Printing of Manual
Dec 2005:	Sub-Activity 1.2.8: Completion and distribution of manual end-of-Activity Seminar.

Project Site(s):

For Activity 1.2 on utilization of under-utilized freshwater species, Cambodia would be the project site.

Expected outputs:

1. Maximising 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 Monitoring and Evaluation:

There will be an annual Evaluation / progress report and an End-of-Activity Seminar for each activity upon completion of the project.

PROJECT DOCUMENT

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism

Program Title: The Special 5-year Program on Sustainable Fisheries for Food Security in the ASEAN Region

Component Title: Component III: Utilization of Fish and Fishery Products

Project Title: Fish Quality and Safety Management Systems (SDIII-2)

Lead Department: Marine Fisheries Research Department

Lead Country: Singapore

Total Duration: 4 years (2002-2005)

1. INTRODUCTION / BACKGROUND

The harmonization of analytical methods through a network of key 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 key 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 harmonised 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

- a) Validation of laboratory test procedures
- b) Networking of key laboratories in ASEAN
- c) Implementing good laboratory practices in key 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) should strive to meet laboratory quality assurance requirements found in ISO 17025. This project is designed to assist laboratories in the region to meet this standard. MFRD would also initiate 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. PROGRAM

2.1 Objectives

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

2.2 Program 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 and national organizations such as FAO and Singapore Accreditation Council-SINGLAS 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 site was Vietnam (NAFIQAVED) for 2003 and will be Thailand (FIQC) for 2004. The project will be implemented through a Network of key 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

For 2002 and 2003, under Activity 1 on Harmonization and Validation of Methods, two Workshops have been conducted. The 1st Workshop on Good Laboratory Quality Management Practices and Methods Validation was conducted in Singapore 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 2nd Workshop was conducted in Ho Chi Minh City, Vietnam from 15-19 Sep 2003 and attended by a total of 19 participants, comprising two each from SEAFDEC member countries and 1 participant from Singapore, as well as 16 observers from Vietnam. The observers were from the six NAFIQACEN Branches, Testing Laboratories and the Fisheries University. The participants from both Workshops were 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 and NAFIQAVED Branch IV Laboratories.

4. PROPOSED FUTURE ACTIVITIES

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

Period	Sub-Activity
Sep 04:	Sub-Activity 2.1.1: 3 rd Regional Workshop on Good Laboratory Quality Management Practices and Methods Validation in Southeast Asia.
Jan - Mar 04:	Sub-Activity 2.1.2: Regional Inter-laboratory Proficiency Testing for Heavy Metals
Jan - Dec 04:	Sub-Activity 2.1.3: Methods Validation of other MFRD's Laboratory Methods
Jan-Dec 04:	Sub-Activity 2.1.4: Preparation of MFRD's Laboratory Manual
Oct 03 - Jul 04:	Sub-Activity 2.1.5: 2 nd phase of methods validation against internationally recognized methods (continuation of 2002 activities).
Jul 04:	Sub-Activity 2.1.6: Feedback and evaluation of 2 nd phase of methods validation from key laboratories. Submission of results of validated methods to MFRD for compilation and comparison (continuation of 2003 activities).
Dec 04:	Sub-Activity 2.1.7: 3 rd Evaluation Report

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

Period	Sub-Activity
Oct 03- Jul 04:	Activity 2.2.1: Preparation of Laboratory Quality Management Manuals by key laboratories.
Oct 03 – Jul 04 04:	Activity 2.2.2: Implementing good laboratory practices by regional key laboratories
Dec 04:	Activity 2.2.3: 2 nd Evaluation Report

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.

Project Monitoring and Evaluation:

There will be an annual evaluation report and End-of-Activity Seminar.

INFORMATION COLLECTION FOR SUSTAINABLE PELAGIC FISHERIES IN THE SOUTH CHINA SEA

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

Lead Country:

Total Duration: 2002-2006

Proposed 2004 Budget: USD 394,472

1. INTRODUCTION/BACKGROUND

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 the exploitation, utilization and management of the small pelagic fishery resources.

2. PROGRAM

Pelagic fishery resources in the South China Sea are very important to supply marine protein for the region. It has the possibility to be fully utilized in the future. However information on the status of exploitation, fish biology and utilization is still very limited. This program on "Information Collection for Sustainable Pelagic Fishery in the South China Sea" is the outcome from a number of meetings among ASEAN countries. The objectives include clarification of the status of operation and catches of the purse seines in order to examine the probable existence of under-exploited resources. The progress of the Components on fishing operation and catches, biological data collection and analysis and maximizing utilization of some selected species exploited by purse seines since the implementation of these Components (for the period from December 2002 to August 2003) was reviewed at the 2nd Technical Consultation Meeting held in Ho Chi Minh City, Vietnam, from 15-17 October 2003. Following the recommendations agreed at the Technical Training on data handling and analysis held from 13-14 October 2003 and adopted at the meeting, regular data collection on fishing operation and catches and biological data from 26 selected fish landing sites will be continued. Data collection and analysis will be based on the standardised methodology finalized and adopted at the meeting. Maximizing utilization of the catches will be also continued. This program that is being coordinated SEAFDEC Secretariat is jointly implemented by the SEAFDEC Technical Departments (MFRDMD, MFRD and TD) and countries facing the South China Sea (Brunei Darussalam, Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam). Regular data collection and analysis will be undertaken from September 2003 to August 2004 through a cost-sharing scheme. The training on data analysis and interpretation to improve the capabilities of Technical Officers



will be conducted in March 2004. The 3rd TCM will be held during the third quarter of 2004 when the progress of implementation of the program will be presented and discussed and the work plan for activities of 2005-2006 formulated.

Major activities are planned under each Component and will be implemented in the year 2004. They are as listed in Section 4.

3. PROGRESS

The program comprises of three components. Component I is the organizing meetings/workshops/training for effective program implementation. Component II involves survey of the actual status of operation and catches of purse seine fishery and this includes also the biological studies. Component III is the examination on maximizing utilization of pelagic fish. Participating SEAFDEC Technical Departments and countries are MFRDMD, TD, MFRD, Brunei Darussalam, Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam. The Secretariat of SEAFDEC is involved in the overall coordination of this program. The responsible Departments for the implementation of Component I are MFRDMD, MFRD and TD; MFRDMD and TD are for Component II; and MFRD is for Component III.

Component I: Meetings/Workshops/Training for Effective Program Implementation

Activity 1: The 2nd Technical Consultation Meeting (TCM) was held from 15-17 October 2003 in Ho Chi Minh City, Vietnam.

Activity 2: Training for Data Analysis and Interpretation was held from 13-14 October 2003 in Ho Chi Minh City, Vietnam.

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

Project 1: Regular Data Collection and Analysis

Activity 1.1: Data Collection and Analysis - Fishing operation and catch data as well as biological data were collected by enumerators at 26 sampling sites and submitted to responsible researchers of MFRDMD and TD through their respective Technical Officers on a monthly basis in 2003.

Project 2: Fishing Operation and Catches Data Collection and Analysis

Activity 1: Examination of the Selected Landing Site

Total catch data collection and a field survey of all fishing boats engaged in catching of targeted species were examined at both selected landing sites and at other fishing ports. Fishing activities for targeted species were also examined during the survey.

Activity 2: Identification of fishing grounds

Fishing grounds of the targeted species were identified using information from the BBO (Black Box Onboard) or GPS recorder. Eighteen fishing vessels from four countries namely Thailand, Malaysia, Brunei Darussalam and Cambodia were selected and installed with the BBO with the cooperation of the respective Technical Officers.

Project 3: Biological Data Collection and Analysis of Mackerels and Roundscads

Activity 1: Growth and mortality of mackerels and roundscads

Length frequency data for selected species of small pelagic fish were collected in 2003. The data collection from 26 sampling sites will be continued in 2004. The data will be analyzed using FiSAT software.

Activity 2: Reproductive biology of mackerels and roundscads

The data collection for Gonadosomatic Index (GSI) was carried out simultaneously with the length-frequency data collection.

Activity 3: Identification of stock/population on selected species

Samples of *Rastrelliger kanagurta*, *Decapterus macrosoma* and *D. maruadi* for morphometric measurement and for use in the genetic identification of the stock/population were collected from several sampling sites in the South China Sea and initial analysis was conducted by MFRDMD.

Component III: Examination on Maximizing Utilization of Pelagic Fish Resources

Project 1: Development of Products and Processing Technology for Maximizing Utilization

Activity 1: Observation of landing sites and processing facilities

Visits were made by MFRD to the sampling ports in 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 between October 2002 - May 2003.

Activity 2: Data analysis to identify processing technology for products development

MFRD reviewed relevant data from the researchers of MFRDMD and TD together with the results of Activity 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) between December 2002 - Jun 2003.

4. PROPOSED FUTURE ACTIVITIES

In the year 2004, the program aims to strengthen capabilities of Technical Officers of participating countries in data analysis and interpretation for stock assessment and to examine the status of the pelagic fishery in the region. A regional overview of biological information on mackerels and roundscads will be prepared and a manual for development of value-added products from target pelagic fish species will also be prepared. Work plans for the year 2005-2006 will also be formulated.

Component I: Meetings/Workshops/Training for Effective Program Implementation

Activity 1: The 3rd Technical Consultation Meeting (TCM)

The 3rd TCM will be held in September 2004. The progress report of the Regular Data Collection and Analysis implemented in 2003-2004 by participating countries will be presented and discussed. The regional overview and analysis of pelagic fishery by SEAFDEC Technical Departments will also be presented and discussed. In addition, the implementation of the pilot project by countries and a manual for product development and regional training

course under the Component III will also presented and discussed at the meeting. Activities for 2005-2006 will be also presented and discussed.

Activity 2: Training for Data Analysis and Interpretation

Training for data analysis and interpretation will be carried out in May 2004. Training on the use of FiSAT for fish stock assessment is the prime focus in order to strengthen researchers' capability in analyzing and interpreting the results of FiSAT outputs. This training will be conducted in collaboration with FAO. Training on SAS for morphometric analysis will be also conducted.

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

Project 1: Regular Data Collection and Analysis

Activity 1: Data Collection and Analysis

Regular data collection and analysis will be continued throughout 2004 following the reviewed mechanism and improved methodology discussed at the 2nd TCM. The fishing operation and catch data as well as biological data collected by enumerators at 26 sampling sites are to be submitted to the responsible researchers of MFRDMD and TD through their respective Technical Officers. Data submission to SEAFDEC Technical Departments will be on monthly basis.

Project 2: Fishing Operation and Catch Data Collection and Analysis

Activity 1: Examination of the Selected Landing Site and Development of Catch Database

To support the total catch data collection which is very important for the assessment fish stocks, a field survey of all fishing boats engaged in catching targeted species will be conducted at both selected landing sites and other fishing ports. Fishing activities for targeted species will also be examined during the survey. Standardization of the catch data worksheet and development of catch database will be established and introduced to participating countries.

Activity 2: Identification of fishing grounds

Fishing grounds of the targeted species are identified using information from the BBO (black box on board) or GPS recorder. Eighteen fishing vessels from four countries namely Thailand, Malaysia, Brunei Darussalam and Cambodia were selected and installed with the BBO with the cooperation of respective Technical Officers. For the year 2004, another 4-5 BBOs will be installed on fishing vessels from the Philippines, Vietnam and Indonesia. To ensure proper installation of the system and handling of fishing ground information, TD technical staff shall visit these countries to provide assistance.

Some improvement in the reporting of catch data from the BBO-installed fishing vessels is required in some countries. In order to facilitate this, several onsite seminars in using BBOs will be implemented for fishery officers and fishing boat owners to demonstrate the importance of the catch data recorded by BBOs. An analysis of the fishing grounds for all targeted species will be carried out in 2004-2006.

Activity 3: Assessment of the target fish stocks

Total catch data collected from the 26 selected landing sites will be examined to determine their fishing grounds and used to assess the status of the fish stocks. The information gathered

through the former activities will be incorporated into the catch database by taking into consideration some suggestions made during the 2nd TCM.

Project 3: Biological Data Collection and Analysis of Mackerels and Roundscads

Activity 1: Growth and mortality of mackerels and roundscads

Growth and mortality of mackerels and roundscads will be studied using monthly length frequency data. Data will continue to be collected from the 26 sampling sites in 2004. The data will be analyzed using FiSAT software and all Technical Officers of participating countries will be invited to attend the training in order to strengthen their capabilities in data analysis and interpretation for stock assessment.

Activity 2: Reproductive biology of mackerels and roundscads

Gonadosomatic Index (GSI), reproductive and other biological parameters will be studied using monthly collected data. The data collection will be carried out simultaneously with the length-frequency data collection.

Activity 3: Identification of stock/population on selected species

Identification of stock/population of *Rastrelliger kanagurta*, *Decapterus macrosoma* and *D. maruadi* will be carried out by the genetic and morphological methods. Genetic markers for identification of the stock/population will be used and samples for morphometric measurements will be collected from several sampling sites in the South China Sea and analyzed by MFRDMD.

Activity 4: Development of Biological Database

Handling and reporting of the information collected for catch and biological data of targeted species are the prime objective of this activity. Simple report outputs including catch composition, trends, landings and number of records as well as biological information can be produced quickly from a database. This database is developed in a web environment for online data input by all participating countries in order to avoid delay in data submission to SEAFDEC and the data will also be easily accessible. MFRDMD will cooperate with TD for further development of this database in 2004.

Component III: Examination on Maximizing Utilization of Pelagic Fish Resources

Project 1: Development of Products and Processing Technology for Maximizing Utilization

Activity 1: Pilot Projects in Malaysia, the Philippines and Thailand

MFRD researchers will begin a pilot project using selected target pelagic fish species with Department of Fisheries (DOF), Malaysia, Bureau of Fisheries and Aquatic Resources (BFAR), the Philippines and Fisheries Technological Development Division (FTDD), Thailand. This is the first year of the 3-year pilot projects to develop value-added products from various target pelagic fish species. Evaluation meetings are planned in the later half of the second and fourth quarters of the year. A preliminary manual on the products developed will be produced at the end of the year.

Activity 2: Regional Training Course in Fish Processing and Packaging

MFRD will conduct a training course on fish processing and packaging with emphasis on utilization of pelagic fish species for value-added products, *surimi* and *surimi-based* products



in June/July 2004. Two participants will be invited from each ASEAN SEAFDEC member country.

5. ENVISAGED OUTCOMES OF THE FUTURE PROGRAM

Envisaged outcomes in 2004 are as follows: i) Strengthening of capabilities of Technical Officers of the participating countries on data analyses and interpretation through the meeting/training activities; ii) Identification of the fishing ground and examination of the status of pelagic fisheries in the region; iii) Regional overview of biological information of mackerels and roundscads; and iv) Pilot project implementation, produced manual on product development and regional training course on maximizing utilization of targeted pelagic fishes.

DIGITIZED ATLAS

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism

Program Title: Digitized Atlas

Lead Department: The Secretariat in collaboration with Training Department

Lead Country: Thailand

Project Duration: 2004

Proposed 2004 Budget: (to be finalized)

Linkage with the ASEAN-SEAFDEC Resolution & Plan of Action:

In order to promote the results of SEAFDEC special program and ASEAN interested issues through the internet, this program will provide fisheries information useful for fisheries planning, management for sustainable fisheries in the Region.

1. INTRODUCTION: GIS as a Tool to Promote Sustainable Fisheries

Over the past 35 years of SEAFDEC existence, hundreds of projects and activities have been implemented across Southeast Asia. Achievements of SEAFDEC and non-SEAFDEC organisations activities have often been reported under the form of hard copies and publications, but also more recently under digital form. However, information on what's going on in the ASEAN region is generally widely disseminated, scarce or non updated, making the situation unclear even to potential donors.

SEAFDEC understands the benefits of geo-informatics technologies such as Geographic Information System (GIS) in helping regional fisheries development and management. These technologies can notably provide a good media to effectively disseminate information and coordinate and improve core activities carried out by the regional fisheries organisations. As such, a regional Fishery Information System is considered to be useful for fisheries planning and management, helping to reach sustainability in the Southeast Asian region.

Since 1999, the Digitized Atlas program (DA) was established through the SEAFDEC homepage. This first phase of work focused on information dissemination of the current fisheries situation, including results from the Collaborative Research Programme on the marine resource survey in the South China Sea, with some work on statistics database. However, it resulted in a complex system as a huge amount of very diverse information was entered, and it became heavy to use and develop. Furthermore, its purpose was unclear as it targeted both researchers and fisheries developers/managers.

SEAFDEC mandate is progressively shifting from training and research to information (which includes coordination, harmonization, etc.), especially at the regional level. As training has become a national activity, research belongs more to a personal rather than institutional domain. In this view, SEAFDEC is shifting the development of the DA into a system targeted to inform on the region critical issues on fisheries.

If the DA, which is to be considered as a GIS, is to cover both inland and coastal fisheries activities in the ASEAN region – including aquaculture – the quantity of related information is going to be bulky. However, SEAFDEC has a limited technical, human and financial capacity, while GIS applications are always diversifying and rapidly advancing. Furthermore, including such an amount of information will not facilitate the task to develop the GIS system in a user-friendly way. It will therefore be unpractical to accommodate all regional fisheries

information in an exhaustive way. Some screening and summarizing is necessary.

In this regard, it was recently decided to improve and redirect the DA as a regional Fishery Information System, which should gather, summarize and present important information on activities which are or were implemented in the ASEAN region by SEAFDEC, and possibly by the member countries and other regional organizations. The DA, together with SEAFDEC web pages, will be used to inform on SEAFDEC activities, to promote SEAFDEC visibility and to report Trust Funds activities. By collecting, compiling, analysing and presenting existing information, we could facilitate fisheries management and decision-making.

In the future, developing both SEAFDEC and non SEAFDEC capacity, together with cooperation with other organisations, will be important issues for the successful development of the DA into a regional Fishery Information System.

2. PROGRAM

Program Objectives:

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: Review software and hardware requirements and develop the new plan for integrating the GIS system into SEAFDEC's web page;
2. To update the SEAFDEC Regional database system and SEAFDEC's web page: Database structure will be designed based on present and future requirements so that the database can be expanded in the future by our own staffs; and
3. To develop/establish Digitized Atlas of the ASEAN-SEAFDEC special project through the SEAFDEC web page in order to transfer information to the Region and Global users.

The Regional special projects need to be developed are as follows:

- Promotion of Mangrove-Friendly Aquaculture in Southeast Asia
- Conservation and Management of Sea Turtles in the Southeast Asia
- Regionalization of the Code of Conduct for Responsible Fisheries
- Fishery Statistics in the Region and SEAFDEC Fishery Statistics Database since 1976
- Others relevant information or ASEAN interest

4. To promote the SEAFDEC digitized atlas in the Region

3. PROGRESS

1. Consultation Meeting
 - Consultation meeting with other organizations
 - Consultation visit to MFRDMD and TD
2. Improve/ Update the SEAFDEC Digitized Atlas
 - Develop the Regional Database on Marine Capture and Oceanographic Data
 - Develop the GIS of Marine Capture and Oceanographic Data Analyses
 - Upgrade and Improve of the Hardware and Software of the Server System:
 - Information Exchange and Staff Development

3. Develop/establish and promotion of SEAFDEC Digitized Atlas of the Regional projects/programs through SEAFDEC Web-site
 - Established for the Regional Oceanographic Database including the East Indian Ocean through SEAFDEC home page//.
 - CD Rom package on the SEAFDEC GIS on Fishery Resource in the South China Sea Area, Conservation and Management of Sea Turtles in the Southeast Asia
 - CD Rom package on the SEAFDEC GIS on ASEAN Rivers and Reservoir

4. PROPOSED FUTURE ACTIVITIES

For 2004 program, many activities on Regional Database and GIS works based on the results from the ASEAN-SEAFDEC program will be developed in connection to previous works from the year 2003. In addition, the regional database and SEAFDEC website will also be updated.

For 2004, the project will include following activities:

Activity 1. Establish mechanism of partnership:

The system should be progressively opened to non-SEAFDEC fisheries data, as it is SEAFDEC function to disseminate important regional fisheries information. The Secretariat is already committed to work in collaboration with a few other organizations, equally interested to develop a regional database system for fisheries management. These organizations exact purpose for developing such a system should be explored in the incoming consultation meeting.

Currently interested organizations are the Coastal Development Centre of Kasetsart University (CDC), the Integrated Tropical Coastal Zone Management Program (ICTZM) of the Asian Institute of Technology, SEA START RC of Chulalongkorn University, and WESTPAC. When the digitized atlas will have to cover inland capture fisheries management as well, collaboration with the Mekong River Commission (MRC) might be explored. FAO has recently shown a keen interest in SEAFDEC digitized atlas and more generally SEAFDEC capacity in developing and using database and GIS.

Another critical mechanism of collaboration will have to be explored on a longer term, concerning the governmental organizations of the ASEAN member countries involved in fisheries development and management. If those are to bring their activities into the digitized atlas, it will require important clarification on the digitized atlas system, with standardization of data collection and capacity building, to allow member countries to eventually process and encode the national information themselves. Further discussion should be made with the national coordinators.

Activity 2. Update the existing Regional Database, GIS work and SEAFDEC website:

The existing regional database system, GIS work and SEAFDEC website need to be updated annually. Beside, hardware and software always need to upgrade to reach friendly user-access.

Activity 3. Develop and Establish new regional database based on the current ASEAN-SEAFDEC program:

Activity 4. Promotion of SEAFDEC Digitized Atlas:

In order to promote the SEAFDEC digitized atlas, these will be made through information tools as follows:

1. Through Internet
 - Introduce SEAFDEC Digitized Atlas through Web-mail Group concerning to SEAFDEC activities
 - Make linkage of SEAFDEC digitized atlas to others website concerning Fisheries and others
2. Through Media
 - Publish for the Guide book of the SEAFDEC Digitized Atlas
 - Produce SEAFDEC Digitized Atlas CD (Introduction version)

5. ENVISAGED OUTPUT

The digitized atlas is not seen as the regional system where every fisheries data will be centralized. As mentioned above, there are two main reasons urging to screen only pertinent information: limitations in SEAFDEC human, technical, and financial capacity; and keeping the digitized atlas user-friendly. Therefore, the system will not be fully comprehensive, but offer links to sources for more exhaustive information.

As the main guideline, only the data that is useful for management and planning at the regional level will be included in the system. Local information may in some case be useful at the regional level, as adding progressively summarized information from case studies or local projects into the system can build a regional system that will be meaningful. Scientific data should be kept separated of the digitized atlas as such, only their significant contribution to regional fisheries comprehension could be included in the system.

As a first step, the digitized atlas will first focus on marine fisheries management, which should include both capture fisheries and secondarily aquaculture. As MFRDMD project on Information Gathering on Inland Capture Fisheries is initiated, the digitized atlas will be extended to also cover these findings in a second step.

The digitized atlas will be accessible to all through two main sources: online through SEAFDEC website or through CDs that can be ordered from SEAFDEC.

Based on a regional map, which can be scaled up and down, information on activities from SEAFDEC and other organizations will appear as points (or even polygons) which can be clicked in, offering access to the available summarized information in another window. The interface beside the map should offer several tools allowing the user to enter queries for specific information (based on a specific topic, geographical area, time interval, etc.). Cross-references should be made where possible, with their own set of tools, to relate the different activities together, and linkages to more complete sources of information should appear when existing.

THE APPLICATION OF HACCP IN THE FISH PROCESSING INDUSTRY IN SOUTHEAST ASIA

1. INTRODUCTION

At the 31st SEAFDEC Council Meeting in March 1999, it was proposed that a Japanese Trust Fund Project financed by the Fisheries Agency of Japan be established to support the programmes under the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) collaborative mechanism. Under the Project's Component I on "The promotion of the Regional Fisheries Management", the MFRD proposed to conduct a 4-year programme from 2000 – 2003 on the "Application of HACCP in the Fish Processing Industry in Southeast Asia" in view of the increasing importance and rapid development of HACCP application in the region. In line with international trends and the need to comply with the regulations of importing countries especially the EU and the US, the Hazard Analysis and Critical Control Point (HACCP) system has been endorsed for ensuring food safety in the ASEAN member countries. In the initial years of HACCP application, the emphasis was on HACCP implementation in the export-oriented industry to ensure that their products are safe for consumption in the importing countries. However, many countries in this region are now beginning to turn their attention to HACCP implementation in the traditional fish products industry such as fish sauce and dried fish in Thailand; fish sauce, shrimp cracker, fish and shrimp paste in Vietnam; "bagoong alamang" (cooked salted shrimps) in the Philippines; and fish balls and fish cakes in Singapore. HACCP implementation in this industry has hitherto been largely neglected as these traditional products are largely produced for domestic consumption and do not bring in foreign exchange. The traditional fish products industry would generally require greater assistance to implement HACCP as it comprises mainly of small and medium enterprises (SME), which lack the technical and financial resources of the larger export companies. There is a need therefore for a regional program to provide assistance for the implementation of appropriate HACCP-based systems in the traditional fish products industry. This programme was developed to assist ASEAN member countries (which now includes all Southeast Asian countries) further promote the implementation of HACCP in their fish processing industry not only for the export sector but also for the traditional fish products, which are largely for the domestic market.

2. PROGRAM

2.1 Objective

The objective of the programme is to document and collate information and data on HACCP application in the fish processing industry in the region and to provide a useful platform for the sharing of information and experiences on HACCP application among the ASEAN member countries. At the end of the program a publication on the application of HACCP in the fish processing industry in ASEAN will be published and disseminated to all SEAFDEC member countries.

2.2 Program Description

This programme is also in line with Resolution 14 and Plan of Action C4 endorsed by the ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security in the New Millennium: "Fish for the People" held on 24 Nov 2001 in Bangkok and as stated below:

Resolution 14: Improve post-harvest technologies to ensure fish quality assurance and safety management systems, which are appropriate for small and medium-sized enterprises in the Region, taking into account the importance of traditional fish products and food security requirements.

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.

This program comprised of a series of four workshops held annually from 2000-2003, a research project to help upgrade the traditional fermented fish products industry in Myanmar through HACCP application and the upgrading laboratory expertise in Myanmar through training attachment of laboratory staff at MFRD.

2.3 Envisaged Outcomes

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 summarises the developments and progress made in HACCP application in all the Southeast Asian countries from 2000 – 2003. The publication includes a section on generic HACCP plans for selected traditional fish products of the region, which are already being exported or have export potential. It is a definitive work highlighting to the importing countries the region's commitment to applying HACCP to ensure the safety of fish and fish products from the region.

3. PROGRESS

Through this 4-year program, initiated in 2000 and successfully completed in 2003, much progress and development were made in the application and implementation of HACCP in all the Southeast Asian countries. All countries have introduced the HACCP concept and implemented HACCP in their fish processing industry albeit to varying degrees. Mandatory HACCP implementation is a requirement for all fish processing establishments in Indonesia and Vietnam, and for all establishments approved for export in Thailand. In the other Southeast Asian countries, HACCP implementation is on a voluntary basis and is imposed only on those plants that require approval for export to EU and US. Malaysia and Philippines have also established national HACCP certification schemes to accredit plants. A very strong commitment to improve safety and quality has developed, with industry and government working in collaboration to upgrade the industry. The benefit is the maintenance of international markets and the possibility of better prices and new markets through higher quality and safer products.

The appointed country coordinators for the programme, from each ASEAN member countries, attended the four workshops. The inaugural 1st Regional Workshop was held in Singapore in 2000; the 2nd Regional Workshop in Ho Chi Minh City, Vietnam, in 2001; the 3rd Regional Workshop in Manila; Philippines; and the 4th (final) Regional Workshop in Bangkok, Thailand in 2003. The reports of these workshops that included HACCP case studies in fish processing establishments in the respective countries have been published and

circulated to SEAFDEC member countries. The country coordinators and participants at the 4th and final regional workshop held in Bangkok have affirmed that the 4-year program has achieved its objective to document HACCP application in the fish processing industry in the region and has also provided a platform for cooperation and information sharing on HACCP application among the Southeast Asian countries. It has contributed not only to a better but also a common understanding of HACCP concepts and principles among the countries, which may lead to harmonization, or equivalence of HACCP-based inspection systems in the region.

In addition to the workshops, a research project to help upgrade the traditional fermented fish products industry in Myanmar through HACCP application on fermented fish products in Myanmar was conducted by MFRD in response to Myanmar's request to SEAFDEC for technical assistance in fisheries post-harvest technology. The objective of the research activity was to assist the Department of Fisheries, Myanmar, upgrade the traditional fish processing industry through the development of HACCP plans for selected fermented fish products. MFRD carried out the project in 2001 that included two field study trips to Myanmar with technical support from Thailand in the form of a specialist in traditional fermented products. Product descriptions, production flow diagrams, hazard analysis and HACCP plans have been developed for the following traditional Myanmar fermented fish products, namely, Ngan-pya-ye (fish sauce) and Nga-pi (fish paste). In the first quarter of 2003, MFRD assisted the Export Quality Control Laboratory, Department of Fisheries, Myanmar, which is the national laboratory supporting the implementation of the country's HACCP program, to upgrade its laboratory expertise. Two Export Quality Control Laboratory technical staff were trained at MFRD in analytical techniques for histamine and antibiotic residue testing using the HPLC equipment.

The MFRD, on its part, will continue to provide the technical support to all countries in the region in their efforts to implement HACCP through its research and training programs on HACCP implementation, auditing and verification. MFRD will be participating in an ASEAN-Australian regional program to assist with the implementation of appropriate HACCP-based systems in the traditional fish products industry. The program will include development of a HACCP training course for SME, hazards and control guides for Southeast Asian fish products and a HACCP auditing and verification training course for the industry.

2003 was the final year of the project. In 2003 three activities were conducted as detailed below.

Activity 1.1: The 4th Regional Workshop on the Application of HACCP in the Fish Processing Industry in Southeast Asia

The 4th and final Regional Workshop was organized and successfully held in Bangkok, Thailand from 28 July - 1 August 2003. A total of 25 participants attended the workshop (2 each from the ten SEAFDEC member countries except one from Singapore), 3 observers (1 from Indonesia and 2 from Thailand) and 3 staff from MFRD. The purpose of the Workshop was to examine and review the information and data collected on the application of HACCP in SEAFDEC member countries over the 4 years of the project (2000-2003) and to report on the progress made. During the workshop, one representative from each country (project country coordinator) presented a country report update and overview of HACCP implementation in the fish processing industry in his/ her country. Discussion sessions were conducted to enable the participants to share their country experience and information on HACCP implementation. The workshop also incorporated a three and half-day training session on HACCP auditing and verification conducted by two HACCP experts from the Thai DOF. The participants were trained on HACCP auditing and verification procedures, techniques and requirements. The participants also conducted an in-plant HACCP audit



exercise in three fish processing plants (frozen fish fillets, frozen baby octopus and canned tuna). Overall, the workshop achieved its objective and the participants have benefited from the sharing of information, knowledge and experiences on HACCP implementation and auditing in the various countries.

Activity 1.2: Preparation and printing of final publication

MFRD is in the process of preparing the compilation of information, data and reports for the publication of *The Application of HACCP in the Fish Processing Industry in Southeast Asia*. The publication will include individual country status reports on application of HACCP in the fish processing industry of Southeast Asian countries and the HACCP plans for traditional fish products from these countries. The publication was completed in January 2004 and will then be distributed to SEAFDEC member countries.

Activity 1.3: HACCP for Fermented Fish Products in Myanmar

The staff attachment programme originally scheduled for 2002 was finally conducted for two fishery officers from the Export Quality Control Laboratory of the Department of Fisheries, Myanmar, from 18 Feb – 11 Apr 2003 to study the techniques of histamine (scombroid poisoning) and pesticide analysis in fish and fish products. For histamine analysis, they were provided training using the HPLC fluorescence method and the colourimetric method, and for pesticide analysis using the GC-MS method. The samples tested in the study were dried and salted fish bought from the Pasir Panjang wholesale market in Singapore. At the end of their attachment, the trainees made a presentation on their training in pesticide analysis as well as the results of the study.

4. CONCLUSION

MFRD is thus to report the successful completion of this project under Japanese Trust 1 – Component 1 and has successfully achieved the envisaged outcomes for this project namely the final publication on the *Application of HACCP in the Fish Processing Industry in Southeast Asia* as well as having successfully established a 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 final publication is being distributed to SEAFDEC member countries

MANAGEMENT OF FISHERIES AND UTILIZATION OF SHARK IN SOUTHEAST ASIA

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism
Program Title: Management of Fisheries and Utilization of Shark in Southeast Asia
Lead Department: The Secretariat in collaboration with MFRD and MFRDMD
Lead Country: Thailand and Malaysia
Total Duration: 2002 ~ 2006 (Japan's fiscal year)
Proposed 2004 Budget: To be finalized

1. INTRODUCTION

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. Elasmobranchs including shark species are important fisheries species in the Region even though they are not targeted species in fisheries. While the movement surrounding elasmobranchs fisheries might affect fisheries activities in the Region, it is not fully understood in the fisheries communities in the region.

It is also scheduled for 2004 to have the 13th Meeting of the Conference of the Parties (CoP13) of CITES in Thailand, 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.

Meanwhile, as it is already recognized among SEAFDEC member countries that it is necessary for the Region to cope with a possible international movement based upon environmental perception, SEAFDEC through its Regional Workshop on Fish Trade and Environment expressed the importance of appropriate shark fisheries management in the Region and concluded the necessity of further activities to address these problems.

For this purpose, SEAFDEC as a regional organization is required to organize a harmonized approach as a whole region to cope with possible problems, which regional fisheries could face in the near future.

2. PROGRAM

2.1 Objective

The objectives of this project are

1. To improve data on landing at the species or population level that would be a vast enhancement over the current situation to provide more accurate information needed for shark management;
2. To set right the level of knowledge required for formulation of fisheries and conservation management objectives and strategies by studies on the status of shark fisheries including potentially rare or threatened species of this region;
3. To clarify the important information about the taxonomy, biology and ecology of elasmobranchs including conservation needs for endangered species by the research in ASEAN-SEAFDEC Member Countries;
4. To collect baseline information on elasmobranch diversity and distribution in this region.



5. To elevate the public awareness on shark fisheries and the surrounding situation
6. To improve understanding on how sharks are used in the Region: information on market of shark products, develop inventory of shark products in the region; and
7. To publish the handbook of shark products as well as sharks and rays of Southeast Asian Region.

2.2 Program Description

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 the development of a model of a National Plan of Action on Shark encouraged by the FAO.

For this purpose, SEAFDEC Secretariat will coordinate as collaborative implementation with Member Countries to 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 the studies on international/regional trade of shark as well as shark products and utilizations would be conducted by SEAFDEC MFRD using market surveys. The results from the surveys would be presented in handbook of shark products. In addition, all ASEAN Member Countries will provide the information on existing historical published data produced by relevant national authorities.

SEAFDEC MFRDMD would develop research on taxonomy, biology and ecology of sharks in ASEAN-SEAFDEC Member Countries to collect baseline information on elasmobranch diversity and distribution in the region. At the end of the project, the publication on Sharks and Rays of Southeast Asian Region will present the research outcome. Beside the mention research, MFRDMD would also develop appropriate species identification methods for shark fins in the region for example characterization of morphology of shark fins, characteristics of denticles (scales of elasmobranches) observed by microscope, etc.

3. PROGRESS

SEAFDEC secretariat organized ASEAN-SEAFDEC Regional Technical Consultation on Shark Fisheries in Vientiane, Lao PDR in May 2003 as part of the 5-year ASEAN-SEAFDEC collaborative project on “Management of Shark Fisheries and the Utilization of Shark in the Southeast Asian Region”.

The Consultation aimed primarily at addressing the issues of shark fisheries and the need for the improvement of data and information collection to support the management of shark fisheries in the ASEAN region. In addition, the Consultation also emphasized the need for commitment and discussed practical scenario to develop National Plan of Action (NPOA) for sharks in the ASEAN Member Countries.

To facilitate and follow-up the Project, the Secretariat developed Guidelines for shark fisheries to use as standard arrangement for activity implementation on data collection on status of shark fisheries in the region, which conducted in 8 countries namely Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Thailand and Vietnam.

A set of guidelines were developed as a tool to help the above-mentioned countries to formulate project proposal and plan. After the Secretariat considered the proposals, the project implementations on data collection started in July 2003.

In parallel to the data collection on status of shark fisheries, MFRD also develop a comprehensive study on shark trade focusing on shark fins. The outcome is expected to supplement the overall status of utilization of shark and shark fisheries to identify required actions for the future management.

Further, MFRDMD implemented research on taxonomy, biology and ecology of sharks and rays in Malaysia and Brunei Darussalam in 2003 parallel with the activity on identification of shark species by observation of denticles of shark fin.

4. PROPOSED FUTURE ACTIVITIES:

To achieve the objectives of the project and to follow-up with activities in the year 2003, the following are proposed for implementation in the year 2004:

- Shark fisheries study will continue to the end of 4th quarter, covering one full year. The study covers compilation data and analysis of catch, utilization and marketing, biology, identification of shark species etc. The guidelines of this study, which explained clearly about data collection, compilation and analysis, progress report and final report, has already been distributed to the target countries.
- The research on taxonomy, biology and ecology of sharks and rays will extend to Thailand, Myanmar and Cambodia in 2004.
- The research on identification of shark species by observation of denticles of shark fin will continue to the end of June 2004.
- To pursue and discuss the implementation in first year, it is proposed that the 2nd Regional Technical Consultation on Management of Shark Fisheries Study will organize in June 2004. It is suggested that the results of this meeting could be used as the guidance for ASEAN policies in the SOM-AMAF and CoP 13 – CITES which will be conducted in the year 2004 in Thailand

SEAFOOD SAFETY INFORMATION NETWORK

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism

Program Title: Seafood Safety Information Network

Lead Department: Marine Fisheries Research Department

Lead Country:

Total Duration:

Proposed 2004 Budget:

1. BACKGROUND/GOAL OF THE PROGRAM FOR THIS YEAR:

Southeast Asian countries are important exporters of seafood. Increased mass production, globalization and trade have multiplied the risk of cross-border transmission of infectious agents and food poisoning outbreak. Recent cases of rejection of consignments of seafood due to high drug and chemical residues have also raised public health concerns. In the last couple of years, EU has rejected seafood products namely red shrimps and tiger prawns due to failure to meet safety requirements. There is a need to gain an understanding of current issues relating to chemical and drug residues and toxicity in fish and fish products in Southeast Asia. Such science base information will serve the regional governments in their formulation of policies, legislation and measures taken to address these issues.

Thus MFRD is proposing the establishment of a Regional Seafood Safety Information Network. This Network will provide a forum to discuss pertinent systemic challenges faced by the governments in the region and make recommendations based on existing case studies. This project on collation of information that is currently available on work done in these fields also serves for future pilot project to MFRD's new proposal on Chemical and Drug Residues in Marine and Aquaculture Fish and Fish Products.

Objective:

1. To establish a network of regional experts and institutions which are working in the area of seafood safety. The fields of study include chemical, drug and pesticide residues in fish and fish products, and the contamination of these residues in aquaculture, marine and agriculture environment.
2. To collate and consolidate information on the baseline levels of these components in fish and fish products in the region as well as the levels in the environment where the raw materials are produced.
3. To collate information on government policies and legislation and systemic measures taken in SEAFDEC member countries with regards to seafood safety and the challenges encountered by them.
4. To make recommendations on measures to be taken to address issues that could be adopted in the region.
5. To provide sound science based information for ASEAN to make a common stand with regards to seafood trade issues.

2. JUSTIFICATION OF EACH ACTIVITY FOR THE YEAR:

The program involves the establishing of a database through the compilation and collation of work done and their results on drug, pesticide and chemical residues in fish and fish products in Southeast Asia. It also involves the identification of experts and all bodies and institutions in the region that are working on these issues and the establishment of a network of these institutions and experts. Regular regional meetings will be held such as the Regional Technical Consultations to provide a platform for discussion and sharing of information and experiences. After 2005, it is expected that the Regional Technical Consultation Meetings and the maintenance of the database and web page will be carried out under future proposed project by MFRD on Chemical and Drug Residues in Marine and Aquaculture Fish and Fish Products. MFRD will be the lead Department coordinating this effort and implementing this program.

This project will include 4 activities.

Activity 1.1: To establish a Network of experts and institutions on seafood safety

In order to carry out the project, MFRD has to first identify the expert or institutions in the region that specializes in seafood safety. MFRD had to initiate literature search to build up a database of reports and published papers on seafood safety. This was the scheduled activity for the last quarter of 2003. MFRD will then invite them to participate in this project.

Activity 1.2: To establish a database on chemical, drug, pesticide residues and toxicity in fish and fish products and their environment

MFRD will scan through all sources of information, be it through the internet, through personal contacts with organizations and to various other organizations to collect, compile and collate information on seafood safety issues. This will commence in Jan 2004 through to Dec 2004.

Activity 1.3: 1st Regional Technical Consultation on Seafood Safety Information Network

MFRD will host the 1st Regional Technical Consultation on Seafood Safety Information Network in Jun 2004. The purpose is to provide a forum for scientists and experts to present their work and country experts to present their national status with regards to issues regarding seafood safety and the measures taken by their respective governments. The Meeting will also solicit support and participation in the sourcing of information for the network.

Activity 1.4: To set up web-page access to Seafood Safety Information Network Database

After the database is set up, a new web page / web site will be created for all to gain easy access to the database. MFRD information officers will maintain the web page.

Activity 1.5: 2nd Regional Technical Consultation on Seafood Safety Information Network

MFRD will host the 2nd Regional Technical Consultation on Seafood Safety Information Network. The purpose is to meet and discuss any new issues that have arisen since the last meeting, to review the status of the database, to launch the web site and initiate recommendations for regional collaboration.

3. IMPLEMENTATION SCHEDULE OF COMPONENT

Project /Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
To establish a network of experts and institutions												

4. SUMMARY COMPARISON OF THE LAST AND THIS YEAR ACTIVITIES

YEAR 2002		YEAR 2003
Implementation Plan	Achievements	Implementation Plan
Not applicable	Not applicable	<ol style="list-style-type: none"> 1. MFRD initiated the identification of expert and institutions to form the regional network 2. MFRD searched literature to start the database on seafood safety published reports and papers

CHLORAMPHENICOL AND NITROFURAN RESIDUES IN AQUACULTURE FISH AND FISH PRODUCTS

Program Categories: Programs under the ASEAN-SEAFDEC FCG Mechanism

Program Title: Chloramphenicol and Nitrofurantoin Residues in Aquaculture Fish and Fish Products

Lead Department: Marine Fisheries Research Department

Lead Country:

Total Duration:

Proposed 2004 Budget:

1. BACKGROUND/GOAL OF THE PROGRAM FOR THIS YEAR:

From January to June 2002, 35 out of a total of 52 EU alerts (67%) on food products that do not meet safety requirements for presence of chloramphenicol or nitrofurantoin, concerned seafood products of which the major commodity is red shrimp or tiger prawns. Currently, most laboratories in Southeast Asia do not have the capability to analyse for chloramphenicol and nitrofurantoin. Member countries such as Myanmar, Malaysia, Indonesia and Philippines have approached MFRD to assist them in this matter.

At the 25th Meeting of the SEAFDEC Program Committee in October 2002, the Committee suggested that MFRD should look into antibiotic residues, namely chloramphenicol and nitrofurantoin, which are of regional concern as discussed at the Regional Meeting on Fish Trade and Environment. In addition, at the last ASEAN Ministers for Agriculture and Forestry Senior Officials Meeting (SOM-AMAF) on 19 August 2003, the issue of chloramphenicol and nitrofurantoin was raised. Chloramphenicol was evaluated by the Joint FAO/WHO Expert Committee on Food Additives and Contaminants (JECFA) and concluded that the compound was genotoxic and that Codex never considered adopting maximum limits for chloramphenicol. The Meeting also noted that the imposed application of zero tolerance had now been extended to also include nitrofurantoin. This means that they should not be present in food. The EU's and US's current requirement for exporters of food products into their countries is that chloramphenicol and nitrofurantoin should not exceed 0.3 ppb. As a result, the Meeting agreed that ASEAN Member Countries should strengthen efforts to:

1. Promote the implementation of good aquaculture practices
2. Closely regulate and monitor the usage of antibiotics in aquaculture practices; and
3. Develop national capacity including analytical capacity on lower detection limits, traceability and certification from relevant authority.

This is an urgent regional issue and member countries have expressed their need for assistance in analytical testing in chloramphenicol and nitrofurantoin. In the near future, as ASEAN member states seek to set up their capability, they still require MFRD/SEAFDEC's support in helping them monitor the effectiveness of good aquaculture practices. This would include monitoring of these antibiotics residue levels in aquacultured fish and shrimps. There is also a need to understand the extent of the problem and the means by which these antibiotic residues can enter the seafood. Therefore MFRD proposes to assist SEAFDEC member countries by first setting up the methodology and capability in testing for chloramphenicol and nitrofurantoin residues. MFRD will serve as a regional reference laboratory for antibiotic residue testing. This will be followed by the provision of testing services for research purpose, on a cost sharing basis, to the Department of Fisheries of member countries for the testing of

these residues, till such time as when they could set up similar capability. MFRD would still be required to assist in training laboratory personnel from SEAFDEC member countries in these testing methods. This project would directly help SEAFDEC member countries quickly address the issues of chloramphenicol and nitrofurans in their seafood products, and build up and strengthen their capability in analytical testing. The liquid chromatograph-mass spectrometer-mass spectrometer (LC-MS-MS) is required to detect the level of chloramphenicol and nitrofurans to the level of 0.1 to 0.3 ppb.

The result of this project will enable us to obtain comprehensive knowledge of the levels of these antibiotic residues in Southeast Asian fish and fish products. With such science-based knowledge and capability, respective member countries can then take appropriate actions to manage the safety of such fish and fish products. This project would also allow SEAFDEC to fulfill part of the recommendations and plan of actions from the Millennium Conference as well as the last Meeting on Fish Trade and the Environment in Bangkok in the area of drug residue in the shrimp and aquaculture industry.

2. OBJECTIVES:

1. To develop capability in chloramphenicol and nitrofurans residue testing of fish and fish products in the region, and
2. To validate the methods and transfer this to the regional laboratories.

3. JUSTIFICATION OF EACH ACTIVITY FOR THE YEAR

This program under Japanese Trust Fund I comprises one project, which includes two activities.

Project 2: Establishment of chloramphenicol and nitrofurans testing capabilities in MFRD

Activity 2.1: Training for staff of MFRD on LC-MS-MS method for chloramphenicol and nitrofurans in fish and fish products

Before MFRD could embark on this project, MFRD's staff needs to be sent for training in the analysis of antibiotic residues in fish and fish products especially in the use of LC-MS-MS for chloramphenicol and nitrofurans residue testing. This will enable the staff would then be able to effectively implement the activity.

Activity 2.2: Developing of LC-MS-MS method for the determination of chloramphenicol and nitrofurans in fish and fish products

This activity aims to set up capabilities for determining antibiotic residues such as chloramphenicol and nitrofurans at very low levels of 0.1 to 0.3 ppb. After the method is established and validated, MFRD will transfer the skills and knowledge gained to other regional laboratories through the publication of the methods and regional training program. A Japanese expert is required to assist MFRD to set up this facility and capability. MFRD staff would also be sent for training in Japan.

Activity 2.3: Publication of the compilation of methods for drug residue testing in SEA

A compilation of the methods for chloramphenicol and nitrofurantoin residue testing will be prepared, published and disseminated to the regional laboratories. This will serve as a regional reference for seafood safety testing.

4. IMPLEMENTATION SCHEDULE OF COMPONENT

Project /Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Training of MFRD staff on LC-MS-MS method for chloramphenicol and nitrofurantoin in fish and fish products												

5. SUMMARY COMPARISON OF THE LAST AND THIS YEAR ACTIVITIES

YEAR 2002		YEAR 2003
Implementation Plan	Achievements	Implementation Plan
Not applicable	Not applicable	MFRD has met SEAFDEC Japanese advisors Dr. Fukuda and Dr. Okazaki on 13 and 14 Oct 03 to discuss MFRD's needs and objectives with regards to MFRD staff training in Japan. MFRD has also met up with various LC-MS-MS vendors to find out more about the equipment especially its specifications, cost and detection limit possible.

**STATEMENT
FROM THE SEMINAR ON ASEAN-JAPAN COOPERATION FOR SUSTAINABLE
FISHERIES THROUGH SEAFDEC**

We, Senior Officials responsible for fisheries in ASEAN-SEAFDEC Member Countries, met in Tokyo, Japan on the occasion of “the Seminar on ASEAN-Japan Cooperation for Sustainable Fisheries through SEAFDEC” commemorating ASEAN-Japan Exchange Year 2003, on 5th December 2003,

WE HEREBY:

Reiterate our commitment to the policy in achieving sustainable fisheries to support fisheries industries in ASEAN Member Countries;

Confirmed the need for scientific and research based fisheries policies directed towards sustainable fisheries in the ASEAN region;

Expressed our grave concerns on international attempts, including the promotion of anti-fisheries campaigns without supporting scientific evidence, that have negative impacts on the economic and social well being of the people of ASEAN- SEAFDEC Member Countries;

Recognized the importance of the existing ASEAN-SEAFDEC collaborative framework and the role of Japan in the promotion of sustainable fisheries in ASEAN region;

DO HEREBY RECOMMEND:

1. Further strengthening of the role and function of SEAFDEC to support the promotion of sustainable fisheries with particular emphasis on aspects related to human resources development and strengthening of community-based fisheries management in ASEAN Member Countries;
2. Confirming the need to take further actions to implement the “Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region (the Resolution and Plan of Action)” adopted at the ASEAN–SEAFDEC Conference on Sustainable Fisheries for Food Security in the New Millennium: “Fish for the People” in 2001, and the Regional Guidelines of the Code of Conduct for Responsible Fisheries in Southeast Asia;
3. Conducting a comprehensive review on the progress of the implementation of the “Resolution and Plan of Action” in the ASEAN region by SEAFDEC in consultation with the Member Countries and the ASEAN Sectoral Working Group on Fisheries (ASWGFi), before the next ASEAN-SEAFDEC Fisheries Consultative Meeting (FCG);
4. Enhancing regional technical cooperation among ASEAN-SEAFDEC Member Countries by involving both government and private sectors through an appropriate framework and logistic arrangement by all possible means with a view to reduce disparities and promote solidarity among the Member Countries, of which priority should be given to the important issues affecting sustainable fisheries development including:
 - Human resource development including exchange programs for young scientists;
 - Innovative fisheries management;
 - Stock assessment and enhancement;
 - Disease diagnosis and surveillance on existing highly virulent diseases as well as new emerging diseases such as Koi Herpes Virus (KHV);
 - Food safety and quality assurance particularly on analysis and detection of chemical and antibiotic residues; and
 - Fishery socio-economics;



5. Strengthening joint ASEAN-SEAFDEC harmonized approaches and common positions on priority issues, including international trade in fish and fishery products, affecting ASEAN-SEAFDEC Member Countries;
6. Increasing the pro-active participation and involvement of ASEAN-SEAFDEC Member Countries through advance formulation of joint fisheries positions and policies to safeguard and promote the interests of ASEAN-SEAFDEC Member Countries in international fora including those of the FAO Committee on Fisheries (COFI), the World Trade Organization (WTO), the Convention on Trade in Endangered Species of Wild Flora and Fauna (CITES), Codex Alimentarius Commission, the World Aquaculture Conference (Indonesia to host the Conference in 2005 in Bali);
7. Formulating joint fisheries positions and policies in close consultation with the ASEAN Expert Group on CITES (AEG-CITES) with the leadership of the Government of Thailand in preparation for the forthcoming 13th Meeting of the Conference of the Parties (CoP 13) of CITES to be held in Thailand in October 2004;
8. Enhancing a joint effort in promoting the importance of sustainable fisheries among a wider range of stakeholders of ASEAN-SEAFDEC Member Countries;
9. Considering and adopting “**To be the leader in sustainable tropical fisheries for the people**” as ASEAN Vision for fisheries development;

AND DO HEREBY DECIDE:

That the above recommendations be submitted to the appropriate ASEAN and SEAFDEC bodies for consideration, endorsement and follow up action.

**RESULTS OF THE MID TERM REVIEW OF THE IMPLEMENTATION OF
THE RESOLUTION AND PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR
FOOD SECURITY FOR THE ASEAN REGION
(DECEMBER 2001-DECEMBER 2003)**

INTRODUCTION

“The Resolution and Plan of Action on Sustainable Fisheries for the Food Security for the ASEAN Region (The Resolution and Plan of Action)” were adopted at the Senior Official Meeting and Ministerial Meeting respectively during the Millennium Conference held in Bangkok in November 2001. “The Resolution and Plan of Action” were subsequently submitted by SEAFDEC to the ASEAN-SEAFDEC Fisheries Consultative Group Meeting (FCG) in March 2002 and for formal endorsement by the ASEAN SOM-AMAF and AMAF Meetings in 2002 for implementation.

Through the ASEAN and SEAFDEC process, “The Resolution and Plan of Action” have been widely recognized as common ASEAN fisheries policy and guidelines to be used for promoting activities toward sustainable fisheries development in the region.

SEAFDEC, in collaboration with ASEAN Member Countries, have developed a series of projects to assist ASEAN Member Countries in the implementation of the various issues contained in “The Resolution and Plan of Action”. Reviewing the existing regional projects of SEAFDEC, new directions of thrust have been identified that will comprehensively cover the issues in the “The Resolution and Plan of Action”. With these new areas in mind, SEAFDEC has formulated a so-called Special 5-year Program with 10 technical projects. A total of 25 projects/activities related to the implementation of “The Resolution and Plan of Action” are listed in the table attached as an Appendix 1.

ANALYSIS OF THE IMPLEMENTATION OF PROJECTS/ACTIVITIES

It is considered appropriate that a review exercise be undertaken to evaluate the progress in the implementation of the various issues suggested in “The Resolution and Plan of Action” by SEAFDEC and ASEAN Member Countries. It is timely to do the review now in the mid-term of the Special 5-year Program period, 2 years after the 2001 Millennium Conference.

At the initial meeting for starting the Special 5-year Program for “The Resolution and Plan of Action”, it was agreed that a cost-sharing scheme for the implementation Program would enhance the apparent ownership of the program/projects/activities by the ASEAN Member Countries. The individual projects/activities of the Program are thus promoted and implemented based upon sharing the appropriate amount of the project cost with the beneficiary member country/countries, especially when on-site training, pilot projects and other research activities are conducted in each ASEAN Member Country. Similar cost sharing schemes have also been applied to other regional projects/activities operated by SEAFDEC. It is believed that active involvement by the Member Countries, including appropriate cost sharing, will add national importance and will contribute to a more effective national implementation of the various issues contained in “The Resolution and Plan of Action” initiated by ASEAN-SEAFDEC projects.

Based upon available data and information, preliminary analyses were conducted on the status of implementation by SEAFDEC and ASEAN Member Countries on the issues contained in “The Resolution and Plan of Action” and these are tabulated in the attached Appendix 2.

SEAFDEC has initiated and conducted the required activities through a number of projects, in collaboration with ASEAN Member Countries. All issues relevant to the need for regional involvement as suggested by “The Resolution and Plan of Action” have been promoted/initiated through various SEAFDEC projects.

SUGGESTED FURTHER ACTIONS BY ASEAN MEMBER COUNTRIES

While the initiatives by SEAFDEC projects can provide some inputs including regional awareness, clarification and additional guidelines on the issues suggested by “The Resolution and Plan of Action”, they do not impact directly on the implementation of the various priority issues of “The Resolution and Plan of Action” by ASEAN Member Countries at a national level.

The SEAFDEC projects, therefore have some limitations and focus their activities mainly on:-

1. Regional meetings on the relevant subjects to clarify the issues, prepare relevant guidelines and formulate regional policy options with some limited contribution to the national requirements;
2. Pilot projects can be carried out to verify and test the methodologies in the different environments of the selected ASEAN Member Countries for a better understanding of the issues in the different localities and countries and in regional awareness building and the exchange of information;
3. Mobilizing the selected national research institutes and experts to promote greater technical cooperation among ASEAN Member Countries;
4. On-site training to verify and test the methodologies in different countries and to encourage the formulation of the national human resource development programs to contribute to the long-term national policies to promote work on the various issues; and
5. Collection of the required information in a systematic manner on the regional priority issues to understand the status and trend of the fisheries sector.

As indicated in the in the Table attached, although the ASEAN Member Countries are actively involved in the project activities, from the limited information available from the ASEAN Member Countries, it is not so clear whether ASEAN Member Countries will develop further action to accommodate the regional initiatives into their national policies for more active implementation. It might be useful to suggest some general directions toward the effective implementation of “The Resolution and Plan of Action” at national levels. While “The Resolution and Plan of Action” were formulated as common regional fisheries policy and guidelines, the ultimate goal of “The Resolution and Plan of Action” are to assist member countries to implement appropriate action on these issues at national levels.

1. National Evaluation on the Implementation of the Issues in “The Resolution and Plan of Action”

At this moment, it might be timely for each ASEAN Member Country to evaluate the relevance and implementation of each issue at a national level. While some countries may feel such implementation at a national level of some issues might be premature, other countries may feel that these issues should be actively and immediately implemented. Therefore, it is suggested that each ASEAN Member Country should consider evaluating all the paragraphs

in “The Resolution and Plan of Action” systematically as follows:

- A: The issue is relevant for immediate national implementation.
- B: The national implementation of the issue is premature.
- C: The areas of main constraints for effective implementation.

The above information will be an important contribution to SEAFDEC to assess and modify the courses of action for the relevant projects to better accommodate the national requirements and to mitigate any shortcomings.

It is believed that this evaluation exercise may clarify the national policy on the implementation of “The Resolution and Plan of Action”. For example the Ministry of Fisheries of Vietnam has recently developed a new Fisheries Law accommodating the ASEAN-SEAFDEC regional guidelines of the Code of Conduct for Responsible Fisheries (CCRF).

2. Modification of the SEAFDEC Projects

To meet the national requirements for “The Resolution and Plan of Action”, SEAFDEC and ASEAN Member Countries may modify the activities of the current projects. Within the limit of the mandates of SEAFDEC and ASEAN, the projects can provide a clearer focus on providing assistance at national implementation level. The following areas could be considered for modification.

- With respect to the issues upon which many member countries would like further clarification in terms of definition, technology, methodologies, policy options, guidelines, the regional projects could be modified to further promote activities in this direction.
- With respect to the issues that many member countries would like to promote immediately for national implementation, the projects may be considered to accommodate more on-site training, and pilot projects, to support their national implementation programs.

3. Identification of Priority Areas for the 2nd Phase of the Special 5-year Program

Based upon the evaluation and inputs, regional clarification and policy directives, and interest in the implementation of issues at national level, a 2nd phase (2006-2010) of the Special 5-year Program can be formulated during 2004 to secure the required financial resources for the required Programs. As the main objective of the Program is the implementation of “The Resolution and Plan of Action”, more focus could be directed toward the practical aspects to assist the ASEAN Member Countries in the implementation of “The Resolution and Plan of Action”, including the provision of support for their national mechanisms in facilitating the implementation of the various issues.

MAGAZINE – “FISH FOR THE PEOPLE”

SEAFDEC started to publish the quarterly magazine “Fish for the People” in 2003. The main purpose of the magazine is to inform a wider audience of the progress of the implementation of “The Resolution and Plan of Action”. The articles of the magazines are written in layman’s language, minimizing the use of technical terms to enhance the regional awareness of both technical and non-technical people, including policy makers, donors and other interested



stakeholders. ASEAN Member Countries are encouraged to contribute articles to the magazine to inform a wider audience on their national initiatives and policy development in the implementation of “The Resolution and Plan of Action” from the Millennium Conference.

PROJECTS/ACTIVITIES RELATED TO THE IMPLEMENTATION OF “THE RESOLUTION AND PLAN OF ACTION”

1. Japanese Trust Fund

- JTF/I/1: Regionalization of Code of Conduct for the Responsible Fisheries (RCCRF)
- JTF/I/2: Locally Based Coastal Resource Management
- JTF/I/3: Fish Trade and Environment
- JTF/I/4: Development of Fish Diseases Inspection Methodologies for Artificially-bred Seeds
- JTF/I/5: Digitized Atlas
- JTF/I/6: Application of HACCP in the Fish Processing Industry in Southeast Asia.
- JTF/I/7: Establishment of Disease Surveillance System of Aquatic Animals (2nd Phase of JTF/I/4)
- JTF/I/8: Conservation and Management of Sea Turtle in Southeast Asian Countries
- JTF/I/9: Promotion of Mangrove-friendly Aquaculture in Southeast Asian Countries
- JTF/II/1: Information Collection for Sustainable Pelagic Fisheries in the South China Sea
- JTF/III/1: Management of Shark Fisheries in ASEAN-SEAFDEC Member Countries
- JTF/III/2: Special Publication on “Fish for the People”

2. SIDA Trust Fund

- SIDATF/1: Human Resource Development on the Support of Implementation of the Code of Conduct for Responsible Fisheries Management for the ASEAN Region

3. ASEAN Foundation (Japan/ASEAN Solidarity Fund)

- ASEAN/F/1: Capacity Building on the Improvement of Fisheries Statistical System in the ASEAN Region

4. Special 5-year Program

- SP/1: Toward Decentralized Management for Sustainable Fisheries in the ASEAN Region
- SP/2: Improvement of Fishery Statistical System and Mechanisms
- SP/3: Responsible Fishing Technologies and Practices
- SP/4: Resource Enhancement
- SP/5: Identification of Indicators for Sustainable Development and Management of Capture Fisheries in ASEAN Countries
- SP/6: Information Gathering for Capture Inland Fisheries in ASEAN Region
- SP/7: Aquaculture for Rural Development
- SP/8: Supply of Good Quality Seeds
- SP/9: Maximizing the Utilization of Fish Catch
- SP/10: Fish Quality and Safety Management Systems
- SP/ 11: Harvesting of Under-exploited Resources

**IMPLEMENTATION OF THE RESOLUTION AND PLAN OF ACTION ADOPTED
AT THE ASEAN-SEAFDEC CONFERENCE ON SUSTAINABLE FISHERIES FOR
FOOD SECURITY IN THE NEW MILLENNIUM: 'FISH FOR THE PEOPLE'
(DECEMBER 2001-DECEMBER 2003)
BY SEAFDEC**

SYNTHESIS (Midterm Review of the Implementation of the Resolution and the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region [December 2001 – December 2003] by SEAFDEC)

An attempt was made to review the status of implementation by SEAFDEC of the different issues contained in the Resolution and the Plan of Action that was adopted by ASEAN-SEAFDEC Member Countries during the Millennium Conference: Fish for the People. A total of 25 projects/activities related to the implementation of the Resolution and the Plan of Action are currently being undertaken by SEAFDEC. These include 10 new technical projects identified under the so-called Special 5-year Program formulated purposely to complement existing regional projects for a more comprehensive implementation of the issues in the Resolution and the Plan of Action. In general, SEAFDEC has initiated and conducted the required activities through these 25 projects/activities, in collaboration with ASEAN-SEAFDEC Member Countries. Largely, all issues relevant to the need for regional involvement as suggested by the Resolution and the Plan of Action are being promoted/initiated through these projects.

However, while these initiatives by SEAFDEC can provide some input including regional awareness, clarification and additional guidelines on the issues suggested by the Resolution and the Plan of Action, they do not impact directly on priority issues of Member Countries at the national level. Although there is active participation and involvement by Member Countries in these projects and activities, it does not guarantee that these regional initiatives will be accommodated into their national policies for more effective implementation of the Resolution and the Plan of Action. If, therefore, considerations will be made in order to assist Member Countries in the implementation of the Resolution and the Plan of action, it was suggested that SEAFDEC activities can be modified in order to meet national requirements including, perhaps, accommodating more on-site training and setting up of pilot projects.

IMPLEMENTATION OF THE RESOLUTION AND PLAN OF ACTION ADOPTED AT THE ASEAN-SEAFDEC CONFERENCE ON SUSTAINABLE FISHERIES FOR FOOD SECURITY IN THE NEW MILLENNIUM: 'FISH FOR THE PEOPLE'

Resolution	Initiatives conducted by SEAFDEC	Initiatives in ASEAN Member Countries
R1.	<p>Formulate regional guidelines to implement the Code of Conduct for Responsible Fisheries, taking into account the specific social, economic, cultural, ecological and institutional contexts and diversity of ASEAN fisheries</p> <p>JTF/I/1: “Regionalization of Code of Conduct for the Responsible Fisheries (RCCRF)”; Regional Guidelines for Fishing Operation, Aquaculture Development and Fisheries Management have been published. The preparation of the Regional Guidelines for the Post Harvest Technology will be conducted in 2004.</p> <p>SIDATF/1: “Human Resource Development on the Support of Implementation of the Code of Conduct for Responsible Fisheries Management for the ASEAN Region” has been started. Human resource development program at the regional level and the selected Member Countries will be conducted. Translation to the national languages of ASEAN Member Countries on the Regional Guidelines for Fisheries Management will also be conducted.</p> <p>JTF/III/2: “Special Publication on “Fish for the People” developed articles on issues of the regionalization of the Code of Conduct for Responsible Fisheries (in Volume I) in order to widely inform the regional priority issues.</p>	<p>Participation to the various meetings for formulating RCCRF</p> <p>Core experts from ASEAN Member Countries have involved in the preparation for the draft RCCRF.</p> <p>ASEAN Member Countries will be invited to involve in the SIDA’s new program.</p>

R2.	Cooperate to identify constraints and enhance collaboration among government agencies, which have responsibility for fisheries and fisheries-related issues, in order to harmonize policies, plans and activities which support sustainable fisheries at the national and regional levels	<p>JTF/I/2: “Locally Based Coastal Resource Management” Project has tried to clarify the collaboration among the different government agencies including local authorities through the project implementation.</p> <p>The pilot projects in Thailand and Malaysia has been started.</p> <p>JTF/I/5: “Digitized Atlas” has started to compile the information on the coastal fisheries management related activities in the region.</p> <p>“Seminar on ASEAN-Japan Cooperation for Sustainable Fisheries through SEAFDEC” will be organized in Tokyo, in December 2003 to identify the enhanced cooperation among ASEAN and SEAFDEC Member Countries.</p>	<p>Collaborative efforts by the countries, Thailand and Malaysia including the required cost share arrangements.</p> <p>All ASEAN Member Countries participate to the meeting to identify the areas of collaboration in achieving sustainable fisheries in the region.</p>
R3.	Acknowledge the need for enhanced human resource capabilities at all levels and encourage greater involvement by stakeholders to facilitate consensus and compliance in achieving sustainable fisheries	SIDATF/1: “Human Resource Development on the Support of Implementation of the Code of Conduct for Responsible Fisheries Management for the ASEAN Region” has been started along these lines.	Refer to above R1.above
R4.	Mobilize regional technical cooperation to reduce disparities and promote solidarity among ASEAN Member Countries	ASEAN/F/1: “Capacity Building on the Improvement of Fisheries Statistical System in the ASEAN Region” has been started for CLMV countries to improve their national fisheries statistical system in these countries.	Involvement by these CLMV countries organising for the respective national workshops and on-site training activities. One national workshop each for CLMV – 8-10 Sep. in Phnom Penh, 25-28 Sep. in Champasack, 1-3 Oct. in Yangon, and 14-17 Oct. in Hanoi, respectively. In addition, on on-site training each for Lao PDR and Cambodia – 27 Oct.- 2 Nov. in

			<p>Savannakhet, and 15-21 Dec. in Siam Reap, respectively.</p> <p>The resource persons from non-CLMV Countries are also involved to assist the proposed activities.</p>
R5.	Encourage effective management of fisheries through delegation of selected management functions to the local level	<p>SP/1: “Toward Decentralized Management for Sustainable Fisheries in the ASEAN Region” has started to identify the policy on the decentralized fisheries management and to enhance the awareness on the issue. The Regional Workshop on the issues organized in Phuket, Thailand in May 2003.</p> <p>JTF/III/2: “Special Publication on “Fish for the People” developed articles on issues of the decentralization of fisheries management and the introduction of right-based fisheries (in Volume II) in order to widely inform the regional priority issues.</p>	<p>Participation to the meeting organized for the issue.</p> <p>Benchmark information on the status of the issue was provided based on the questionnaires.</p> <p>Implementation of the detailed case studies on the topic involving ASEAN Member Countries is planned.</p>
R6.	Recognize the need to progressively replace “open access” to fisheries resources with “limited access regimes” through the introduction of rights-based fisheries which may also facilitate the management of fishing capacity and promote the use of responsible fishing gears and practices	<p>SP/1: “Toward Decentralized Management for Sustainable Fisheries in the ASEAN Region” has started to identify the policy on the introduction of the right-based fisheries and to enhance the awareness on the issue.</p>	<p>Participation to the meeting organized for the issue. Refer to R5 above.</p> <p>Bench-mark information on the status of the issue in ASEAN Member Countries was provided based on the questionnaires.</p> <p>Implementation of the detailed studies on the topic involving ASEAN Member Countries is planned.</p>
R7.	Strengthen national fishery statistical systems and maximize their use for fisheries planning and management and develop standard definitions and classifications to facilitate regional fishery statistics and information exchanges	<p>ASEAN/F/1: “Capacity Building on the Improvement of Fisheries Statistical System in the ASEAN Region” has organized “a Regional Workshop for the Improvement of Fishery Statistics in the ASEAN Region” in Chaing Mai in June 2003, to develop the regional guidelines to improve the national statistical system prior to the required national activities. The tentative regional guidelines</p>	<p>Refer to R4 above. Participation to the meeting organized for the issue.</p> <p>The resource persons from non-CLMV Countries are involved to assist the proposed activities.</p> <p>The practical comments for the guidelines are required for the final completion of</p>

		<p>have been completed subject to the required revision at the time of application to any ASEAN Member Countries.</p> <p>JTF/III/2: “Special Publication on “Fish for the People” developed articles on issues of the fisheries statistics (in Volume II) in order to widely inform the regional priority issues.</p>	<p>the guidelines.</p>
R8.	<p>Emphasize the importance of inland fisheries and aquaculture in planning and policy formulation to improve food security and the livelihoods of rural people</p>	<p>SP/6: “Information Gathering for Capture Inland Fisheries in ASEAN Region” has organized a “Regional Technical Consultation Meeting on Information Gathering for Capture Inland Fisheries” in Kuala Lumpur in August 2003 to discuss about the frameworks of the project and identify the required pilot projects to be undertaken under the project. Some of the identified pilot projects are operational.</p> <p>ASEAN/F/1: “Capacity Building on the Improvement of Fisheries Statistical System in the ASEAN Region” has focused to collect relevant information on the capture inland fisheries.</p> <p>JTF/I/5: “Digitized Atlas” has compiling various fisheries information including inland fisheries for better presentation</p>	<p>Participation to the meeting organized for the issue.</p> <p>The pilot projects in the selected ASEAN Member Countries have been started. These include fishing gear monographs surveys in Lao PDR and Myanmar, Taxonomy study in Myanmar and so on.</p> <p>Refer to R4 above.</p> <p>Refer to PM 9 below</p>
R9.	<p>Work towards the conservation and rehabilitation of aquatic habitats essential to enhancing fisheries resources</p>	<p>SP/4: “Resource Enhancement” has started to enhance the awareness on the issues including Installation of artificial reef, development of set net and the issue of the Marine Protected Areas.</p> <p>The regional meeting on the issue was organized in October 2003 in Thailand</p>	<p>Participation to the meeting organized for the issue.</p>
R10.	<p>Mitigate the potential impacts on the environment and biodiversity, including the spreading of aquatic animal diseases, caused by the uncontrolled</p>	<p>JTF/I/4: “Development of Fish Diseases Inspection Methodologies for Artificially-bred Seeds” has been completed to develop the regional</p>	<p>Participation to the meetings organized for the issue.</p>

	<p>introduction and transfer of non-indigenous and exotic aquatic species</p>	<p>capacity on the issue.</p> <p>JTF/I/7: “Establishment of Disease Surveillance System of Aquatic Animals” as the 2nd phase of the above project has been started.</p> <p>JTF/I/1: “Regionalization of Code of Conduct for the Responsible Fisheries (RCCRF)” has clarified the issues through the preparation of the regional guidelines.</p>	<p>Refer to R1 above. Participation to the meetings organized for the issue.</p>
<p>R11.</p>	<p>Promote the maximum utilization of catch, including the reduction of discards and post-harvest losses to increase fish supply and improve economic returns</p>	<p>SP/3: “Responsible Fishing Technologies and Practices” has promoted to develop research and demonstration activities on juvenile and trash fish excluder devices (JTED).</p> <p>Joint activities with FAO on “the Workshop on Estimation of Discards and Measures to Reduce By-Catch in the Indian Ocean” was organized at Samut Prakarn, to identify the areas to reduce the waste of catch.</p> <p>“Training Course for the Use of TEDs(Turtle Excluder Devices) and JTED(Juvenile and Trash Fish Excluder Devices) for Shrimp Trawling” was organized in Samut Prakarn in August 2003.</p> <p>SP/9: “Maximizing the Utilization of Fish Catch” has started to develop the standard methodologies on surimi products utilizing under-utilized fish catch including pelagic species and fresh water species.</p> <p>SP/ 11: “Harvesting of Under-exploited</p>	<p>Participation to the meetings organized for the issue. The selected countries have conducted the required demonstration work in cost sharing scheme.</p> <p>Participation to the meetings organized for the issue.</p> <p>Participation to the meetings organized for the issue.</p> <p>Participation to the meetings organized for the issue.</p> <p>The regional meetings will identify the</p>

		<p>Resources” will be started soon. The special emphasis will be given to the research activities on the fisheries resources in ASEAN Member Countries mobilizing a newly acquired research vessel (to be operational in April 2004) including the identification of the under-exploited resources in each country</p> <p>JTF/II/1: “Information Collection for Sustainable Pelagic Fisheries in the South China Sea” has started to collect both fisheries and biological information on the fisheries targeting four important commercial pelagic species.</p> <p>Joint regional Training Workshop with FAO was conducted to provide the training to assess the resources using the statistical data.</p> <p>JTF/I/8: “Conservation and Management of Sea Turtle in Southeast Asian Countries” has continued to conduct the demonstration of effectiveness of the turtle excluder devices (TEDs).</p> <p>JTF/III/2: “Special Publication on “Fish for the People” developed articles on issues of the Selective Fishing Gears and practices (in Volume I) and Discard and By-Catch (in Volume II) in order to widely inform the regional priority issues.</p>	<p>required research activities in each national water. The Member Countries will implement the activities in cost shared scheme (some of the operational costs in each national water can be born by the recipient countries.)</p> <p>Participation to the meetings organized for the issue. It is agreed that the participating countries to collect the required information based on the regionally agreed manner.</p> <p>Participation to the meetings organized for the issue.</p> <p>The demonstration of TEDs were conducted at the selected countries in cost shared scheme.</p>
R12.	Increase aquaculture production in a sustainable and environment-friendly manner by ensuring a stable supply of quality seeds and feeds, effectively controlling disease, promoting good farm management and transferring appropriate technology	JTF/I/9: “Promotion of Mangrove-friendly Aquaculture in Southeast Asian Countries” has completed activities in its 1 st phase. In order to wrap-up the 1 st phase of activities, “Regional Seminar-Workshop on Mangrove-friendly Shrimp Culture” was organized in Bangkok in	Participation to the meetings organized for the issue.

		<p>June 2003. Various awareness building exercises and pilot projects in four countries, in Myanmar, the Philippines, Thailand and Vietnam promoted to verify the applied technologies on shrimp culture in mangrove-friendly manners.</p> <p>JTF/I/4: “Development of Fish Diseases Inspection Methodologies for Artificially-bred Seeds” has been operated to promote the issues.</p> <p>JTF/I/7: “Establishment of Disease Surveillance System of Aquatic Animals”, 2nd phase of the above project has been started.</p> <p>SP/8: “Supply of Good Quality Seeds” has been started to promote the issues, especially for grouper species and fresh water prawn.</p> <p>Training Course on Marine Fish Hatchery” was organized in Iloilo, the Philippines in June-July 2003</p>	<p>Refer to R10 above.</p> <p>The selected Member Countries has been involved in the promotion of the activities, especially the research Institutes in Indonesia.</p>
R13.	Promote aquaculture for rural development, which is compatible with the rational use of land and water resources, to increase fish supplies and improve the livelihoods of rural people	<p>SP/7: “Aquaculture for Rural Development” has been started in collaboration with Member Countries. “The Regional Workshop on IRAP (Integrated Regional Aquaculture Program)” was organized in Bangkok, in September 2002.</p>	The selected Member Countries has been involved in the promotion of the activities.
R14.	Improve post-harvest technologies to ensure fish quality assurance and safety management systems, which are appropriate for small and medium-sized enterprises in the Region, taking into account the importance of traditional fish products and food security requirements	<p>JTF/I/6: “Application of HACCP in the Fish Processing Industry in Southeast Asia”. The series of regional meetings and study tours have been conducted in order to enhance the issues in the region. “The Fourth Regional Workshop on Implementation of HACCP in the Fish Processing Industry in Southeast Asia” was conducted in Bangkok, Thailand in September 2003.</p>	Participation to the meetings organized for the issue.

		<p>SP/10: “Fish Quality and Safety Management Systems” has been started in collaboration with Member Countries. “2nd Regional Workshop on Good Lab. Quality Management Practices and Methods Validation in Southeast Asia” was conducted in Vietnam in September 2003.</p> <p>SP/9: “Maximizing the Utilization of Fish Catch” has been started</p>	<p>The selected Member Countries has been involved in the promotion of the activities, especially the research Institutes in Indonesia.</p> <p>Refer to R11 above.</p>
R15.	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	<p>JTF/I/3 : “Fish Trade and Environment” has organize Regional Meetings to discuss about turtle, shark, antibiotic residue (“ASEAN-SEAFDEC Regional Meeting on Fish Trade and Environment” was organized in Bangkok in October 2002) and fisheries subsidies (“Regional Technical Consultation on Fisheries Subsidies” was organized in Bangkok in October 2003).</p> <p>JTF/I/8: “Conservation and Management of Sea Turtle in Southeast Asian Countries” has developed various required research activities and awareness buildings on the needs of TEDs. “The ASEAN-SEAFDEC Regional Technical Consultation on the Management and Conservation of Sea Turtle in Southeast Asia” was organized to develop the ASEAN policy on the issue.</p> <p>JTF/III/1: “Management of Shark Fisheries in ASEAN-SEAFDEC Member Countries” has started to mainly collect the required information including production, usage of catch and trade in order to better understandings of shark fisheries.</p>	<p>Participation to the meetings organized for the issue. The Member Countries have collaborated to provide basic information in each national contexts on the issues through questionnaires</p> <p>Participation to the meetings organized for the issue.</p> <p>Participation to the meetings organized for the issue. The Member Countries are collecting the required information based on the regional agreement on the research framework.</p>

		<p>The outcomes of the activities will be used as a basis for the regional policy on the management of shark fisheries. “ASEAN-SEAFDEC Regional Technical Consultation on Shark Fisheries” was conducted in Vientiane, Lao PDR in May 2003</p> <p>SJTF/III/2: “Special Publication on “Fish for the People” developed articles on issues of the trade (in Volume I) and shark issues (in Volume II) in order to widely inform the regional priority issues.</p> <p>Various recommendations and conclusion reached at the ASEAN-SEAFDEC regional meetings in different subjects have been systematically proposed at FCG Meetings and ASEAN Sectoral Working Group on Fisheries in order to formulate and concretize the joint ASEAN approaches, position and policy for the priority issues.</p>	
R16.	Increase the participation and involvement of ASEAN Member Countries in international fora to safeguard and promote ASEAN interests		

Plan of Action			
	<i>Fisheries Management</i>		
PM1.	Establish and implement comprehensive policies for innovative fisheries management, such as the decentralization of selected fisheries management functions to the local level, the progressive introduction of rights-based fisheries management through licensing and community fishing rights, the improvement of vessel registration systems and the development of supporting legal and institutional frameworks	<p>SP/1: “Toward Decentralized Management for Sustainable Fisheries in the ASEAN Region”</p> <p>SIDATF/1: “Human Resource Development on the Support of Implementation of the Code of Conduct for Responsible Fisheries Management for the ASEAN Region”</p>	<p>Refer to R5 and R 6 above.</p> <p>Refer to R1 and R3 above</p>
PM2.	Ensure local consensus building on innovative management measures through consultative processes and create close monitoring mechanisms to support and implement these measures	<p>JTF/I/2: “Locally Based Coastal Resource Management”</p> <p>“International Training Course in Coastal Fisheries Management and Extension Methodologies” was organized in Samut Prakarn in June- July 2003</p>	<p>Refer to R2 above.</p> <p>Participation to the meetings organized for the issue.</p>
PM3.	Take measures to prevent unauthorized fishing and eliminate the use of illegal and destructive fishing gears and practices by building awareness of their adverse impacts, the development and promotion of responsible and selective fishing gears and practices, enforcing regulations and encouraging alternative means of livelihood	<p>JTF/I/8: “Conservation and Management of Sea Turtle in Southeast Asian Countries”</p> <p>SP/3: “Responsible Fishing Technologies and Practices”</p>	<p>Refer to R11 and R15 above.</p> <p>Refer to R 11 above.</p>
PM4.	Optimize the use of inshore waters through resource enhancement programs such as promoting the installation of artificial reefs and structures, encouraging coordinated and effective planning for coastal fisheries management programs, undertaking environmental impact assessment studies, restocking of commercially important fish species and developing human resources for the implementation of such programs	SP/4: “Resource Enhancement”	Refer to R9 above.

PM5.	Review the issue of excess fishing capacity at the national level and recommend where appropriate, measures to improve the registration of fishing vessels, the introduction of right-based fisheries and the reduction of the number of fishing boats and level of fishing effort using government incentives	<p>SP/1: “Toward Decentralized Management for Sustainable Fisheries in the ASEAN Region” has developed the awareness on the excess fishing capacity through the introduction of right-based fisheries</p> <p>SIDATF/1: “Human Resource Development on the Support of Implementation of the Code of Conduct for Responsible Fisheries Management for the ASEAN Region” will focus on the issues of the excess fishing capacity through human resource development activities on the promotion of the right-based fisheries and integrated coastal fisheries management</p> <p>SP/5: “Identification of Indicators for Sustainable Development and Management of Capture Fisheries in ASEAN Countries”</p>	<p>Refer to R5, R6 and PM1 above</p> <p>Refer to R1, R2, R3, R6 and PM1 above.</p> <p>Refer to PM6 below.</p>
PM6.	Formulate guidelines to promote the use of practical and simple indicators for multi-species fisheries as a substitute for classical fisheries management models within the national fisheries management framework, with particular regard to facilitating timely local level fisheries management decisions	<p>SP/5: Identification of Indicators for Sustainable Development and Management of Capture Fisheries in ASEAN Countries has started to identify various indicators to be used for appropriate fisheries management action and monitoring the fisheries. The project also conducts case studies in the selected fisheries collaboration with the Member Countries.</p> <p>SJTF/III/2: “Special Publication on “Fish for the People” developed articles on issues of the indicators (in Volume I) in order to widely inform the regional priority issues.</p>	Participation to the meetings organized for the issue. The selected Member Countries has started to conduct the numbers of the case studies in cost sharing scheme.
PM7.	Investigate the potential of under-utilized fisheries resources and promote their exploitation in a precautionary manner based upon analysis of the best available scientific information under right-	JTF/II/1: “Information Collection for Sustainable Pelagic Fisheries in the South China Sea”	Refer to R11 above.

	based fisheries regimes	SP/ 11: “Harvesting of Under-exploited Resources”	Refer to R11 above
PM8.	Develop and maintain freshwater fisheries through inter-agency coordination of multiple-use water resources and trans-boundary inland fisheries management, promoting awareness of the importance of freshwater fisheries for local food security, rehabilitating and restoring habitats for migratory freshwater fish, restocking indigenous fish species to enhance productivity and encouraging culture-based freshwater fisheries where appropriate	ASEAN/F/1: “Capacity Building on the Improvement of Fisheries Statistical System in the ASEAN Region” SP/6: “Information Gathering for Capture Inland Fisheries in ASEAN Region”	Refer to R4, R7 and R8 above. Refer to R8 above
PM9.	Coordinate and decentralize the collection and use of fisheries related statistical data between the national fisheries and other authorities including those responsible for food security, trade, vessel registration, aquaculture and rural development	ASEAN/F/1: “Capacity Building on the Improvement of Fisheries Statistical System in the ASEAN Region” SP/2: “Improvement of Fishery Statistical System and Mechanisms” will be operational after completion of the above project. JTF/I/5: “Digitized Atlas” has compiling various fisheries information including statistics for better presentation	Refer to R4,R7 and R8 above.
PM10.	Maximize the use of national fisheries statistical systems by focusing on clear objectives and timely results directly related to fishery management decision-making and planning processes	ASEAN/F/1: “Capacity Building on the Improvement of Fisheries Statistical System in the ASEAN Region” SP/2: “Improvement of Fishery Statistical System and Mechanisms”	Refer R4, R7 and R8 above.
PM11.	Apply, where appropriate, regionally standardized definitions and classifications for statistical data to facilitate regional compilation, analysis and data exchange	ASEAN/F/1: “Capacity Building on the Improvement of Fisheries Statistical System in the ASEAN Region” SP/2: “Improvement of Fishery Statistical System and Mechanisms”	Refer R4, R7 and R8 above.

PM12.	Develop national statistical mechanisms on inland fisheries and aquaculture in order to provide a basis for their development and the exchange of statistical data and related information, with particular emphasis on the catchment approach in international river basins	ASEAN/F/1: “Capacity Building on the Improvement of Fisheries Statistical System in the ASEAN Region” SP/6: “Information Gathering for Capture Inland Fisheries in ASEAN Region”	Refer R4, R7 and R8 above.
	<i>Aquaculture</i>		
PA1.	Ensure that national policies and regulatory frameworks on aquaculture development are directed toward sustainability and avoidance of conflicts by incorporating consultations with stakeholder groups, implementing aquaculture zoning, considering social and environmental impact, and also regulating rights of access to, and use of, open water sites for mariculture.	JTF/I/1: “Regionalization of Code of Conduct for the Responsible Fisheries (RCCRF)” JTF/I/9: “Promotion of Mangrove-friendly Aquaculture in Southeast Asian Countries”	Refer to R1 above. Refer to R12 above
PA2.	Ensure production of high quality seeds on a consistent and sustainable basis by providing government support for public and private hatchery development and research, developing domesticated broodstocks and fish reproductive technologies, and promoting responsible collection and use of wild broodstock and seed	SP/8: “Supply of Good Quality Seeds”	Refer to R14 above.
PA3.	Promote good farm management practices that reduce effluent pollution load and comply with relevant effluent standards through appropriate treatment	JTF/I/1: “Regionalization of Code of Conduct for the Responsible Fisheries (RCCRF)”	Refer R1 above
PA4.	Reduce the risks of negative environmental impacts, loss of biodiversity, and disease transfer by regulating the introduction and transfer of aquatic organisms in accordance with the Regional Guidelines on the Responsible Movement of Live Aquatic Animals and Plants	JTF/I/1: “Regionalization of Code of Conduct for the Responsible Fisheries (RCCRF)” JTF/I/9: “Promotion of Mangrove-friendly Aquaculture in Southeast Asian Countries” JTF/I/4: “Development of Fish Diseases Inspection Methodologies for Artificially-bred Seeds”	Refer R1 above Refer to R12 above Refer to R12 above.

		JTF/I/7: “Establishment of Disease Surveillance System of Aquatic Animals”	
PA5.	Improve the efficient use of aquatic feeds by regulating the quality of manufactured feed and feed ingredients, providing guidelines on farm-level food conversion ratios and levels of aquaculture effluents, and supporting research into developing suitable alternative protein sources to reduce dependence on fish meal and other fish based products	JTF/I/1: “Regionalization of Code of Conduct for the Responsible Fisheries (RCCRF)” “On –line Course on Basic Principle of Aquaculture Nutrition” was conducted May-September 2003 by AQD.	Refer to R1 above.
PA6.	Improve capabilities in the diagnosis and control of fish diseases within the Region by developing technology and techniques for disease identification, reliable field-side diagnostics and harmonized diagnostic procedures, and establishing regional and inter-regional referral systems, including designation of reference laboratories and timely access to disease control experts within the Region	JTF/I/4: “Development of Fish Diseases Inspection Methodologies for Artificially-bred Seeds” JTF/I/7: “Establishment of Disease Surveillance System of Aquatic Animals”	Refer to R12 above.
PA7.	Formulate guidelines for the use of chemicals in aquaculture, establish quality standards and take measures to reduce or eliminate the use of harmful chemicals	JTF/I/6: “Application of HACCP in the Fish Processing Industry in Southeast Asia.” JTF/I/3: “Fish Trade and Environment” JTF/I/1: “Regionalization of Code of Conduct for the Responsible Fisheries (RCCRF)”	Refer to R14 above. Refer to R15 above. Refer to R1 above.
PA8.	Build human resource capabilities for environment-friendly, healthy, wholesome and sustainable aquaculture through closer public and private sector collaboration in research and development, paying particular attention to the emerging need for skills in biotechnology, and effectively implementing aquaculture education	JTF/I/9: “Promotion of Mangrove-friendly Aquaculture in Southeast Asian Countries” “On-line Course on Principle of Health Management in Aquaculture” was conducted from May –August 2003 by AQD.	Refer to R12 above Refer to R12 above.

	and extension services	JTF/I/4: “Development of Fish Diseases Inspection Methodologies for Artificially-bred Seeds” JTF/I/7: “Establishment of Disease Surveillance System of Aquatic Animals”	
PA9.	Promote aquaculture as an integrated rural development activity within multiple-use of land and water resources available through inter-agency coordination in policy formulation, project planning and implementation, stakeholder consultation, extension services and technology transfer	SP/7: “Aquaculture for Rural Development”	Refer to R13 above.
	<i>Sustainable Utilization of Fish and Fishery Products</i>		
PU1.	Introduce and provide support for the development of technologies to optimize 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	SP/9: “Maximizing the Utilization of Fish Catch” SP/10: “Fish Quality and Safety Management Systems”	Refer to R11 above Refer to R14 above
PU2.	Promote the production and preserve the diversity of traditional fish products by assisting producers to secure stable supplies of quality raw materials, to meet food safety requirements and to improve product identity, nutritive value and marketing	SP/9: “Maximizing the Utilization of Fish Catch” SP/10: “Fish Quality and Safety Management Systems” JTF/I/6: “Application of HACCP in the Fish Processing Industry in Southeast Asia”	Refer to R11 above Refer to R14 above Refer to R14 above
PU3.	Encourage relevant control agencies to coordinate their activities at all levels in applying appropriate legislation regarding the quality and safety of fish and fishery products	SP/10: “Fish Quality and Safety Management Systems” JTF/I/6: “Application of HACCP in the Fish Processing Industry in Southeast Asia”.	Refer to R14 above

PU4.	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	JTF/I/6: “Application of HACCP in the Fish Processing Industry in Southeast Asia”.	Refer to R14 above
PU5.	Promote and conduct training programs to upgrade the technical skills and competencies of personnel in the public sector and the fish processing industry in the ASEAN Region	SP/9: “Maximizing the Utilization of Fish Catch” SP/10: “Fish Quality and Safety” Management Systems	Refer to R11 above Refer to R14 above
	<i>Fish Trade</i>		
PT1.	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 harmonised 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	JTF/I/3 : “Fish Trade and Environment” JTF/I/8: “Conservation and Management of Sea Turtle in Southeast Asian Countries” JTF/III/1: “Management of Shark Fisheries in ASEAN-SEAFDEC Member Countries”	Refer to R15 above
PT2.	In collaboration with international technical organizations such as the Food and Agriculture Organization of the United Nations (FAO) and the World Trade Organization (WTO), assess the impact of government subsidies on fisheries, particularly on the needs of small-scale fisheries in the ASEAN Region and sustainable fisheries	JTF/I/3: “ Fish Trade and Environment” has organized a regional meeting on fisheries subsidies in October 2003 to clarify the issues in collaboration with FAO.	Participation to the meetings organized for the issue. The Member Countries collected the required information in accordance with the standard questionnaires.

PT3.	Anticipate and address the potential impacts of eco-labelling of ASEAN fish and fishery products	JTF/I/3: “Fish Trade and Environment”	
	<i>Regional and International Policy Formulation</i>		
PI1.	Enhance regional collaboration by developing guidelines, criteria and standards on important fisheries issues to strengthen ASEAN policies and positions and harmonize them with international initiatives and arrangements	JTF/I/3: “Fish Trade and Environment” JTF/III/1: “Management of Shark Fisheries in ASEAN-SEAFDEC Member Countries”	Refer to R15 above
PI2.	Increase participation and involvement of ASEAN Member Countries in international fora and technical committees such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Codex, FAO, Office International des Epizooties (OIE), Regional Fisheries Bodies, and WTO to safeguard and promote ASEAN interests, recognizing that international fisheries policies are increasingly discussed and agreed upon at the global level	JTF/I/3: “Fish Trade and Environment” JTF/I/4: “Development of Fish Diseases Inspection Methodologies for Artificially-bred Seeds” has promoted the cooperation with OIE in the field of inspection and protection of fish disease. JTF/III/1: “Management of Shark Fisheries in ASEAN-SEAFDEC Member Countries” JTF/III/2: Special Publication on “Fish for the People”	Refer to R15 above Refer to R10 above.

**MID TERM REVIEW ON THE IMPLEMENTATION OF THE RESOLUTION
AND PLAN OF ACTION ON SUSTAINABLE FISHERIES FOR FOOD SECURITY
IN THE ASEAN REGION
(DECEMBER 2001 – DECEMBER 2003)
BY THE MEMBER COUNTRIES**

SYNTHESIS (*Mid term Review of the Implementation of the Resolution and the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region [December 2001 – December 2003] by the Member Countries*)

After two years since the adoption of the Resolution and the Plan of Action by the ASEAN-SEAFDEC Member Countries, a brief review exercise was carried out to evaluate the status of implementation at the national level. It can be possible that while some countries may feel that implementation of some of the issues at the national level might be premature, other countries may find that the issues should be actively and immediately implemented. Therefore, it was suggested in the review exercise that Member Countries evaluate each of the issues, paragraph by paragraph, in the Resolution and Plan of Action and identify whether:

- A: The issue is relevant for immediate national implementation;
- B: The national implementation of the issue is premature; or
- C: The areas of main constraints for effective implementation.

In general, the review exercise was envisaged to give information for SEAFDEC to assess and modify the courses of action for the relevant projects to better accommodate and meet national requirements in relation to the implementation of the Resolution and the Plan of Action.

Initial analysis on the result of the review exercise revealed that although Member Countries recognized that most of the issues in the Resolution and the Plan of Action are relevant for immediate national implementation, the implementation is being hampered by some major problems and constraints. Among those identified are the lack of adequate financial resources, lack of manpower capability (human resources), and the low level of awareness among the various stakeholders. Unanimously, these are the major limiting factors identified by the Member Countries that are slowing down the implementation of the Resolution and the Plan of Action.

The Member Countries likewise recognized the important role SEAFDEC has to fill-in in order to minimize impacts of these shortcomings in terms facilitating human resource development activities as well as mobilizing regional experts and fisheries scientists. It was also suggested that SEAFDEC provide appropriate venue for regional collaboration where possible donors can be tapped that will ensure long-term and stable financial support to regional and national fisheries initiatives. The Member Countries likewise acknowledged the significance of establishing a national coordination mechanism to efficiently monitor the implementation of specific issues in the Resolution and the Plan of Action that fall under the mandates of several other government agencies. Coordination with private sector groups was also suggested to be enhanced to perhaps augment government resources that are currently limited, and for a possible cost sharing to implement relevant projects.

Introduction/Rationale

During the Millennium Conference: “Fish for the People” held in Bangkok, Thailand on November 2001, the Ministers of the ASEAN-SEAFDEC Member Countries adopted a “Resolution on Sustainable Fisheries for Food Security for the ASEAN Region” which outlined major policies to resolve priority issues including the implementation of the Code of Conduct for Responsible Fisheries. The Ministers recognized the importance of immediate implementation of the “Resolution” by all parties concerned. Consequently, the Senior Officials of the ASEAN-SEAFDEC Member Countries, during the same Conference, adopted the “Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region” which will be used as a guideline to develop programs, projects and activities for the implementation of the “Resolution”. Since its adoption and after being formally endorsed through the ASEAN and SEAFDEC process, the “Resolution and the Plan of Action” have been widely recognized as the common ASEAN fisheries policy and guidelines for promotion of activities toward sustainable fisheries development in the entire region.

After two years since the Millennium Conference, it is only but proper to review and evaluate the progress of implementation by the Member Countries of the different provisions in the Resolution and the Plan of Action. Late last year, SEAFDEC Secretariat through the Working Group on Regional Fisheries Policy (WGRFP) initiated and coordinated the review exercise with the Member Countries.

Basically, the review requested Member Countries to consider evaluating each of the provisions of the Resolution and the Plan of Action and systematically categorize the issues as to whether a) the issue is relevant for immediate national implementation; b) the national implementation of the issue is premature; and c) the areas of main constraints for effective implementation. Member Countries were also requested to provide information on the problems and constraints perceived or likewise experienced in the course of implementation, as well as suggestions to improve implementation of the Resolution and the Plan of Action at the national level. Results of the review exercise will be discussed below while some portions were presented in tables 1 and 2.

The review was envisaged to help clarify the national policy on the implementation of the Resolution and the Plan of Action. Likewise, this would help SEAFDEC assess and modify, if necessary, the courses of action for the relevant projects to better accommodate the national requirement and mitigate any possible shortcomings.

Degree of Relevance and Implementation of Each of the Issues at the National level

The information gathered through the review suggest that most or majority of the issues contained in the Resolution and the Plan of Action were recognized by the Member Countries to be of utmost importance that require immediate implementation at the national level (Table 1 & 2). Some Member Countries, though, indicated that other issues were either not applicable to national conditions or further implementation would be a bit premature. The reasons are rather varied, ranging from the limited size of the fisheries resources itself, to the lack of human capacity to undertake management initiatives, limited financial support, lack of coordination among national agencies, and even the lack of awareness among the stakeholders.

Problems and Constraints

To implement the Resolution and the Plan of Action at the national level is rather not straightforward. As a first step toward national implementation, it has to be accommodated into the existing national policies, plans and programs of the respective national government entities. In doing so, it requires the much-needed political will and persistence among the national policy and decision-makers to really push for the adoption of these developmental issues. Also, to be accounted for is the very limited resources of the Member Countries to really fully implement the mandates of the Resolution and the Plan of Action.

- **Brunei Darussalam**

Brunei Darussalam is one of the smaller countries that have limited fisheries resources and very small number of stakeholders. Hence, some specific issues in the Resolution and the Plan of Action are not feasible or do not necessarily call for immediate national implementation. For instance, with the limited freshwater rivers and lakes that Brunei have, aquaculture and inland fisheries were not among the priority areas considered that will significantly increase fish supply and improve the livelihoods of rural people. Given also that there is no real community structure along the coastal areas throughout the country, it will be difficult, if not unnecessary to introduce the concept of decentralization and rights-based fisheries.

In general though, most of the issues in the Resolution and the Plan of Action were already accommodated into Brunei's national policies and are being carried out with the implementation of various projects and activities nationwide.

- **Cambodia**

Among the problems and constraints that impede the smooth implementation of the Resolution and the Plan of Action in Cambodia include the lack of financial support to sustain the implementation of the issues; lack of appropriate technology and mechanisms to assist national implementation; and the limited local knowledge and awareness on the issues. Human resources and technical expertise were also limited while the system on statistics is still weak. Translation of the guidelines into national language is also widely needed.

- **Indonesia**

Indonesia has indicated that most of the issues in the Resolution and the Plan of Action require action for immediate national implementation. Nonetheless, they are also facing problems such as lack of budget, low awareness among stakeholders, lack of qualified manpower to facilitate full-blown implementation. Similarly, since fisheries resources management mandate falls commonly on several other government agencies, which is also quite common in many countries in the region, and normally there's a lack of interagency coordination and cooperation, is limiting overall initiatives toward national implementation of the Resolution and the Plan of Action.

Indonesia also identified, as another shortcoming, the laxity in the enforcement and implementation of existing national laws, rules and regulations with regards, for instance, to fisheries management, aquaculture, and post harvest, which generally complement national

implementation of the Resolution and the Plan of Action.

- **Lao PDR**

In general, Lao PDR believe that national implementation of the issues in the Resolution and the Plan of Action is still premature considering that the country has limited qualified manpower and expertise to really initiate works within the framework of fisheries resources management. Technical knowledge and practical know-how on fisheries statistics is also inadequate to support sound management options to address issues in the Resolution and Plan of Action. In addition, there is also an equally low level of awareness among the stakeholders with regard to environmental issues.

Like in most countries, the lack of financial support/assistance, and the lack of appropriate fisheries infrastructures are also the major factors limiting the full-blown implementation of the programs in Lao PDR.

- **Malaysia**

Malaysia is one country that has most of the things in place with regard to national implementation of the Resolution and the Plan of Action. Subsequent and appropriate national policies and ordinances were enacted to accommodate the issues in the Resolution and the Plan of Action while multi-sectoral bodies were also organized to ensure smooth implementation of the programs at the national as well as local levels. Good and sound management regime for the fisheries resources is already in place. Interestingly, Malaysia has created the National Agricultural College while the Department of Fisheries was further strengthened by the creation of an HRD Division, basically to enhance the country's human resource capability. Malaysia is also effectively enforcing its existing Fisheries Act to ensure that it complements with the national implementation of the Resolution and Plan of Action.

- **Myanmar**

Like most of the Member Countries, Myanmar also found most of the issues in the Resolution and the Plan of Action relevant for immediate national implementation. National implementation in Myanmar is in progress albeit in a very initial stage. Apparently, the implementation is being slowed down by the lack of appropriate technologies, limited human resource capabilities, inadequate facilities and related infrastructures, and the most common problem – financial constraint. Myanmar also acknowledged the need of the national government to modify existing policies in order to accommodate the issues in the Resolution and Plan of Action for better and successful implementation at the national level.

- **The Philippines**

The Philippines is also among those Member Countries who recognized the relevance and the need for immediate national implementation of all issues in the Resolution and the Plan of Action. Problems, however, were encountered when the issues were not given top priorities by the local government units who has the authority to implement programs and projects at the local/community level. There is also a lack of qualified technical personnel at the local level to effectively implement for instance, the concept of decentralization and rights-based fisheries. This can be attributed also to the fact that there has been a limited financial backing



from the national government to sustain, or even in some parts, to start implementing these given mandates. Financial constraints also limit the conduct of training and extension works in order to increase awareness among local government units and other various stakeholders.

- **Singapore**

Singapore's fisheries industry is generally small as compared to that of the other Member Countries. In this sense, some of the issues in the Resolution and the Plan of Action are not really applicable for Singapore such that it would be more effective and practical to manage the country's fisheries resources at the national level than to delegate the function to the local authority.

- **Thailand**

Thailand identified the lack of social/stakeholder acceptability, alongside their lack of general awareness of the issues as among the limiting factors in the national implementation of the Resolution and Plan of Action. Similar to other Member Countries, inadequate budget, lack of qualified personnel especially at the level of local authorities, and the weak interagency coordination contribute to the slow progress of implementation.

- **Vietnam**

Like the rests of the Member Countries, Vietnam likewise indicated the lack of financial support and the limited human resource capability were the primary limiting factors in the implementation of the Resolution and the Plan of Action.

Table 1. Summary of the Review Exercise on the Status of National Implementation of the Issues in the “Resolution”

Resoluti on Item Number	Degree of Relevance and Implementation at National Level		
	A	B	C
1	Brunei, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand,	Lao,	Cambodia
2	Brunei, Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand,		
3	Brunei, Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand,		
4	Brunei, Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Singapore,	Lao,	
5	Cambodia, Indonesia, Lao, Malaysia, Philippines, Thailand,	Brunei, Singapore,	
6	Brunei, Cambodia, Indonesia, Malaysia, Philippines, Singapore, Thailand,	Lao, Malaysia, Myanmar,	
7	Brunei, Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand,		
8	Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Thailand,	Brunei,	Singapore,
9	Brunei, Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Thailand	Singapore	
10	Brunei, Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Thailand,	Lao,	Singapore
11	Brunei, Indonesia, Malaysia, Myanmar, Philippines, Thailand,	Lao,	Cambodia, Singapore,
12	Brunei, Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore		
13	Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Thailand,	Brunei,	Singapore,
14	Brunei, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand	Cambodia, Lao,	
15	Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand,	Lao,	Brunei
16	Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand	Cambodia, Lao	Brunei

A – The issue is relevant for immediate national implementation

B – The national implementation of the issue is premature

C – The areas of main constraints for effective implementation

Table 2. Summary of the Review Exercise on the Status of National Implementation of the Issues in the “Plan of Action”

Plan of Action Item Number	Degree of Relevance and Implementation at National Level		
	A	B	C
A. Fisheries Management			
1	Brunei, Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Thailand,	Brunei	Singapore,
2	Cambodia, Indonesia, Malaysia, Philippines, Thailand,	Brunei, Lao, Myanmar,	Singapore,
3	Brunei, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand,	Cambodia,	
4	Brunei, Indonesia, Malaysia, Myanmar, Philippines,		Cambodia, Lao, Singapore,
5	Indonesia, Malaysia, Myanmar, Philippines, Thailand,	Brunei,	Cambodia, Lao, Singapore,
6	Brunei, Indonesia, Malaysia, Philippines, Thailand,		Brunei, Cambodia, Lao, Myanmar, Singapore,
7	Brunei, Indonesia, Philippines, Thailand,	Lao, Malaysia,	Brunei, Cambodia, Myanmar, Singapore,
8	Brunei, Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Thailand,	Brunei,	Singapore,
9	Brunei, Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Thailand		
10	Brunei, Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand,		Singapore
11	Indonesia, Cambodia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand,		Brunei,
12	Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore		Brunei,
B. Aquaculture			
1	Brunei, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand,	Cambodia,	
2	Brunei, Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand		
3	Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand,	Cambodia,	Brunei

4	Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand	Cambodia, Lao	Brunei
5	Indonesia, Lao, Philippines, Singapore, Thailand	Malaysia,	Brunei, Cambodia, Myanmar,
6	Indonesia, Lao, Myanmar, Philippines, Singapore, Thailand,	Malaysia,	Brunei, Cambodia,
7	Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand		Brunei, Cambodia,
8	Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand,	Cambodia,	Brunei
9	Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand		Brunei
C. Sustainable Utilization of Fish and Fishery Products			
1	Brunei, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand,	Cambodia,	
2	Brunei, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand	Cambodia,	
3	Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand,	Cambodia, Lao,	Brunei
4	Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand	Cambodia, Lao	Brunei
5	Brunei, Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand,		
D. Fish Trade			
1	Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand	Cambodia, Lao,	Brunei,
2	Indonesia, Malaysia, Philippines, Singapore, Thailand,	Lao,	Brunei, Cambodia,
3	Indonesia, Malaysia, Myanmar, Philippines, Thailand	Lao, Singapore,	Brunei, Cambodia,
E. Regional and International Policy Formulation			
1	Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand,		Brunei,
2	Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand		Brunei,

A – The issue is relevant for immediate national implementation

B – The national implementation of the issue is premature

C – The areas of main constraints for effective implementation

General Impression on the Status of Implementation by the Member Countries

It can be viewed from the result of the review exercise that although the issues in the Resolution and the Plan of Action sufficiently cover the relevant needs that has to be addressed by the Member Countries in promoting sustainable fisheries, the pace of national implementation is rather varied due to several important factors. The Member Countries are basically facing a common set of problems that impede effective implementation of the issues suggested in the Resolution and Plan of Action. Although there are many other factors identified by the Member Countries that are influencing national initiatives toward the implementation of the Resolution and the Plan of Action, they can be categorized on three fundamental issues. These include the lack of adequate financial means to jumpstart and sustain the implementation; the lack of expertise (human resource) to carryout desired actions; and the low awareness level of the stakeholders on the real issues. These primarily slowed down the implementation of the Resolution and the Plan of Action at the national level.

Although most of the countries, in one way or another, have already incorporated several issues in the Resolution and the Plan of Action into their national policies, there is still an obvious need of more adequate guidelines for those issues that require immediate implementation at the national level. Perhaps, SEAFDEC activities opt to address this need as this will be equally crucial in the course of national implementation of the Resolution and the Plan of Action.

General suggestions to further improve the implementation of the Resolution and the Plan of Action by the Member Countries

Among the actions recommended by the Member Countries to counter the problems hounding national implementation of the Resolution and the Plan of Action include enhancement of the mechanism in mobilizing regional experts, which would also allow the reduction of technical disparities especial in view of the new Member Countries. In this case, Member Countries were asking technical assistance from SEAFDEC particularly in terms of facilitating human resource development and exchange of fishery experts and scientists. It was also suggested to seek ways to ensure long-term and stable financial support to national and regional fisheries initiatives.

The Member Countries likewise acknowledged the significance of establishing a national coordination mechanism to efficiently monitor the implementation of specific issues in the Resolution and the Plan of Action that may fall under the mandates of several other government agencies. This may also include coordination with private sector groups in order to augment government resources that are currently limited, and for a possible cost-sharing scheme to implement relevant projects.

After the review, SEAFDEC may now try to consider modifying courses of action in order to meet national requirements in view of the implementation of the Resolution and the Plan of Action and in view of the above concerns raised by the Member Countries. Although current initiatives of SEAFDEC in terms of human resource development is making a headway, the real success should be gauged on how member countries will be able to capitalize on it in order to improve their respective manpower capabilities to support national implementation of the programs. In addition, SEAFDEC may also study how to effectively follow the cost-sharing scheme with the member countries in implementing programs that require immediate

action considering the readiness or capacity of the Member Countries to involve in such scheme. SEAFDEC may also provide the venue for Member Countries to be able to encourage donor agencies to support their national initiatives toward realization of the Resolution and the Plan of Action. In addition, current initiatives like the conduct of on-site training and setting up pilot projects shall be enhanced to support Member Countries in their implementation of relevant national programs.

STRATEGY FOR HUMAN RESOURCE DEVELOPMENT IN FISHERIES IN THE ASEAN REGION

ASEAN-SEAFDEC Regional Workshop on Human Resource Development in Fisheries 20-23 February 2004 Kuala Lumpur, Malaysia

Introduction

“The Strategy for Human Resource Development in Fisheries in the ASEAN Region” was recommended as the outcome of the Regional Workshop on Human Resource Development in Fisheries. The Workshop was jointly organized by ASEAN and SEAFDEC in collaboration with the Department of Fisheries, Malaysia and the Swedish International Development Cooperation Agency (Sida) from 20 to 23 February 2004 in Kuala Lumpur, Malaysia.

The Workshop was attended by national representatives from the ASEAN-SEAFDEC member countries. The Workshop was also attended by resource persons from Kagoshima University and Kansei Gakuin University, Japan, the Asian Institute of Technology (AIT) as well as representatives from INFOFISH, the Network of Aquaculture Centres in Asia and Pacific (NACA) and the Senior Advisor supported by the Swedish International Development Cooperation Agency (Sida). Officials of the ASEAN Secretariat as well as the SEAFDEC Secretariat and Departments also attended the Workshop.

Principle, Scope and Objective of the “Strategy”

The “Strategy” was considered vital to clarify the role of human resource development (HRD) to effectively implement the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region adopted at the ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security in the New Millennium: “Fish for the People” held in 2001 (the Resolution and Plan of Action). The “Strategy” covers a wide range of HRD activities with particular emphasis on education, skills/competency training and research-based human capacity building. It is urged that government officials who are directly or indirectly implementing programs under the framework of the Resolution and Plan of Action should be the primary focus for this “Strategy”.

The “Strategy” is based on the following principle:

- The promotion of HRD in fisheries is primarily a national concern, and national capacity and resources are mobilized for maximum impact.
- Where there is insufficient capacity and/or resources available at the national level, bilateral and regional, and/or external supports are sought.
- Regional HRD activities are conducted on common needs to maximize the use of resources and benefits of the ASEAN member countries.

Strategy for Human Resource Development in Fisheries in the ASEAN Region

To ensure long-term support to human resource development (HRD) in fisheries in the ASEAN region, the recommendations are as follows:

1. Regional collaboration should be strengthened to improve HRD activities at the national level.
2. Scope of HRD requirements including objectives, target groups/areas and levels will be identified in accordance with the Resolution and Plan of Action.
3. The development of human resource capacity should not only be on technical issues but also integrate social, environmental, legal, and other issues as identified in the Resolution and Plan of Action.
4. The ASEAN member countries should conduct awareness building activities to obtain cooperation/compliance of private sector on the issues, including national requirements for sustainable fisheries.
5. The ASEAN member countries may conduct HRD activities to introduce new technology to private sector, through consultation/collaboration with the intended beneficiaries.
6. HRD activities directed towards competency/skill-based training relevant to the current fisheries situation and demands of industry can be promoted where resources and mechanisms are available.
7. Each ASEAN-SEAFDEC member country should conduct an inventory of programs for HRD in fisheries that contain essential and usable information from fisheries-related agencies and HRD programs operated by relevant institutions, including universities. Based on this inventory, a regional database can be established and regularly updated to provide a basis for networking in HRD in fisheries.
8. The ASEAN-SEAFDEC member countries and international/regional organizations should use the inventory and networking to identify gaps, avoid duplication of effort and ensure complementarity of HRD activities.
9. Partnership and regional cooperation, including south-south cooperation, exchange of expertise at national and regional levels, international/regional organizations, among external funding agencies, government authorities and academe, should be developed by fully mobilizing the inventory and networking.
10. Cost-sharing mechanisms (either cost-recovery or cost-sharing) should be encouraged to enhance the ownership and effectiveness of HRD programs in the ASEAN member Countries.
11. Regular monitoring and assessment of regional HRD activities should be conducted as part of the implementation of programs under the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) mechanism.

Recommendations for Follow-up Actions

To promote the implementation of the Strategy for Human Resource Development in Fisheries in the ASEAN Region, the following recommendations are identified for immediate follow-up actions:

1. ASEAN and SEAFDEC will jointly submit the “Strategy” to their higher authorities through the existing Fisheries Consultative Group (FCG) mechanism for their consideration and endorsement. In line with the existing ASEAN-SEAFDEC collaborative mechanism, SEAFDEC will be assigned as the coordinator for the implementation of the “Strategy”.
2. Using the “Strategy” as the basis, and in collaboration with the ASEAN-SEAFDEC member countries and other fisheries-related institutions, SEAFDEC will formulate regional program(s) to promote HRD in fisheries. This can be an integral part of the second phase of the Special 5-year Program on Contribution of Sustainable Fisheries for Food Security for the ASEAN Region.
3. SEAFDEC in collaboration with the ASEAN-SEAFDEC member countries will develop a standard format for the inventory.

SUMMARY REPORT OF THE ASEAN-SEAFDEC PREPARATORY MEETING ON ISSUES RELATED TO FISH TRADE AND ENVIRONMENT

**HAT YAI, THAILAND
16-18 March 2004**

I. INTRODUCTION

1. The Association of the Southeast Asian Nations (ASEAN) and the Southeast Asian Fisheries Development Center (SEAFDEC) Preparatory Meeting on Issues Related to Fish Trade and Environment was organized by SEAFDEC Secretariat from 16 to 18 March 2004 in Hat Yai, Thailand. The Meeting was held as part of the program on Fish Trade and Environment under the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) Mechanism. The program was funded by the Japanese Trust Fund to SEAFDEC.
2. The Meeting was attended by national delegates from the ASEAN-SEAFDEC Member Countries namely Brunei Darussalam, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, the Philippines, Thailand and Vietnam. It was also attended by representatives from ASEAN Secretariat as well as SEAFDEC Secretariat and Departments.
3. The Meeting was held with the objective to provide a regional forum for discussion among the ASEAN-SEAFDEC Member Countries on important fisheries related issues to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and fisheries subsidies. It is envisaged that the outcome of the regional discussion will be used as a basis for developing common positions and appropriate policy options reflecting fisheries in the Member Countries in the Thirteenth Meeting of the Conference of the Parties (CoP13) of CITES to be held from 2 to 14 October 2004 and the FAO Technical Consultation on the Use of Subsidies in the Fisheries Sector to be held from 30 June to 2 July 2004.

II. CONCLUSION AND RECOMMENDATIONS

2.1 Fisheries Related Issues under CITES

2.1.1 Proposed Policy Options and Common Positions of the ASEAN-SEAFDEC Member Countries

4. In line with the 23rd Senior Official's Meeting for ASEAN Ministers on Agriculture and Forestry (SOM-AMAF) in October 2001, the Member Countries reiterated that the management of commercial fisheries should come under the purview of FAO and not CITES. As such any proposal for listing in CITES Appendices on any species related to fisheries including shark species, undermining sustainable exploitation and management in the Member Countries, should not be supported.
5. The Member Countries agreed to establish the National Plan of Action on Sharks (NPOA-Sharks) in line with the International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks) supported by best available scientific evidence.
6. The Meeting proposed that a representative from the national fisheries related agency of the ASEAN-SEAFDEC Member Countries be included in the national delegation to CITES-

CoP in accordance with the earlier decision made by the ASEAN Sectoral Working Group on Fisheries (ASWGF_i) that ASEAN fisheries agencies should play an active role in their national delegations to CITES-CoPs.

7. Close coordination among the national fisheries related agency and agency responsible for CITES should be strengthened to facilitate any preparatory work for CITES-CoP13.

2.1.2 Follow-up Actions Related to CITES by the ASEAN-SEAFDEC Member Countries and SEAFDEC

8. The Member Countries agreed to exert their utmost efforts in implementing the above agreed policy options and common positions.

9. Each Member Country is requested to provide available secondary data and information related to shark landings, utilization and trade to supplement the regional study on sharks to the SEAFDEC Secretariat for further compilation and distribution to all Member Countries.

10. In establishing the NPOA-Sharks and ensuring effective implementation of management and conservation of sharks, the following aspects should be included, but not limited to:

- Building of public awareness on the need for management and conservation of sharks;
- Harmonizing NPOA-Sharks with the national fisheries management policy and framework;
- Providing an appropriate legal framework;
- Establishing an appropriate support mechanism for data and information collection on shark landings, utilization and trade; and
- Taking into consideration the result of national/regional studies on shark landings, utilization and trade.

11. Guidance to assist the Member Countries in the formulation of NPOA-Sharks should be developed at the Second Regional Technical Consultation on Shark Fisheries taking into consideration the result of the regional study on sharks and experience in the formulation of NPOAs by Japan and Thailand.

12. The Department of Fisheries, Thailand is requested to coordinate with the Thai CITES Office, National Park, Wildlife and Plant Conservation Department and to provide to other ASEAN-SEAFDEC Member Countries through SEAFDEC Secretariat on the information including the final preparatory process, agenda and arrangement for CITES-CoP13 to ensure distribution of relevant information and publications of the result of regional studies on shark landings, utilization and trade.

13. The Meeting took note of works undertaken by various Member Countries and SEAFDEC on sea cucumber and seahorse as well as initiatives by the Philippines in developing a stock assessment survey on sea cucumber to understand status of and trade in commercial species. ASEAN and SEAFDEC Member Countries should initiate an inventory of sea cucumber species available in their countries through exchange of information. The Meeting proposed that Thailand and SEAFDEC undertake the coordinating role in this exercise.

2.2 Issues on Fisheries Subsidies

14. The Meeting reaffirmed the conclusion and recommendations reached at the ASEAN-SEAFDEC Regional Technical Consultation on Fisheries Subsidies held from 9 to 10 October 2003 in Bangkok, Thailand and agreed to use them excluding its appendix as the basis for

ASEAN Member Countries for their contribution and intervention to the Technical Consultation on the Use of Subsidies in the Fisheries Sector.

2.3 Recommendations for Immediate Follow-Up Actions

15. In following up the above conclusion and recommendations, the Meeting requested SEAFDEC Secretariat to submit the outcome adopted at this Meeting, as a common policy to the forthcoming meeting of the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) Mechanism for consideration and endorsement by respective higher authorities of ASEAN and SEAFDEC Member Countries.

RECOMMENDATIONS ON SAFETY AT SEA FOR SMALL FISHING BOATS IN SOUTHEAST ASIA

**Agreed at the Regional Workshop on Safety at Sea for Small Fishing Boats
SEAFDEC/TD, Samutprakan, Thailand
17 – 19 December 2003**

We, ASEAN Technical Officers related to the safety at sea for small fishing boats, met in Bangkok 17 – 19 December 2003 for the Workshop on Safety at Sea for Small Fishing Boats, and agreed to the following recommendations as a basis for formulating a comprehensive framework on the program to promote the issue of safety at sea for small fishing boats.

1. Leave the definition of ‘small fishing boats’ and ‘operational range’ up to individual countries.
2. Promote the registration of small fishing boats.
3. Promote coordination between concerned authorities on monitoring and control of small fishing boat safety as well as socio-economic considerations.
4. Strengthen local authorities and promote policies of safety at sea within the coastal communities.
5. Promote technical and financial support from authorities, including subsidies, at all levels for issues of safety at sea.
6. Identify and promote basic requirements for safety at sea in the areas of;
 - research on the design and construction of small fishing boats including the modification of traditional type boats
 - safety equipment including fire fighting and life-saving appliances
 - regular boat inspection systems.
7. Implement training & education programs for all stakeholders including fishers and boat builders, for the basic requirements of:
 - boat design and construction
 - equipment and its correct use
 - search & rescue
 - occupational health and safety awareness, including the avoidance of dangerous fishing practices
 - awareness of environmental factors.
8. Develop and promote the use of appropriate communication systems for;
 - weather forecasting information
 - search & rescue systems
9. Development of appropriate incident reporting and investigation systems for the purpose of improving safety at sea.

PROPOSED GUIDELINES OF COST SHARING SCHEME FOR THE NATIONAL COMPONENT OF THE FCG PROGRAMS

I. INTRODUCTION

SEAFDEC in collaboration with the Member Countries has formulated the SEAFDEC Special 5-year Program in 2002, which was later endorsed by the FCG and the Council. At these meetings the recipient countries agreed to share the required cost for the operation of the programs. These programs were designed to support the ASEAN member countries for the implementation of issues identified under the Resolutions and Plans of Action adopted at the Millennium Conference. It is also agreed that the ownership and responsibility of program operation of the member countries would be established in due course. Without details, an explanation of the “Cost-shared Scheme” was proposed as a tool for program implementation to enhance the ownership of the programs by member countries.

The Mid-term reviews of the implementation of the Resolutions and Plans of Action were conducted as one of the sessions in the Seminar on ASEAN-Japan Cooperation for Sustainable Fisheries through SEAFDEC in December 2003 and the 26th meeting of SEAFDEC Program Committee in January 2004 and it is recommended that SEAFDEC Secretariat prepare the Guideline on the cost sharing system for the implementation of the FCG Programs of ASEAN member countries.

II. PROPOSED PRINCIPLE OF THE GUIDELINES

During the mid-term review exercises, the nature and characteristics of the FCG programs were also discussed. The SEAFDEC programs, especially the FCG programs mainly provide the support to facilitate the member countries to implement the programs in their respective priority.

SEAFDEC is also aware of the facilitating of the cooperation and implementation of the FCG programs of the member countries. Therefore, FCG programs are planned, designed and formulated with full consultation between the member countries and SEAFDEC Departments. In this connection if the member countries still feel that any of these programs were formulated without, or with insufficient consultation, in that case such programs can not be treated as FCG programs. It is also out of the question for the cost-shared schemes as proposed in the guidelines.

SEAFDEC realizes that to provide the maximum benefits of the programs to the member countries. SEAFDEC should incorporate both national and regional activities into its program. Therefore, most of the FCG Programs are composed of two parts, the regional activities and the national activities.

The nature of regional activities can be defined as follows:

1. Activities that contribute to the formulation of regional policies, i.e. those common issues used in the region from the technical clarification to formulate the technical guidelines, technical definition and standards etc.
2. Activities that are used to achieve the regional goals like regional technical consultations that may enhance awareness of the issues that are important for the promotion of sustainable fisheries in the region.



3. Regional Human Resource Development Program (HRD). This program including all training courses to be conducted at SEAFDEC Departments on relevant regional priority and common issues.
4. Regional compilation of data and information on regional priority issues.
5. Research activities on regional priority issues.
6. Dissemination of information compiled/developed on regional priority issues.

These regional activities and their goals cannot be achieved without harmonizing activities conducted by the member countries. Based on the national priorities relevant activities should be identified. National activities under the FCG programs can be defined as follows:

- a) The required activities for the achievement of the regional objectives and goals.
- b) All activities as effective tools for the implementation of national priority issues contained in the Resolutions and Plans of Action.

Since the special 5-year programs were formulated, the activities under (a) were mainly highlighted. Now it becomes clearer that the activities under (b) should have more emphasis for the implementation of the FCG programs in the future.

As FCG programs are supporting ASEAN member countries in implementing of their priority issues including the Resolutions and Plans of Action. However, it is found that the regional achievements are not enough to support them because the national requirements are very diversified. Therefore, the diversified situation of their priority, national system, socio-economics, policies, environment and availability of resources should be taken into account during the course of operation.

During the mid-term review exercises of the implementation of the Resolutions and Plans of Action, it was found that there are gaps between the national and regional activities. The member countries consider FCG programs as simply technical initiatives and activities, which have little linkage or are less required as national actions.

As SEAFDEC and the member countries exerted considerable effort in the implementation of the FCG programs, it can be more effective if all regional activities are closely linked with relevant national activities. In this regard the national activities can be defined as follows:

- 1) Case Studies: These will provide the specific situation of the country into the regional activities. If there are regional guidelines, the national priority can be clarified. Identifying the national priority that will be diversified from the regional guidelines can develop the start of national required action.
- 2) Human Resource Development: To serve the different requirements on HRD of the member countries, the on-site training activities will be developed under the FCG programs.
- 3) Joint Research Program: To achieve both regional and national goals joint research activities will be important activities to be conducted under the FCG programs. These activities also include information collection on specific issues identified by countries and region i.e. shark information. The joint research survey by MVs. SEAFDEC and SEAFDEC II in each member country's waters can be considered as a national activity.

III. PROPOSED GUIDELINES FOR FCG PROGRAMS IMPLEMENTATION.

As mentioned earlier, it is proposed that the cost-shared scheme for the implementation of FCG Programs should be developed. It is envisaged that all the national activities would be promoted under the cost-shared scheme especially in the following areas:

- 1) Provision of National Experts: All costs including salary, daily subsistence allowance, sea allowance and other expenses for mobilizing the experts in the national component of FCG program will be the responsibility of that respective member countries.
- 2) Local Travel Expenses: All costs for local transportation and travel expenses will be born by the respective country. This will include the total travel expenses of regional experts who are involved in the national activities.
- 3) Provision and Operation of Equipment: The cost of rental or mobilizing equipment that is available in the respective member countries will be born by the member countries. However, if such costs are too high, the sharing costs will be discussed and decided between SEAFDEC and the respective country prior to the activities.

In the case that the required equipment is not available in the respective member countries the cost of operation of such equipment including the research vessel will be shared as follows:

- a) Transportation of Equipment: All costs of transportation from outside to the site of the operation of the equipment including the research vessel will be born by SEAFDEC.
 - b) Personal Expenses: All costs including salary, DSA, sea allowance of the regional experts will be born by SEAFDEC during the activities.
 - c) Operation Cost: Especially for the research vessel; the fuel and fresh water provision will be born by the member countries for the operation of the vessel in their waters.
 - d) The required legal and agency fees including port charges will be born by the member countries.
- 4) Participation in Regional Activities: The participants in the regional activities including meetings and technical consultations are in principle born by SEAFDEC. However, if the member countries wish to send more than the quota proposed by SEAFDEC, all costs for such additional participants will be born by the member countries.

IV. CONCLUSION

There is a prevailing negative image of fisheries even in ASEAN member countries reflecting the dwindling status of national fisheries industry. This general perception on the negative implication of fisheries has also been accelerated by the imported negative concept on the fisheries from outside.

This situation also makes it difficult for respective governments to secure and increase the required national budgets to promote sustainable fisheries in each country within the national competitive situation over the budget securing process.

However, the people in the Southeast Asian Countries are greatly depend on fisheries and are not in the position that the fisheries industry can be replaced by other industries in the foreseeable future. Under such circumstances, the Government agency requires more financial and technical resources to take appropriate action now to secure sustainable fisheries for future generations.



It is understood that this is the basic idea on why the Resolutions and Plans of Action were adopted at the Millennium Conference to ensure appropriate corrective measures to be undertaken in fisheries sector.

In other words, the member countries need more financial means to initiate the work to rectify the critical status of fisheries for the millions of people in the region. The national priorities will be sought and identified for securing funds for the national activities under the cost-shared scheme.

The members of the meeting are invited to investigate the validity of both proposals on the guidelines, provide comments reflecting each country's situation and formulate their recommendation to their higher authorities.