

FACILITATING
INTEGRATED COASTAL
MANAGEMENT
IN VIETNAM

F
I
N
A
L
R
E
P
O
R
T



THE JON D. AND
KATHLEEN T. MACARTHUR
FOUNDATION
00-59757

SH
207
R4
F32
2004





WorldFish

C E N T E R

formerly known as "ICLARM – The WorldFish Center

Our Commitment:

to contribute to food security and poverty eradication in developing countries.

A Way to Achieve This:

through research, partnership, capacity building and policy support, we promote sustainable development and use of living aquatic resources based on environmentally sound management.

We believe this work will be most successful when undertaken in partnership with government and non-government institutions, and with participation of the users of the research results.



SH
207
R4
F32
2004



#387



Facilitating Integrated Coastal Management in Viet Nam

FINAL REPORT

*The John D. and Catherine T. MacArthur Foundation
Grant No. 00-59757*



000001850

CONTENTS

ACRONYMS

1	I. Background Information
2	II. Objectives
2	III. Expected Outputs
3	IV. Activities and Outputs
3	A. Establishing Commitments
5	B. Training Needs Analysis
6	C. Curriculum Development
6	D. Manual Development and Pre-Testing of Modules
8	E. Training Implementation
9	F. Training of Trainers
10	G. Training Evaluation and Follow-up Support

ANNEXES

A	Memorandum of Agreement and Letters of Agreement with Philippine Collaborating Institutions
B	Situational Analysis on the Use and Management of Viet Nam's Coastal Resources
C	Training Needs Assessment Sites
D	MOA Among Project Collaborators in Viet Nam
E	Bilateral MOA Between WorldFish Center and the Institute of Fisheries Economics and Planning
F	Coastal Management Issues in Viet Nam
G	Identified Project Stakeholders
H	Project Activity Work Schedule
I	Coastal Managers' Task Analysis
J	Participants of the TNA Presentation and Curriculum Development Workshop
K	Integrated Coastal Management Training Manual for Viet Nam
L	Evaluation System for the ICM Training Courses
M	Impact Evaluation Results

ACRONYMS

ICM	Integrated Coastal Management
ICZM	Integrated Coastal Zone Management
LOA	Letter of Agreement
MPA	Marine Protected Area
MOA	Memorandum of Agreement
TNA	Training Needs Assessment
TOT	Training of Trainers
UN-TSC	United Nations Train-Sea-Coast Collaborating Agencies
Philippines	
BCMTP-OC	The Broad-Based Coastal Management Training Program – Philippines Organizing Committee
DA-BFAR	The Department of Agriculture - Bureau of Fisheries and Aquatic Resources
DENR-CMMO	The Department of Environment and Natural Resources-Coastal and Marine Management Office (formerly Coastal Environment Program)
DOST-PCAMRD	The Department of Science and Technology-Philippine Council for Aquatic and Marine Research and Development
HARIBON	The Haribon Foundation for the Conservation of Natural Resources
WorldFish	The WorldFish Center
Viet Nam	
CFI	Committee of the Government on Frontier Issues (CFI)-National Steering Committee for Biendong Sea and Islands
CTU	Can Tho University
DoFi	Department of Fisheries (DoFi) of Khan Hoa
DoSTE	Department of Science, Technology and Environment (DoSTE) of Danang
HIO	Hai Phong Institute of Oceanology - Vietnamese Academy of Science and Technology (formerly, National Centre for Natural Science and Technology of Viet Nam)
HNIO	Ha Noi Institute of Oceanography (HNIO)
HUS	Ha Noi University of Science (HUS)
IFEP-MoFi	Institute of Fisheries Economics and Planning – Ministry of Fisheries
IMA	International Marinelife Alliance (IMA)
IUCN	IUCN-The World Conservation Union
MoSTE	Ministry of Science Technology and Environment of Ha Noi
NIO	Nha Trang Institute of Oceanography
RIMF	Research Institute of Marine Fisheries (RIMF) formerly Research Institute of Marine Products (RIMP)
SIWRP	Sub-Institute for Water Resources Planning (SIWRP) of Southern Viet Nam
UAF	University of Agriculture and Forestry

I. BACKGROUND INFORMATION

Developing nations in Southeast Asia are threatened by over exploitation, use of destructive fishing practices, pollution and other development-related pressures. In varying magnitudes, issues common to these countries are: the lack of comprehensive information on the coastal zones, increasing populations, limited ability to ensure sustainable levels of resource use because of, for instance, deforestation, coastal erosion, destructive harvesting practices, urbanization, a lack of investments in environmental management and lack of a management plan. Collectively, these threats have placed 55% of the world's coral reefs at risk (Bryant et al 1998).

Viet Nam's marine and coastal area extends over 1.5 million hectares with an Exclusive Economic Zone of about 1 million square kilometers. It also has 4,000 offshore islands mainly in the Gulf of Tonkin and various important coastal habitats such as large deltas (the Red River and Mekong River deltas), gulfs, lagoons and open coasts. Some 24,000 square kilometers of the coast, particularly in the central region, are low-lying lands constantly affected by tidal floods and typhoons. Its coastal zones support about 1/6th of its total population. The heavy effort in near shore fisheries greatly affected its coastal areas, with declines in fish landing in most coastal provinces.

The need to provide operational and implementing capacities for the management of coastal resources by coastal stakeholders in the Southeast Asian region, specifically in Viet Nam where the poor feel the majority of destructive impacts was then operationalized into a training project.

The training framework of the Broad-Based Coastal Management Training Program (BCMTP) - Philippines was used to pursue the training operations. The BCMTP was a national project conceptualized to respond to the growing demand of resource management and ensure its sustainability, and was implemented by the following collaboration of institutions/organizations:

- The WorldFish Center, formerly The International Center for Living Aquatic Resources Management (ICLARM)
- The Department of Agriculture - Bureau of Fisheries and Aquatic Resources (DA-BFAR)
- The Department of Environment and Natural Resources-Coastal and Marine Management Office (DENR-CMMO), formerly DENR-CEP (Coastal Environment Program)
- The Department of Science and Technology-Philippine Council for Aquatic and Marine Research and Development (DOST-PCAMRD)
- The Haribon Foundation for the Conservation of Natural Resources (HARIBON)

II. OBJECTIVES

The overall objective of this project is to promote the equitable and sustainable use of coastal resources in the Asian region through the development and implementation of Integrated Coastal Management (ICM) training tools. The main strategy of the project is to enhance national capacity building through training on ICM.

Specifically, the project aimed to:

- To develop a pool of coastal managers and trainers in Viet Nam.
- To support the conduct of initial in-country Training Needs Assessment (TNA) and its presentation.
- To assist in the development of ICM training courses relevant to each country's coastal management needs.
- To organize workshops on curriculum and manual development, implement integrated coastal zone management (ICZM) training courses and a Training of Trainers (TOT).

III. EXPECTED OUTPUTS

Expected outputs for the project include:

- A network of ICM practitioners in Viet Nam.
- The TNA conducted, analyzed and presented.
- Course curriculum developed.
- ICM framework for Viet Nam developed.
- ICM modules and training manual developed.
- Trained trainers.
- Training evaluation report.
- Impact evaluation report.

IV. ACTIVITIES AND OUTPUTS

The major findings and outputs from 1 December 2000 to 30 April 2004 are summarized after the proposed activities:

A. Establishing Commitments

Programmed activities

- a. Networking
- b. Initial meetings
- c. Situational analysis
- d. Establishing the operational process

Accomplishments

- a. Identification of collaborators.

At project onset, information regarding all coastal management practitioners and initiatives were gathered countrywide and prospective collaborators identified by a project reconnaissance team composed of a representative each from the WorldFish Center, Department of Environment and Natural Resources and the Philippine Council for Aquatic and Marine Research and Development.

The reconnaissance trip in February 2001 generated interest from Can Tho University (CTU), Nha Trang Institute of Oceanography (NIO), the Ministry of Science Technology and Environment (MOSTE) of Ha Noi and the Hai Phong Institute of Oceanology (HIO) - Vietnamese Academy of Science and Technology (formerly, National Centre for Natural Science and Technology of Viet Nam).

- b. Initial Meetings with Philippine Collaborators

The BCMTP organizing Committee (OC) convened an Organizational Workshop on 11-12 January 2001, to design initial basis for work in Viet Nam. Outputs of the workshop include:

- A refined workplan for years 1-3.
- A detailed work schedule for Year 1.
- A draft MOA among collaborators.
- An agreement on budget allocations.
- Arrangements for setting up the training network in Viet Nam were scheduled on February 2001. Subsequent to this meeting, the Memorandum of Agreement (MOA) among the members of the BCMTP-OC for collaboration was signed and the Letters of Agreement

FINAL REPORT

for the transfer of funds to collaborating institutions was finalized and implemented (**Annex A**).

c. Orientation Workshop

The Orientation Workshop was convened on 26-29 June 2001 at HIO where an initial network of 17 collaborators was established. These potential partners came from 13 agencies representing government, academic and international non-government organizations in the country:

- IUCN-The World Conservation Union
- Ha Noi University of Science (HUS)
- Ha Noi Institute of Oceanography (HNIO)
- Committee of the Government on Frontier Issues (CFI) - National Steering Committee for Biendong Sea and Islands
- Ministry of Science and Technology and Environment (MoSTE)
- International Marinelife Alliance (IMA)
- Research Institute of Marine Fisheries (RIMF), formerly Research Institute of Marine Products
- Hai Phong Institute of Oceanology (HIO)
- Nha Trang Institute of Oceanography (NIO)
- Department of Science, Technology and Environment (DoSTE) of Danang
- Department of Fisheries (DoFi) of Khan Hoa
- Can Tho University (CTU)
- Sub-Institute for Water Resources Planning (SIWRP) of Southern Viet Nam.

The attendance and enthusiasm to participate was quite impressive such that the workshop outputs were substantial:

- Situational analysis on the use and management of the coastal resources of Viet Nam (**Annex B**).
- Identification of the TNA sites (**Annex C**).
- Commitments to the training project.

d. Signing of Agreements

Interested institutions and organizations signed on to an MOA (**Annex D**). An MOA with the Institute of Fisheries Economics and Planning (IFEP) of the Ministry of Fisheries (MoFi), main collaborating institution in Viet Nam, formalized the agreement with the WorldFish Center (**Annex E**), as lead institution for the transfer of funds.

In addition, complete outputs on:

- Coastal management issues: Identified, prioritized and aggregated (**Annex F**).
- Stakeholder levels: identified and target of first training development identified (**Annex G**).
- Project activity work schedule (**Annex H**).
- Viet Nam's coastal managers' task analysis (**Annex I**).
- Mechanics of implementation, as indicated in the memorandum of agreement and workshop evaluation

B. Training Needs Analysis

Programmed activities

- a. Country-based training needs analysis
- b. National consultation workshop
- c. Field validation
- d. Needs analysis documentation
- e. Needs analysis presentation workshop and identification of necessary training modules

Accomplishments

Local collaborators in Viet Nam conducted the TNA, lead by IFEP-MoFi, NIO and CTU, to determine ICM training needs of the provincial coastal stakeholders in the northern, central and southern regions of the country; and to develop a curriculum design for ICM training for the coastal provinces of Viet Nam.

Results of the TNA were presented at the Training Needs Assessment Presentation and Curriculum Development Workshop held in Da Nang City, Viet Nam from 20–23 May 2002. It likewise served as venue for the participants to get to know each other better, become more familiar with the United Nations Train-Sea-Coast (UN-TSC) training process and agree to a workable schedule of activities. A total of 17 participants from thirteen organizations attended the workshop (**Annex J**).

Coastal management issues identified from the TNA were as follows:

- Lack of a competent agency responsible for intersectoral plan formulation.
- Inadequate monitoring and problem solving for integrated coastal management.
- Unclear and ineffective management and monitoring mechanism.
- Over-exploitation of coastal resources.
- Environmental degradation.
- Destructive fishing practices.
- Coastal erosion.
- Coral mining.

- Land-based and shipping pollution.
- Oil spills.
- Ecosystem destruction due to aquaculture, reclamation of coastal agriculture and tourism.

C. Curriculum Development Course

Programmed activities

Recommendations compiled from the TNA provided the context framework for developing the country-specific curriculum. A curriculum development course was conducted in the Philippines; the principal output of participants was from information gathered through the previously conducted TNA. After the course, a consultation workshop was conducted with country-based experts and stakeholders to validate the curriculum. External reviewers were solicited to ensure relevance and maintain standards.

Accomplishments

Module Design and Topics Selection. From out of the TNA, the following preliminary modules were agreed upon: ICM Framework, Survey and Assessment, Monitoring, Awareness Education and Training, Master and Action Plan Development and Implementation, Plan Evaluation and Field Module. The UN-TSC methodology was employed to provide organization and structure to the decision process.

D. Manual Development and Pre-testing of Modules

Programmed activities

- a. Criteria for the formulation and selection of appropriate modules
- b. Orientation and development of module writers
- c. Development of the country-specific coastal management manual
- d. Pre-testing of modules

Accomplishments

- a. Viet Nam ICM Modules developed are as follows:
 - Module 1. ICM Framework
Developers: Dr. Nguyen Chu Hoi, IFEP
Dr. Nguyen Huu Cu, HIO
Ms. Nguyen Thu Hue, IMA
Mr. Nguyen Van Loi, DOSTE-Da Nang

- **Module 2. Awareness, Education and Training**
Developers: Dr. Nguyen Van Be, CTU
Dr. Le Quang Tri, CTU
Mr. Nguyen Van Loi, DOSTE-Da Nang
Ms. Tran Thi Quynh Anh, IMA
 - **Module 3. Survey and Assessment**
Developers: Mr. Nguyen Van Trai, UAF
Dr. Bui Xuan An, UAF
Dr. Le Quang Tri, CTU
Mr. Nguyen Viet Nghia, RIMF
Dr. Nguyen Hong Phuong, HNIO
 - **Module 4. Master and Action ICM Planning and Implementation**
Developers: Dr. Nguyen Hong Phuong, HNIO
Ms. Trinh Le Ha, HUS
Dr. Nguyen Huu Cu, HIO
Mr. Nguyen Van Loi, DOSTE-Danang
 - **Module 5. Monitoring**
Developers: Mr. Nguyen Van Trai, UAF
Dr. Luu Duc Hai, HUS
Dr. Nguyen Huu Cu, HIO
Mr. Nguyen Viet Nghia, RIMF
 - **Module 6. Plan Evaluation**
Developers: Ms. Nguyen Thu Hue, IMA
Dr. Le Quang Tri, CTU
Mr. Nguyen Van Loi, DOSTE-Da Nang
Dr. Nguyen Hong Phuong, HNIO
 - **Field Module**
Developers: Mr. Nguyen Viet Nghia, RIMF
Mr. Ho Van Trung Thu, Hon Mun Marine Protected Area
(MPA) Project of IUCN
Dr. Nguyen Hong Phuong, HNIO
Mr. Nguyen Van Loi, DOSTE-Da Nang
Ms. Tran Thi Quynh Anh, IMA
Dr. Nguyen Van Be, CTU
Mr. Nguyen Van Trai, RIMF
- b. **Module developers trained in TOT and module writing.**
- **First TOT, November 2002**
 1. Ms. Trinh Le Ha, HUS
 2. Dr. Nguyen Hong Phuong, HNIO
 3. Ms. Nguyen Thu Hue, IMA
 4. Ms. Tran Thi Quynh Anh, IFEP-MoFI (formerly with IMA)

FINAL REPORT

5. Ms. Le Thi Lan Anh, IFEP-MoFi
6. Mr. Nguyen Viet Nghia, RIMF
7. Dr. Nguyen Huu Cu, HIO
8. Mr. Nguyen Van Loi, DoSTE-Danang
9. Dr. Nguyen Van Be, CTU
10. Dr. Le Quang Tri, CTU
11. Mr. Nguyen Van Trai, UAF

- Second TOT, November 2003

1. Cao Van Viet, Department of Fisheries Resource Conservation and Protection of Ben Tre Province
2. Le Hong Giang, Department of Investment and Planning of Quang Ninh Province
3. Nguyen Tan Cuong, DoSTE of Ca Mau Province
4. Bui Xuan An, UAF
5. Luu Duc Hai, HUS
6. Tran Thi Hoa, Nha Trang Fisheries University
7. Tran Van Phuoc, Nha Trang Fisheries University
8. Le Doan Dung, Hai Phong Institute of Marine Research
9. Ho Van Trung Thu, Hon Mun MPA Pilot Project of IUCN
10. Angus McEwin, IFEP-MoFI
11. Cao Le Quyen, IFEP-MoFI
12. Hoang Van Cuong, IFEP-MoFI
13. Tran Thanh Hai, Hanoi University of Mining and Geology
14. Le Tran Nguyen Hung, National Directorate of Aquatic Resources Exploitation and Protection
15. Le Hong Lien, National Directorate of Aquatic Resources Exploitation and Protection
16. Nguyen Van Long, NIO

- c. System of incentives organized by Dr. Nguyen Chu Hoi who has committed to facilitate the finalization of the ICM training manual (**Annex K**).

E. Training Implementation in Viet Nam

Programmed activities

ICM partners oversaw the ICM training implementation in Viet Nam in collaboration with country collaborators. This was accomplished through:

- Pre-training meetings on consultations and training-related preparations.
- Providing technical, administrative and logistic facilitation.
- Supervising the documentation process.

Accomplishments

Three ICM Pilot Training-Workshops were implemented:

- Northern Viet Nam Integrated Coastal Management (ICM) Pilot Training-Workshop, Hanoi - Viet Nam, 9-15 May 2003, 35 trainees.
- Central Viet Nam Integrated Coastal Management (ICM) Pilot Training-Workshop, Nha Trang - Viet Nam, 8-13 June 2003, 16 trainees.
- Southern Viet Nam Integrated Coastal Management (ICM) Pilot Training-Workshop, Ho Chi Minh - Viet Nam, 16-22 June 2003, 21 trainees.

With the guidance and technical support of the BCMTP, the local collaborators were able to train a total of 72 coastal managers at the provincial level employing the curriculum they have specifically designed and developed for the stakeholders. They were able to deliver the modules applying the skills they have learned from the TOT. Enhanced use of methods like PowerPoint presentation, flipcharts, metacards, games, and group work were observed. Each trainer organized his/her own presentation techniques and materials.

Proceedings for each training course were prepared by the BCMTP-OC.

F. Training of Trainers

Programmed activities

- a. Development of selection criteria for in-country trainers
- d. Course development
- e. Actual conduct of TOT

Accomplishments

- a. Training of Trainers TNA survey was implemented at the TNA Presentation and Curriculum Development Workshop in Da Nang-Viet Nam as basis for the TOT course implementation.
- b. The TOT modules were prepared based on the results of the TNA survey and modules finalized, each with the following sections: trainers' notes, session guide, PowerPoint presentations and handouts. Major TOT modules developed and their developers are:
 - General Methodical Skills
Developers: Dir. Cesario Pagdilao, DOST-PCAMRD
Ms. Jessica Muñoz, DA-BFAR

- Effective Use of Visual Media (including MS PowerPoint Hands On)
Developers: Ms. Audrey Marie Serrano, WorldFish
Ms. Joann Glorioso, WorldFish
 - Effective Communication Skills
 - Active Listening (Ms. Sheila Vergara, WorldFish)
 - Feedback (Ms. Anabelle Plantilla, HARIBON)
 - Presentation Techniques
 - Plenary Lecture (Ms. Jessica Muñoz, DA-BFAR)
 - Creative Thinking (Ms. Sheila Vergara, WorldFish)
 - Role Play and Case StudyDevelopers: Mr. Robert Charles Capistrano, HARIBON
Mr. Vic Soliman, Bicol University
 - Facilitation Skills (Negotiation and Mediation)
Developers: Mr. Emiliano Ramoran, DENR-CMMO
Ms. Ester Zaragoza, DOST-PCAMRD
 - Networking (Ms. Sheila Vergara, WorldFish)
 - Coordination (Mr. Vic Soliman, Bicol University)
- c. The Module Developers' Writeshop and TOT for project collaborators in Viet Nam was held at the IRRI Harrar Hall, Philippines from 18-25 November 2002. This workshop was structured to have three phases: Phase 1 - Module Developers Writeshop, Phase 2 - TOT and Phase 3 - Module Delivery Presentations. Eleven participants from 9 agencies in Viet Nam attended the workshop.
- d. A second Training of Trainers was held in Ha Long City, Viet Nam on 27 – 30 November 2003, resulting to a total of 27 ICM trainers in the country.

G. Training Evaluation and Follow-up Support

Programmed activities

- a. Systematic evaluation of the training course delivery and impact
- b. Needs for follow-up support identified.

Accomplishments

For the ICM trainings, an evaluation system (**Annex L**) was developed to ensure that every aspect of the course was carefully assessed and evaluated, to include a written process documentation, co-facilitators evaluation from fellow module facilitators and module evaluation from participants. A discussion group each day was encouraged to validate the process documentation, however, an observed resistance to the peer evaluation process was observed. This was thus modified

into a post-workshop evaluation with key collaborators to discuss module updating, logistics and future planning.

At the TOT, the process and module evaluation was likewise implemented.

Haribon designed the impact evaluation process to assess the benefits of the ICM training at the provincial level six months after the implementation of the ICM training workshops. Based on the analysis of the results (**Annex M**), the ICM training program contributed significantly to the participants and their respective organizations in the enhancement of ICM activities in their own coastal areas. These results were presented at the Impact Evaluation Results Presentation Workshop held on 26-27 April 2004 at Saigon Tourane Hotel, Da Nang City, Viet Nam.

First, the ICM training course met the participants' and their institutions' demand and expectations. This is expressed through their commitment that they would recommend the course to their colleagues and co-workers. Second, the respondents themselves benefited and applied the different ICM modules in their line of work. All of the training modules were helpful and significant in addressing the ICM issues and needs. The modules on Master and Action Planning and Implementation and Participatory Coastal Resources Assessment were considered beneficial and practical. Participants also cited the skills and tools on designing, preparing and implementing ICM-related survey and assessment of coastal areas is a common task among provincial officers in Viet Nam. From the results, a variety of ICM-related policies have been initiated by ICM participants such as supporting sustainable livelihood for fisherfolks, organizational development and establishment of marine and fish sanctuaries/MPA.

In the process of adopting these ICM practices, the participants and their institutions faced a number of constraints such as limited funding, lack of ICM projects to apply learning or logistical support. Several training participants are seeking solutions to these hindrances. Submitting ICM project proposals to local and central leaders for funding support, integrating with other ICM projects/programs or sharing of resources such as financial and technical support from local organizations, NGOs and foreign agencies were the solutions provided by the participants to work on these limitations. Further, establishing new partnerships or networks in their own area or region was made possible through their exposure to the ICM training.

ANNEXES

ANNEX A

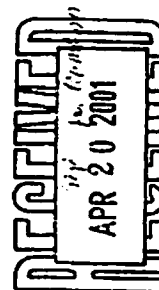
MOA AND LOA WITH PHILIPPINE COLLABORATING INSTITUTIONS

MEMORANDUM OF AGREEMENT

between

**THE INTERNATIONAL CENTER FOR LIVING AQUATIC RESOURCES
MANAGEMENT
(ICLARM)**

**THE DEPARTMENT OF SCIENCE AND TECHNOLOGY –
PHILIPPINE COUNCIL FOR AQUATIC AND MARINE RESEARCH AND
DEVELOPMENT (DOST-PCAMRD)**



**THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES – COASTAL
ENVIRONMENT PROGRAM (DENR-CEP)**

**THE DEPARTMENT OF AGRICULTURE – BUREAU OF FISHERIES AND AQUATIC
RESOURCES (DA-BFAR)**

and

**THE HARIBON FOUNDATION FOR THE CONSERVATION OF NATURAL
RESOURCES (HARIBON)**

INTRODUCTION

WHEREAS, the International Center for Living Aquatic Resources Management is an international non-government organization that contributes to food security and poverty eradication in developing countries. Through research, partnership, capacity building and policy support, it promotes sustainable development and use of living aquatic resources based on environmentally sound management. ICLARM has its headquarters at No. 10, Lower Level 6 Equatorial Hotel Office Block 1, Jalan Bukit Jambul, Bayan Lepas, 11900 Penang, Malaysia. The International Center for Living Aquatic Resources Management is hereinafter known as ICLARM. It is herein represented in this document by its Director General, Dr. Meryl J. Williams;

WHEREAS, the Philippine Council for Aquatic and Marine Research and Development of the Department of Science and Technology is a government agency of the Republic of the Philippines created pursuant to Executive Order 128 mandated to coordinate, plan, monitor and evaluate research and development activities dealing with the Philippines' aquatic resources; The Philippine Council for Aquatic and Marine Research and Development has its headquarters located at the Economic Garden, Los Baños, Laguna, Philippines and is hereafter known as DOST-PCAMRD. It is herein represented in this document by its Executive Director, Dr. Rafael D. Guerrero, III;

Logo
Indonesia - Packard Foundation

WHEREAS, the **Coastal Environment Program** is a government initiative under the Department of Environment and Natural Resources, an agency of the Republic of the Philippines mandated to protect, conserve and manage the nation's coastal and marine environment, with principal office located at Visayas Avenue, Diliman, Quezon City, Metro Manila, Philippines. The Coastal Environment Program of the Department of Environment and Natural Resources is hereafter known as **DENR-CEP**. It is represented in this document by its Secretary, **Mr. Heherson T. Alvarez**.

WHEREAS, the **Bureau of Fisheries and Aquatic Resources** of the Department of Agriculture is a government agency of the Republic of the Philippines mandated to ensure the rationale and sustainable development, management and conservation of the fishery and aquatic resources in Philippine waters, with principal office located at the Elliptical Road, Diliman, Quezon City, Metro Manila, Philippines. The Bureau of Fisheries and Aquatic Resources is hereafter known as **DA-BFAR**. It is represented in this document by its Director, **Atty. Malcom I. Sarmiento, Jr.**

WHEREAS, the **Haribon Foundation for the Conservation of Natural Resources, Inc.** is a non-government environmental organization that develops scientific and socio-economic researches on the natural ecosystems, and of environmental defense work in the Philippines, with headquarters at No. 9 Malingap cor. Malumanay Streets, Teachers' Village, Diliman, Quezon City, Metro Manila, Philippines. The Haribon Foundation for the Conservation of Natural Resources is hereafter known as **Haribon**. It is represented in this document by its President, **Atty. Hector D. Soliman**.

WHEREAS, the parties having common interests in implementing training programs in integrated coastal management through a regional training network, have agreed to collaborate on one project (Annex A):

- **Facilitating Integrated Coastal Management in Indonesia**

WHEREAS, the general objective of these projects is to promote the equitable and sustainable use of coastal resources in the Asian region through the development and implementation of integrated coastal management training tools. The main strategy of the project is to enhance national capacity building through training on integrated coastal management.

Specifically, it aims:

- To develop a pool of coastal managers and trainers in Indonesia
- To support the conduct of initial, in-country training needs assessment and its presentation
- To assist in the development of ICM training courses relevant to the coastal management needs of Indonesia
- To organize workshops on curriculum and manual development, implement integrated coastal zone management training seminars and training of trainers for participating countries

WHEREAS, the project envisions to bring together the major stakeholders who will work together in the formulation of the concepts, practice, implementation and training tools of integrated coastal zone management training in Indonesia.

NOW THEREFORE, in consideration of the abovementioned, ICLARM, DOST-PCAMRD, DA-BFAR, and DENR-CEP mutually agree as follows:

I. Responsibilities of ICLARM, DOST-PCAMRD, DA-BFAR, DENR-CEP and Haribon

ICLARM will:

1. Act as overall coordinator of work in Indonesia
2. Organize meetings related to coastal management training work in Indonesia
3. Take the lead in supporting our Indonesian counterparts in identifying networks of collaborators
4. Explore and determine the working relationships between collaborating organizations
5. Access and manage funds intended for the project
6. Initiate and pursue project monitoring and reporting to donors
7. Assist in the pursuit of training needs assessment (TNA), curriculum and manual development
8. Take the lead in supporting the Indonesians in training implementation
9. Conduct process documentation in coordination with collaborators
10. Provide an advance of 25% of the total budget allocated for the institution upon signing of this contract
11. Reimburse DOST-PCAMRD and Haribon upon submission of their financial and technical reports on the following dates:

Period Covered	Date
01 December 2000 – 30 May 2001	1 st week of June 2001
01 June – 30 November 2001	1 st week of December 2001
01 December 2000 – 30 May 2002	1 st week of June 2002
01 June – 30 November 2002	1 st week of December 2002
01 December 2002 – 30 May 2003	1 st week of June 2003
01 June – 30 November 2003	1 st week of December 2003

12. Provide travel support to DA-BFAR and DENR-CEP in accordance with the budget.

DOST-PCAMRD will:

1. Take the lead in supporting our Indonesian collaborators in conducting the Training Needs Assessment, and in curriculum and manual development
2. Provide expertise in training implementation
3. Provide assistance in project monitoring and evaluation
4. Provide assistance in identifying the network of collaborators
5. Provide assistance in developing training modules
6. Submit technical and financial reports on agreed dates and format

DA-BFAR will:

1. Assist in identifying the network of collaborators
2. Provide local logistics and funds when available
3. Assist in training implementation and render services as resource persons
4. Assist in project monitoring, reporting and evaluation
5. Assist in curriculum, modules and manual development
6. Submit technical and financial reports on agreed dates

DENR-CEP will:

1. Assist in module development
2. Assist in training implementation and render services as resource persons
3. Provide expertise in the development of project and training evaluation
4. Explore training and funding opportunities through collaboration with the ASEAN Regional Centre for Biodiversity Conservation
5. Assist in project monitoring and reporting
6. Submit technical and financial reports on agreed dates and format

HARIBON will:

1. Take the lead in supporting our Indonesian counterparts in program and training evaluation and impact evaluation
2. Assist in course and module development
3. Assist in training implementation
4. Submit technical and financial reports on agreed dates and format
5. Assist in project monitoring and reporting.

II. Terms

1. This agreement will commence on January 2001 and will have duration of 3 years.
2. Other budget information is presented in Annex B.

III. Disbursement of Project Funds:

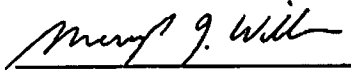
1. ICLARM shall provide financial support to its collaborating agents as stated in Annex A.
2. Financial report shall conform with the agreed format in Annex C.
3. The currency of the contract is the US Dollars.
4. Conversion from to US\$ shall be calculated on the basis of the rate during the latest transfer of funds to collaborators.
5. Reimbursement of expenses will be made upon submission of financial and technical reports as stated on page 3, I-11 of this contract. All relevant original or certified true copies of supporting documents to the financial report shall be submitted to ICLARM. Payment shall be completed upon reaching 90% of the total budget of the collaborator.
6. If for any reason there is still an outstanding balance from the advance by the end of this contract, PCAMRD and Haribon shall commit to repay the said amount to ICLARM.

This Memorandum of Agreement shall take effect immediately upon signing of concerned institutions.

Disputes or disagreements relating to this Memorandum of Agreement will be resolved by negotiations among ICLARM, DOST-PCAMRD, DA-BFAR and DENR-CEP AND HARIBON.

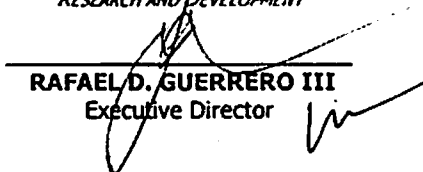
IN WITNESS WHEREOF, the parties hereto have affixed their signature, this day of _____, 2001 on the date written above.

*INTERNATIONAL CENTER FOR LIVING
AQUATIC RESOURCES AND MANAGEMENT*



MERYL J. WILLIAMS
Director General

*THE DEPARTMENT OF SCIENCE AND TECHNOLOGY -
PHILIPPINE COUNCIL FOR AQUATIC AND MARINE
RESEARCH AND DEVELOPMENT*



RAFAEL D. GUERRERO III
Executive Director

*THE DEPARTMENT OF AGRICULTURE -
BUREAU OF FISHERIES AND AQUATIC
RESOURCES*



MALCOM I. SARMIENTO, JR.
Director

*THE DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES - COASTAL
ENVIRONMENT PROGRAM*



HEHERSON T. ALVAREZ
Secretary

*THE HARIBON FOUNDATION FOR THE
CONSERVATION OF NATURAL RESOURCES*



HECTOR D. SOLIMAN
President

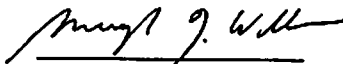
ACKNOWLEDGMENT

REPUBLIC OF THE PHILIPPINES
(QUEZON AVENUE, QUEZON CITY) S.S.

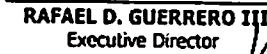
Before me at Quezon Avenue, Quezon City this _____ day of March 2001
personally appeared:

*INTERNATIONAL CENTER FOR LIVING
AQUATIC RESOURCES AND MANAGEMENT*

*THE DEPARTMENT OF SCIENCE AND TECHNOLOGY -
PHILIPPINE COUNCIL FOR AQUATIC AND MARINE
RESEARCH AND DEVELOPMENT*



MERYL J. WILLIAMS
Director General



RAFAEL D. GUERRERO III
Executive Director

A.C.R. No. _____
Issued on _____
Issued at _____

Res. Cert. No. _____
Issued on _____
Issued at _____

*THE DEPARTMENT OF AGRICULTURE -
BUREAU OF FISHERIES AND AQUATIC RESOURCES*

*DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES - COASTAL
ENVIRONMENT PROGRAM*



MALCOLM I. SARMIENTO, JR.
Director



HEHERSON T. ALVAREZ
Secretary

Res. Cert. No. 17319840
Issued on Jan 11, 2001
Issued at QC

Res. Cert. No. _____
Issued on _____
Issued at _____

*THE HARRISON FOUNDATION FOR THE
CONSERVATION OF NATURAL RESOURCES*



HECTOR D. SOLIMAN
President

Res. Cert. No. 17319840
Issued on 1-11-01
Issued at Manila

and likewise acknowledged that the foregoing instrument was executed of their own free act,
deed and in the capacity which they represent:

Doc. No. _____
Page No. _____
Book No. _____
Series of _____

n of 6
Inclusives - Packard Foundation

LETTER OF AGREEMENT

Between

ICLARM – THE WORLD FISH CENTER

and

The Haribon Foundation for the Conservation
of Natural Resources

WHEREAS, ICLARM – The World Fish Center, previously known as the International Center for Living Aquatic Resources Management and herein referred to as ICLARM, is an international non-government organization that contributes to food security and poverty eradication in developing countries. Through research, partnership, capacity building and policy support, it promotes sustainable development and use of living aquatic resources based on environmentally sound management. ICLARM has its headquarters at Jalan Batu Maung, Batu Maung 114960 Bayan Lepas, Penang, Malaysia. It is herein represented in this document by its Director General, Dr. Meryl J. Williams;

WHEREAS the Haribon Foundation for the Conservation of Natural Resources, Inc. is a non-government environmental organization also recognized as a science and research foundation in the Philippines, with headquarters at No. 9 Malingap cor. Malumanay Sts., Teacher's Village, Diliman, Q. C. It is represented in this document by its President, Atty. Hector Soliman. The Haribon Foundation for the Conservation of Natural Resources is hereafter known as Haribon;

AND WHEREAS, two Memoranda of Agreement (MOA between ICLARM, DENR, DA-BFAR, PCAMRD and Haribon – Indonesia and MOA between ICLARM, DENR, DA-BFAR, PCAMRD and Haribon – Vietnam) currently being circulated among Philippine-based collaborators stipulate the agreement to promote the equitable and sustainable use of coastal resources in the Asian region through the development and implementation of integrated coastal management training tools;

WITNESSETH that:

The David and Lucile Packard Foundation and The John D. and Catherine T. MacArthur Foundation have approved technical assistance contracts to ICLARM for the projects entitled, "Facilitating Integrated Coastal Management in Indonesia" and "Facilitating Integrated Coastal Management in Viet Nam", respectively.

The specific purpose of this Letter of Agreement is to enter into a sub-contract between ICLARM and the Haribon whereby Haribon will take the lead in designing the mechanics of training evaluation, documentation, training analysis.

NOW, THEREFORE, In consideration of the abovementioned, the parties hereby agree as follows:

*Letter of Agreement between ICLARM and PCAMRD
Page 1 of 4*

I. **Responsibilities of ICLARM**

ICLARM will be the executing agency and will provide the overall project administration in all technical and financial aspects as ICLARM has the overall responsibility to the donor; *provided* that ICLARM and Haribon retain equal and shared , non- exclusive rights over final outputs or materials developed in relation thereto

ICLARM will assign staff to liaise with Haribon on all matters regarding the terms of Agreement;

ICLARM will make available a budget to cover consultancy fees for Haribon staff recruited for the time they spend on the project, expenditures related to the operations of the project, travel costs and associated per diem and 10% administrative costs. Disbursements to Haribon will be made in accordance with the provisions specified in Annex A to this Agreement.

II. **Responsibilities of Haribon**

Haribon will serve as the lead agency in supporting Indonesian and Vietnamese counterparts in program and training evaluation and impact evaluation; *provided*, that Haribon and ICLARM retain equal and shared non-exclusive rights over final outputs or materials developed in relation thereto

Haribon will assist in course and module development

Haribon will assist in training implementation

Haribon will make provisions for their agency's personnel.

III. **Terms**

The Agreement will commence on the date of the signature of the second party to this Agreement and the duration of this Agreement will be in effect until December 31 2003. The last fund release will be implemented after the submission of the required technical and financial reports.

The total amount in relation to this Agreement is US\$ 48,503.4. This covers expenditure for remuneration for the staff recruited for duration they spend on the project from the signing of this agreement, expenditure related to the operations of the project, travel costs and associated per diem and 10% administrative costs based on the attached budget in Annex B.

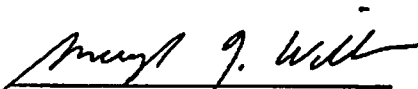
Participating countries and agencies, namely Indonesia and Viet Nam, and Haribon and ICLARM will share the research results, reports and other benefits arising from this cooperation. *The David and Lucille Packard Foundation* and *The John D. and Catherine T. MacArthur Foundation* will be acknowledged as donors in all publications resulting from the two ICM projects.

Disputes or disagreements relating to this Letter of Agreement shall be settled by negotiations between the parties.

IN WITNESS WHEREOF, the parties hereto have affixed their signatures.

**ICLARM
THE WORLD FISH CENTER**

**The Haribon Foundation for
the Conservation of Natural Resources**



MERYL J. WILLIAMS
Director General



Atty. HECTOR SOLIMAN
President

21 - 2 - 2002
Date

4 MAR 2002
Date

LETTER OF AGREEMENT

between

ICLARM – THE WORLD FISH CENTER

and

**The DEPARTMENT OF SCIENCE AND TECHNOLOGY –
PHILIPPINE COUNCIL FOR AQUATIC AND MARINE RESEARCH AND
DEVELOPMENT (DOST-PCAMRD)**

WHEREAS, ICLARM – The World Fish Center, previously known as the International Center for Living Aquatic Resources Management and herein referred to as ICLARM, is an international non-government organization that contributes to food security and poverty eradication in developing countries. Through research, partnership, capacity building and policy support, it promotes sustainable development and use of living aquatic resources based on environmentally sound management. ICLARM has its headquarters at Jalan Batu Maung, Batu Maung 114960 Bayan Lepas, Penang, Malaysia. It is herein represented in this document by its Director General, Dr. Meryl J. Williams;

WHEREAS the Philippine Council for Aquatic and Marine Research and Development (PCAMRD) is a government agency under the Department of Science and Technology (DOST) created pursuant to Executive Order 128 and mandated to coordinate, plan, monitor and evaluate research and development activities dealing with the Philippines' aquatic resources; The Philippine Council for Aquatic and Marine Research and Development is hereinafter known as PCAMRD. It is herein represented in this document by its Executive Director, Dr. Rafael D. Guerrero III;

WHEREAS, a Memorandum of Understanding (MOU) was executed on January 1998 between PCAMRD and ICLARM for the purpose of cooperating in research, training and information;

WHEREAS, paragraph 1 of Article II of the MOU makes provision for the MOU to be supplemented by a Memorandum of Agreement documenting specific terms and conditions;

WHEREAS, two Memoranda of Agreement (MOA between ICLARM, DENR, DA-BFAR, PCAMRD and Haribon – Indonesia and MOA between ICLARM, DENR, DA-BFAR, PCAMRD and Haribon – Vietnam) currently being circulated among Philippine-based collaborators stipulate the agreement to promote the equitable and sustainable use of coastal resources in the Asian region through the development and implementation of integrated coastal management training tools;

WHEREAS, PCAMRD, the Course Development Unit (CDU) of the United Nations Train Sea Coast Programme in the Philippines agrees to collaborate with ICLARM for the implementation of the projects entitled, "Facilitating Integrated Coastal Management in Indonesia" and "Facilitating Integrated Coastal Management in Vietnam" (Annexes A and B).

WITNESSETH that:

The David and Lucile Packard Foundation and The John D. and Catherine T. MacArthur Foundation has approved technical assistance contracts to ICLARM for the abovementioned projects.

The specific purpose of this Letter of Agreement is to enter into a sub-contract between ICLARM and the PCAMRD, whereby PCAMRD will take the lead in supporting the Vietnamese and Indonesian collaborators in conducting the Training Needs Assessment, and in curriculum and manual development as agreed to in the project Organizational Workshop on Jan 11-12, 2001.

NOW, THEREFORE, for and in consideration of the above premises, and of mutual covenants, agreements and stipulations hereinafter set forth, the parties hereby agree as follows:

WITNESSETH that:

Responsibilities of ICLARM and PCAMRD

I. ICLARM shall

ICLARM will be the executing agency and will provide the overall project administration in all technical and financial aspects as ICLARM has the overall responsibility to the donor;

ICLARM will assign staff to liaise with PCAMRD on all matters regarding the terms of this letter of Agreement;

ICLARM will provide financial support to PCAMRD amounting to USD 79,974.40. This budget shall be used to carry out the activities of the project assigned to it as specified in Annex C of this agreement. Disbursements to PCAMRD will be made in accordance with the provisions specified in Annex D to this Agreement.

II. PCAMRD shall

In accordance with the scope of work specified in Annex E, PCAMRD will serve as the lead agency in supporting the Vietnamese and Indonesian collaborators in facilitating the conduct of the Training Needs Assessment (TNA), curriculum and manual development activities.

PCAMRD will make provisions for their agency personnel's insurance and other benefits.

III. Terms

This Agreement will commence on the date of the signature of the second party to this Agreement and the duration of this Agreement will be in effect until December 31 .2003. The last fund release will be implemented after the submission of the required technical and financial reports.

The total amount in relation to this Agreement is US\$ 79,974.40. This covers expenditure for remuneration for the staff recruited for the duration they spend on the project from the signing of this Agreement, expenditure related to the operations of the project, travel costs and associated per diem, and 10% administrative costs based on the attached budget in Annex C.

Participating countries, namely Indonesia and Viet Nam, and PCAMRD and ICLARM will share the research results and other benefits arising from this cooperation. *The David and Lucille Packard Foundation* and *The John D. and Catherine T. MacArthur Foundation* will be acknowledged as donors in all publications resulting from the two ICM projects.

Disputes or disagreements relating to this Letter of Agreement shall be settled by negotiations between the parties.

IN WITNESS WHEREOF, the parties hereto have affixed their signatures.

ICLARM
THE WORLD FISH CENTER

THE PHILIPPINE COUNCIL FOR
AQUACULTURE AND MARINE
RESEARCH AND DEVELOPMENT
(PCAMRD) – DOST



MERYL J. WILLIAMS
Director General



RAFAEL D. GUERRERO III
Executive Director

18 January 2002

Date

30 Jan. 2002

Date

ANNEX B

ISSUE-BASED SITUATIONAL ANALYSIS ON THE USE AND MANAGEMENT OF THE COASTAL AND MARINE RESOURCES OF VIET NAM

Vietnam is located in Southeast Asia and has a tropical climate in the south and a monsoon climate in the north with a hot, rainy season and a warm, dry season. It has low and flat deltas, highlands and hills. Vietnam is occasionally struck by typhoons with extensive flooding. It is currently undergoing transition from a planned economy towards a market-based economy. Rice and crude oil generate most of Vietnam's export earnings.

Since the mid-1990's, coastal management has become an increasingly important issue in Vietnam. All main centers of economic growth and 80% of the nation's 80 million residents are located along Vietnam's 2,100 miles of coast.

From 1994-1996, a project has been conducted which assessed the vulnerability of the coastal zone of Vietnam to the impacts of accelerated sea level rise due to global warming. Findings showed that Vietnam is highly sensitive to sea level rise. Vietnam's vulnerability is ranked as critical and protection measures are immensely needed. Most sensitive areas are the Mekong Delta, the region of Ho Chi Minh City and Vung Tau. Integrated coastal zone management is seen as an essential tool for strengthening local capabilities for coastal management.

The coastal fishery industry provides a major source of income for those living in Vietnam, especially in small coastal fishing villages. Many species are harvested including lobster, shrimp, squid, cuttlefish, abalone and live reef fish for the food and aquarium trade. However, many problems exist in Vietnam's fishery industry due to a variety of factors.

Over-exploitation of near shore resources has occurred as a combined result of a fishing policy of 'fish stocks open to all' and high commodity prices of the produce. Poverty, lack of access to alternative livelihoods and the lack of environmental awareness have also exacerbated the situation. A fisherman's considerations of the long-term sustainability of a resource are often overridden by his need to feed the family. Moreover, present fisheries management strategies are not strong enough to enforce the sustainable use of natural fisheries resources. In effect, fishing families has been able to earn the needed capital to invest in aquaculture in order to improve their family's standard of living.

To sum up, Vietnam's coastal resources are being pushed to the limit, and help is desperately needed in order to initiate development of an effective and efficient management system for its coastal living marine resources.

One of the outputs of the Orientation Workshop of the CMTP-Vietnam Project on 26-29 June 2001 at Hai Phong City, Vietnam was a prioritized list/shortlist of all coastal resources management issues identified by the Vietnamese Collaborators. Consequently, current efforts undertaken by each collaborating agency were matched and categorized under each major issue. Moreover, the activities that they have committed to undertake in order to address these issues are summarized below.

BIOLOGICAL ISSUES:

1. Reduced biodiversity and coastal habitat destruction

↳ Current efforts being undertaken:

IUCN:

- ↳ Works on biodiversity conservation, especially on wetlands and marine resources; and sustainable use of natural resources

MoSTE:

- ↳ Performs state management functions in fields of scientific research, technology development, environment protection

IMA:

- ↳ Promotes conservation and sustainable use of marine resources in the Asia Pacific-Region
- ↳ Works toward the reduction/alleviation of three particular threats to coral reef ecosystems of Southeast Asia and the Pacific, namely:
 - Destructive fishing practices
 - Habitat destruction, and
 - Overfishing
- ↳ Together with MOFEP, strengthens government capacity to monitor the country's live reef fish trade and develop a national strategy to combat all forms of destructive fishing

RIMP:

- ↳ Conducts studies on marine biodiversity and the building of marine protected areas (MPAs)

HIO:

- ↳ Conducts studies on marine ecology and biological resources, marine environment and solutions for environmental protection:
(Marine Ecology and Biological Resources Department)
 - Assessment of marine living resources and study on scientific bases of economically valuable species development
 - Research in coastal and marine ecosystems and their conservation
 - Assessment of marine conservation potentials and marine protected area planning
 - Study on ecology in species and populations of seaweed, seagrass, corals, plankton, benthos, seafish and marine mammals
 - Conduct environmental biology: bioindicators, biological solutions for pollution treatment, environmental impact on benthic community
 - Monitoring of toxic-phytoplankton, harmful algae and red tide

DoSTE-Danang:

- ↳ Manages and controls all environmental problems within Danang City

IFEP:

- ↳ Conducts sectoral planning, integrated management of water-bodies and aquatic environment for the sustainable

use of aquatic living resources in Vietnam, especially in the coastal areas

2. Collaborative Response:

DoSTE-Danang:

- ↳ Formulation of a Biodiversity Protection Plan

PPC:

- ↳ Approval of the Biodiversity Protection Plan
- ↳ Enforcement of policy/authority- institutional arrangements for coordination and implementation

Dept. of Fishery Protection & Dept. Forestry Protection:

- ↳ Enforcement of the Biodiversity Protection Plan

DoSTE & Dept. of Information and Culture

- ↳ Conduct of IEC activities

All stakeholders

- ↳ Implementation of the Biodiversity Protection Plan

2. Habitat degradation

2. Current efforts being undertaken:

IUCN:

- ↳ Works on biodiversity conservation, especially on wetlands and marine resources; and sustainable use of natural resources

MoSTE:

- ↳ Performs state functions in fields of scientific research, technology development, environment protection

IMA:

- ↳ Promotes conservation and sustainable use of marine resources in the Asia Pacific-Region
- ↳ Works toward the reduction/alleviation of three particular threats to coral reef ecosystems of Southeast Asia and the Pacific, namely:
 - Destructive fishing practices
 - Habitat destruction, and
 - Overfishing
- ↳ Together with MOFEP, strengthens government capacity to monitor the country's live reef fish trade and to develop a national strategy to combat all forms of destructive fishing

RIMP:

- ↳ Conducts surveys and researches on living marine resources and studies the marine environment and the relations between environment and fisheries development
- ↳ Conducts studies on marine biodiversity and the building of marine protected areas (MPAs)

HIO:

- ↳ Conducts studies on marine ecology and biological resources, marine environment and solutions for environmental protection:
(Marine Ecology and Biological Resources Department)
 - Assessment of marine living resources and study on scientific bases of economically valuable species development

- Research in coastal and marine ecosystems and their conservation
- Assessment of marine conservation potentials and marine protected area planning
- Study on ecology in species and populations of seaweed, seagrass, corals, plankton, benthos, seafish and marine mammals
- Conduct environmental biology: bioindicators, biological solutions for pollution treatment, environmental impact on benthic community
- Monitoring of toxic-phytoplankton, harmful algae and red tide

IFEP:

- ↳ Conducts sectoral planning, integrated management of water-bodies and aquatic environment for the sustainable use of aquatic living resources in Vietnam, especially in the coastal areas

▷ Collaborative Response:

NGOs, research institutions, local community

- ↳ To conduct habitat rehabilitation activities

DoSTE, NGOs, research institutions and local communities

- ↳ To conduct bio-monitoring of marine habitats (coral reefs, red tide occurrence, water quality, etc.)

3. Occurrence of harmful algal blooms

▷ Current efforts being undertaken:

HNIQ:

- ↳ Currently researches on Rapid Assessment of Marine Pollution Program (with Plymouth Environmental Research Centre and Frontier Projects, UK)

HUS:

- ↳ Future research on the predictions modeling for oceanographical structure and fisheries
- ↳ Future research on the Coastal hazard study for sustainable development
- ↳ Conducts projects under international cooperation such as: the Land-Sea-Atmosphere Interaction and Environment in the Coastal Zone of Vietnam

HIO:

- ↳ (Physical Oceanography Department)
 - Study on marine hydrodynamic factors (wave, current, tide)
 - Development and application of simulation and circulation modeling
- ↳ (Marine Environmental Chemistry Department)
 - Assessment of seawater quality and marine pollution mechanism
 - Marine pollution monitoring (in seawater, bottom sediment and marine biota)
 - Development of seawater quality modeling
 - Promotion of technical methods in laboratory and field survey

- ↳ (Marine Ecology and Biological Resources Department)
 - Conduct environmental biology: bioindicators, biological solutions for pollution treatment, environmental impact on benthic community
 - Monitoring of toxic-phytoplankton, harmful algae and red tide
- ↳ (Marine Database and Remote Sensing/GIS Department)
 - Assistance of HIO research departments to promote technical application of remote sensing and GIS in the field of coastal monitoring and management

↳ Collaborative Response:
(Counterpart for validation with collaborators):

- ↳ To conduct surveys and assessments

BIOPHYSICAL AND OCEANOGRAPHIC ISSUES:

1. Coastal erosion

↳ Current efforts being undertaken:

HNIO:

- ↳ Studies characteristics of environment and resources in the sea areas and coastal zones for conservation, rational utilization and sustainable development;
- ↳ Currently researches on the application of remote sensing and GIS to coastal zone management in Vietnam and Malaysia

HUS:

- ↳ Future research on the coastal hazard study for sustainable development
- ↳ Future research on mangrove ecosystem study
- ↳ Conducts projects under international cooperation such as: the Red River Delta- Global Change Programme (Coastal processes and resource use; mangrove evolution; and EIA of fisheries and resource utilization) and the Land-Sea-Atmosphere Interaction and Environment in the Coastal Zone of Vietnam

HIO:

- ↳ (Physical Oceanography Department)
 - Study on marine hydrodynamic factors (wave, current, tide)
 - Study on applied oceanography (sediment transport, coastal hydrodynamic, impacts on coastal constructions, port siltation, coastal erosion and sedimentation)
 - Development and application of simulation and circulation modeling

↳ Collaborative Response:
Research institutions, DARD, DoSTE

- ↳ To conduct survey and assessment of biophysical parameters

DARD, research institutions, universities, DoSTE

- ↳ To conduct shore protection activities and projects (against erosion)

2. Environmental destruction due to natural disasters

↳ Current efforts being undertaken:

HNIO:

- ↳ Currently researches on the impact of the El Niño/monsoon system on particle production and sedimentation in the upwelling region off the Southeastern coast of Vietnam (with the University of Hanburg, Germany)
- ↳ Currently researches on the application of remote sensing and GIS to coastal zone management in Vietnam and Malaysia

HUS:

- ↳ Future research on the predictions modeling for oceanographical structure and fisheries
- ↳ Future research on the coastal hazard study for sustainable development
- ↳ Conducts projects under international cooperation such as: the Red River Delta- Global Change Programme (Coastal processes and resource use; mangrove evolution; and EIA of fisheries and resource utilization) and the Land-Sea-Atmosphere Interaction and Environment in the Coastal Zone of Vietnam

HIO:

- ↳ (Marine Geo-Environment Department)
 - Study on coastal and marine geodynamic, environmental geochemistry, geomorphology, and sediments
 - Assessment of non-biological resources (marine minerals, coastal wetlands, coastal tourism potentials and seaport development)
 - Investigation of coastal hazards, geological environmental conditions and their responds
 - Providing scientific bases for coastal planning
- ↳ (Marine Database and Remote Sensing/GIS Department)
 - Assistance of HIO research departments to promote technical application of remote sensing and GIS in the field of coastal monitoring and management

↳ Collaborative Response:

Research institutions, DARD, DoSTE

- ↳ To conduct survey and assessment of biophysical parameters

Research institutions

- ↳ To conduct disaster impact assessment

PPC, DARD

- ↳ To develop a master plan for minimizing natural disaster (Action Plan)

3. Marine pollution

▢ Current efforts being undertaken:

HNIO:

- ↳ Currently researches on the application of remote sensing and GIS to coastal zone management in Vietnam and Malaysia
- ↳ Currently researches on Rapid Assessment of Marine Pollution Program (with Plymouth Environmental Research Centre and Frontier Projects, UK)

HUS:

- ↳ Future research on predictions modeling for oceanographical structure and fisheries
- ↳ Future research on the coastal hazard study for sustainable development

HIO:

- ↳ (Physical Oceanography Department)
 - Development and application of simulation and circulation modeling
- ↳ (Marine Environmental Chemistry Department)
 - Study on marine hydrochemistry factors
 - Assessment of seawater quality and marine pollution mechanism
 - Marine pollution monitoring (in seawater, bottom sediment and marine biota)
 - Development of seawater quality modeling
 - Promotion of technical methods in laboratory and field survey

▢ Collaborative Response:

Research institutions, DARD, DoSTE

- ↳ To conduct survey and assessment of biophysical parameters

DoSTE and local communities

- ↳ To conduct pollution control/prevention activities and projects

DoSTE, DARD and research institutions

- ↳ To conduct monitoring activities of environmental quality

4. Tidal and salinity intrusion

▢ Current efforts being undertaken:

HNIO:

- ↳ Studies characteristics of geological structure and mineral distribution in sea areas of Vietnam and South China Sea;
- ↳ Studies characteristics of environment and resources in the sea areas and coastal zones for conservation, rational utilization and sustainable development;
- ↳ Studies characteristics of geophysical data fields, deep structure and geodynamics in the sea areas of Vietnam and South China Sea;
- ↳ Develops multi-purpose oceanographic databases for scientific research, economic development and marine management;

- ↳ Currently researches on the application of remote sensing and GIS to coastal zone management in Vietnam and Malaysia

HUS:

- ↳ Future research on predictions modeling for oceanographical structure and fisheries
- ↳ Future research on the coastal hazard study for sustainable development

HIO:

- ↳ (Physical Oceanography Department)
 - Study on marine hydrodynamic factors (wave, current, tide)
 - Development and application of simulation and circulation modeling
- ↳ (Marine Environmental Chemistry Department)
 - Study on marine hydrochemistry factors
 - Assessment of seawater quality and marine pollution mechanism
 - Marine pollution monitoring (in seawater, bottom sediment and marine biota)
 - Development of seawater quality modeling
 - Promotion of technical methods in laboratory and field survey

▢ **Collaborative Response:**

Research institutions, DARD, DoSTE

- ↳ To conduct survey and assessment of biophysical parameters

DoSTE and Research institutions

- ↳ To monitor and assess tidal and salinity intrusion

INSTITUTIONAL AND POLICY ISSUES:

1. Endangered species management

▢ **Current efforts being undertaken:**

IUCN:

- ↳ Works on biodiversity conservation, especially on wetlands and marine resources; and sustainable use of natural resources

IMA:

- ↳ Promotes conservation and sustainable use of marine resources in the Asia Pacific-Region
- ↳ Together with MOFEP, strengthens government capacity to monitor the country's live reef fish trade and to develop a national strategy to combat all forms of destructive fishing

RIMP:

- ↳ Conducts studies on marine biodiversity and the building of marine protected areas (MPAs)

HIO:

- ↳ (Marine Ecology and Biological Resources Department)
 - Research in coastal and marine ecosystems and their conservation

- Assessment of marine conservation potentials and marine protected area planning
- Study on ecology in species and populations of seaweed, seagrass, corals, plankton, benthos, seafish and marine mammals
- Conduct environmental biology: bioindicators, biological solutions for pollution treatment, environmental impact on benthic community
- Monitoring of toxic-phytoplankton, harmful algae and red tide

↳ (Marine Museum Department)

- Conduction of collection, taxonomy and management of marine specimens
- Collection of new specimens in Vietnam seas
- Research in system of national specimens and their exposition
- Exchange of the specimens with oversea organizations
- Promotion of museum services in order to strengthen awareness of community about marine resources and environment

↳ Collaborative Response:

PPC, DoSTE, DPI, DoFI, DARD and Research Institutions

- ↳ to establish an integrated MPA system, as part of the action framework for coastal management

2. Difficulty in integrating ICM project into national projects and local activities

- a. Lack of local institutional support
- b. Need to improve knowledge of local officers (staff of local government) on ICM

↳ Current efforts being undertaken:

CFI:

- ↳ Prepares relevant regulations of the government concerning marine and coastal resource use and maritime activities
- ↳ Supports research and management activities and provides other ministries interested in maritime and coastal zone management with knowledge and information concerning law, policy and management

HNIO:

- ↳ Provides post-graduate training in the fields of geology, geophysics and marine environment

IMA:

- ↳ Forges partnerships with the national and local government agencies (and intergovernmental institutions) and other international NGOs complementing the aim to manage marine ecosystems and their resources.

HUS:

- ↳ Conducts research and training activities (undergraduate, graduate and short-term courses)

DoFi – KH:

- ↳ Prepares a working program and plan in fisheries development of the province

- Assessment of marine conservation potentials and marine protected area planning
- Study on ecology in species and populations of seaweed, seagrass, corals, plankton, benthos, seafish and marine mammals
- Conduct environmental biology: bioindicators, biological solutions for pollution treatment, environmental impact on benthic community
- Monitoring of toxic-phytoplankton, harmful algae and red tide

↳ (Marine Museum Department)

- Conduction of collection, taxonomy and management of marine specimens
- Collection of new specimens in Vietnam seas
- Research in system of national specimens and their exposition
- Exchange of the specimens with oversea organizations
- Promotion of museum services in order to strengthen awareness of community about marine resources and environment

↳ Collaborative Response:

PPC, DoSTE, DPI, DoFI, DARD and Research Institutions

- ↳ to establish an integrated MPA system, as part of the action framework for coastal management

2. Difficulty in integrating ICM project into national projects and local activities

- a. Lack of local institutional support
- b. Need to improve knowledge of local officers (staff of local government) on ICM

↳ Current efforts being undertaken:

CFI:

- ↳ Prepares relevant regulations of the government concerning marine and coastal resource use and maritime activities
- ↳ Supports research and management activities and provides other ministries interested in maritime and coastal zone management with knowledge and information concerning law, policy and management

HNIO:

- ↳ Provides post-graduate training in the fields of geology, geophysics and marine environment

IMA:

- ↳ Forges partnerships with the national and local government agencies (and intergovernmental institutions) and other international NGOs complementing the aim to manage marine ecosystems and their resources.

HUS:

- ↳ Conducts research and training activities (undergraduate, graduate and short-term courses)

DoFi – KH:

- ↳ Prepares a working program and plan in fisheries development of the province

- ↳ Prepares, disseminates and implements guidelines for provincial fisheries activities

DoSTE:

- ↳ Develops and implements the GEF/UNDP/IMO/PEMSEA National ICM Demonstration Site Project in Danang City, Vietnam:
 - Conducts ICM institutional arrangements
 - Conducts public awareness programme
 - Forwards coastal strategies

IFEP:

- ↳ Coordinates/conducts trainings on fisheries planning, economics and management focusing on sustainable, integrated and co-management approaches through regional and international cooperation projects

3 Collaborative Response:

PPC, DoSTE, DPI, DoFI-KH, DARD, research institutions

- ↳ To develop an action framework for coastal area management (draft institutional arrangement, establish integrated MPA system, etc.) interpreted from the national policy

PPC

- ↳ To establish the mechanisms of framework implementation

DoSTE, DoFI-KH, NGOs, Universities, research institutions

- ↳ To facilitate training program for coastal practitioners and managers

3. Lack of appropriate mandates/policies and regulations for the conservation and sustainable use of coastal and marine ecosystems (including wetlands)

3 Current efforts being undertaken:

CFI:

- ↳ Prepares relevant regulations of the government concerning marine and coastal resource use and maritime activities
- ↳ Supports research and management activities and provides other ministries interested in maritime and coastal zone management with knowledge and information concerning law, policy and management

IMA:

- ↳ Assists in the development of new policy frameworks

DoFi – KH:

- ↳ Prepares a working program and plan in fisheries development of the province
- ↳ Prepares, disseminates and implements guidelines for provincial fisheries activities

CTU:

- ↳ (Mekong Delta Farming System Research and Development Institute)
 - Conducts research on sustainable agricultural production, and integrated farming systems

IFEP:

- ↳ Conducts sectoral planning, integrated management of water-bodies and aquatic environment for the sustainable use of aquatic living resources in Vietnam, especially in the coastal areas
 - ↳ Coordinates/conducts trainings on fisheries planning, economics and management focusing on sustainable, integrated and co-management approaches through regional and international cooperation projects
- ▢ Collaborative Response:
PPC, DoSTE, DPI, DoFI-KH, DARD, research institutions
- ↳ To develop an action framework for coastal area management (draft institutional arrangement, establish integrated MPA system, etc.) interpreted from the national policy
- PPC
- ↳ To establish the mechanisms of framework implementation
4. Lack of coastal management framework
- a. Need for the coordination on the planning and implementation of research projects to avoid overlaps
 - b. Need for institutional arrangements/mechanisms for ICM program implementation
- ▢ Current efforts being undertaken:
- CFI:
- ↳ Prepares relevant regulations of the Government concerning marine and coastal resource use and maritime activities
 - ↳ Supports research and management activities and provides other ministries interested in maritime and coastal zone management with knowledge and information concerning law, policy and management
 - ↳ Promotes international relations and cooperation in marine law, policy and management
- IMA:
- ↳ Assists in the development of new policy frameworks
- DoSTE:
- ↳ Develops and implements the GEF/UNDP/IMO/PEMSEA National ICM Demonstration Site Project in Danang City, Vietnam:
 - Conducts ICM institutional arrangements
 - Forwards coastal strategies
 - Conducts project monitoring and evaluation
- IFEP:
- ↳ Conducts sectoral planning, integrated management of water-bodies and aquatic environment for the sustainable use of aquatic living resources in Vietnam, especially in the coastal areas
 - ↳ Coordinates/conducts trainings on fisheries planning, economics and management focusing on sustainable, integrated and co-management approaches through regional and international cooperation projects

▢ Collaborative Response:

PPC, DoSTE, DPI, DoFI-KH, DARD, research institutions

- ↳ To develop an action framework for coastal area management (draft institutional arrangement, establish integrated MPA system, etc.) interpreted from the national policy

PPC

- ↳ To establish the mechanisms of framework implementation

5. Lack of plan/strategy for environmental planning

- Tidal flat management including new land
- Need for land use and water use zoning scheme
- Need for monitoring impacts of land-based pollution
- Need for planning for shrimp farming

▢ Current efforts being undertaken:

IUCN:

- ↳ Works on biodiversity conservation, especially on wetlands and marine resources; and sustainable use of natural resources; also focuses on integrated planning

CFI:

- ↳ Prepares relevant regulations of the government concerning marine and coastal resource use and maritime activities
- ↳ Supports research and management activities and provides other ministries interested in maritime and coastal zone management with knowledge and information concerning law, policy and management

HNIO:

- ↳ Develops multi-purpose oceanographic databases for scientific research, economic development and marine management;
- ↳ Currently researches on the application of remote sensing and GIS to coastal zone management in Vietnam and Malaysia
- ↳ Currently researches on Rapid Assessment of Marine Pollution Program (with Plymouth Environmental Research Centre and Frontier Projects, UK)

IMA:

- ↳ Forges partnerships with the national and local government agencies (and intergovernmental institutions) and other international NGOs complementing the aim to manage marine ecosystems and their resources.
- ↳ Assists in the development of new policy frameworks

HUS:

- ↳ Future research on the predictions modeling for oceanographical structure and fisheries
- ↳ Future research on the coastal hazard study for sustainable development
- ↳ Conducts projects under international cooperation such as: the Red River Delta- Global Change Programme (Coastal processes and resource use; mangrove evolution; and EIA of fisheries and resource utilization) and the Land-Sea-

Atmosphere Interaction and Environment in the Coastal Zone of Vietnam

SWIRP:

- ↳ Prepares integrated plans for development and projection of water resources in river basins
- ↳ Participates in regional, provincial and sectoral master planning relating to water resources development
- ↳ Prepares strategies for water resources and other sector development relating to water use and water environment
- ↳ Carries out studies of water control projects, including pre-feasibility, feasibility and detailed design
- ↳ Carries out water resources and water environment surveys and research programs
- ↳ Monitors the implementation of projects dealing with water resources and water environment

DoSTE:

- ↳ Develops and implements the GEF/UNDP/IMO/PEMSEA National ICM Demonstration Site Project in Danang City, Vietnam:
 - Develops strategic environmental management plan (SEMP)
 - Develops issues-specific and/or area-specific action plans

IFEP:

- ↳ Conducts sectoral planning, integrated management of water-bodies and aquatic environment for the sustainable use of aquatic living resources in Vietnam, especially in the coastal areas
- ↳ Integrates environmental plans into fisheries development plans at national, regional and local levels

↳ Collaborative Response:

PPC, DoSTE, DPI, DoFI-KH, DARD, research institutions

- ↳ To develop an action framework for coastal area management (draft institutional arrangement, establish integrated MPA system, etc.) interpreted from the national policy

PPC

- ↳ To establish the mechanisms of framework implementation

6. Management of gate system

↳ Current efforts being undertaken:

CFI:

- ↳ Prepares relevant regulations of the Government concerning marine and coastal resource use and maritime activities
- ↳ Supports research and management activities and provides other ministries interested in maritime and coastal zone management with knowledge and information concerning law, policy and management
- ↳ Promotes international relations and cooperation in marine law, policy and management

HNIO:

- ↳ Currently researches on the application of remote sensing and GIS to coastal zone management in Vietnam and Malaysia

IMA:

- ↳ Forges partnerships with the national and local government agencies (and intergovernmental institutions) and other international NGOs complementing the aim to manage marine ecosystems and their resources.

SWIRP:

- ↳ Participates in regional, provincial and sectoral master planning relating to water resources development
- ↳ Prepares strategies for water resources and other sector development relating to water use and water environment
- ↳ Carries out studies of water control projects, including pre-feasibility, feasibility and detailed design
- ↳ Carries out water resources and water environment surveys and research programs
- ↳ Monitors the implementation of projects dealing with water resources and water environment
- ↳ Currently conducts projects on the following areas: Water balance in Mekong Delta; Environmental Monitoring and Assessment for Water Quality Change along West Coastal Areas; and Water Resources Planning (South Mang Thit River and Cai Lon-Cai be River)

- ▢ **Collaborative Response:**
(for validation with collaborators)

7. Promotion of international cooperation

- ▢ **Current efforts being undertaken:**

CFI:

- ↳ Promotes international relations and cooperation in marine law, policy and management

DoSTE:

- ↳ Develops and implements the GEF/UNDP/IMO/PEMSEA National ICM Demonstration Site Project in Danang City, Vietnam:
 - Conducts ICM institutional arrangements
 - Forwards coastal strategies

IFEP:

- ↳ Coordinates/conducts trainings on fisheries planning, economics and management focusing on sustainable, integrated and co-management approaches through regional and international cooperation projects

- ▢ **Collaborative Response:**
(for validation with collaborators)

SOCIOECONOMIC ISSUES:

1. Conflicting usage of coastal resources (e.g. mangrove protection and shrimp farming)

▢ Current efforts being undertaken:

HNIO:

- ↳ Develops multi-purpose oceanographic databases for scientific research, economic development and marine management;

RIMP:

- ↳ Conducts surveys and researches on living marine resources and studies the marine environment and the relations between environment and fisheries development
- ↳ Provides information, consultation, investigation, planning and setting up of econotechnical studies in the field of fisheries resources, environment, capture fisheries, aquaculture and processing.

HUS:

- ↳ Future research on the scientific fundamentals for socioeconomic development of Vietnam coastal zone and islands
- ↳ Future research on the coastal hazard study for sustainable development

DoFi – KH:

- ↳ Prepares a working program and plan in fisheries development of the province
- ↳ Prepares, disseminates and implements guidelines for provincial fisheries activities
- ↳ Studies and applies scientific and biotechnological results into fisheries production

IFEP:

- ↳ Conducts development strategies and socioeconomic long term plans for Vietnam's fisheries
- ↳ Conducts sectoral planning, integrated management of water-bodies and aquatic environment for the sustainable use of aquatic living resources in Vietnam, especially in the coastal areas

▢ Collaborative Response:

Research institutions, universities NGOs, DoSTE

- ↳ To develop coastal awareness campaign

Research institutions, universities, NGOS, Fishery and agriculture promotion center/extension

- ↳ To improve livelihood opportunities of coastal people

Research institutions, universities, DoSTE, DARD, DPI, NGOs

- ↳ To conduct survey of socioeconomic status/ conditions in the coastal area.

2. Limited capacity of local communities to undertake coastal and marine conservation

▢ Current efforts being undertaken:

IUCN:

- ↳ Works on biodiversity conservation, especially on wetlands and marine resources; and sustainable use of natural resources; also focuses on environmental awareness

HNIO:

- ↳ Provides post-graduate training in the fields of geology, geophysics and marine environment

IMA:

- ↳ Strives to transfer skills to its partners, be they for monitoring reef species trade, baseline biological reef assessments, or cyanide detection test procedures.

RIMP:

- ↳ Transfers technologies in the field of fishing, aquaculture, fish processing to all economic partners
- ↳ Provides post-graduate training on specific subjects, and other training on fisheries science and technology

HUS:

- ↳ Conducts research and training activities (undergraduate, graduate and short-term courses)

DoFi – KH:

- ↳ Devises educational programs and plans or training courses for officers and workers in the field of fisheries

DoSTE:

- ↳ Develops and implements the GEF/UNDP/IMO/PEMSEA National ICM Demonstration Site Project in Danang City, Vietnam:
 - Conducts ICM institutional arrangements
 - Conducts public awareness programme
 - Develops/provides an integrated information management system

IFEP:

- ↳ Supports local communities in detailed planning and reasonable use of aquatic living resources
- ↳ Coordinates/conducts trainings on fisheries planning, economics and management focusing on sustainable, integrated and co-management approaches through regional and international cooperation projects

▢ Collaborative Response:

Research institutions, universities NGOs, DoSTE

- ↳ To develop coastal awareness campaign

Research institutions, universities, NGOS, Fishery and agriculture promotion center/ extension

- ↳ To improve livelihood opportunities of coastal people

PPC, Dept. of Construction, DARD, Dept. of Transportation

- ↳ To provide infrastructure support.

Bank for the Poor, Bank for Agriculture and Rural Development, other related banks

- ↳ To provide credit facilities/ programs.

Research institutions, universities, DoSTE, DARD, DPI, NGOs

- ↳ To conduct survey of socioeconomic status/conditions in the coastal area.

3. Limited community participation in coastal and marine conservation

↳ Current efforts being undertaken:

IMA:

- ↳ Strives to transfer skills to its partners, be they for monitoring reef species trade, baseline biological reef assessments, or cyanide detection test procedures.

DoSTE:

- ↳ Develops and implements the GEF/UNDP/IMO/PEMSEA National ICM Demonstration Site Project in Danang City, Vietnam:
 - Conducts ICM stakeholders consultation and consensus building
 - Develops/encourages ICM stakeholders' participation
 - Conducts ICM institutional arrangements
 - Conducts public awareness programs

↳ Collaborative Response:

Research institutions, universities NGOs, DoSTE

- ↳ To develop coastal awareness campaign

Research institutions, universities, DoSTE, DARD, DPI, NGOs

- ↳ To conduct survey of socioeconomic status/ conditions in the coastal area.

4. Varied development concerns (e.g. aquaculture development vs rice, fishery production; tourism, deep sea port development)

↳ Current efforts being undertaken:

CFI:

- ↳ Prepares relevant regulations of the government concerning marine and coastal resource use and maritime activities
- ↳ Supports research and management activities and provides other ministries interested in maritime and coastal zone management with knowledge and information concerning law, policy and management

IMA:

- ↳ Forges partnerships with the national and local government agencies (and intergovernmental institutions) and other international NGOs complementing the aim to manage marine ecosystems and their resources.

RIMP:

- ↳ Conducts surveys and researches on living marine resources and studies the marine environment and the relations between environment and fisheries development
- ↳ Conducts studies, experiments, development and application of new technologies for exploiting fish and other sea products, and for post-harvest technology
- ↳ Provides information, consultation, investigation, planning and setting up of econotechnical studies in the field of fisheries resources, environment, capture fisheries, aquaculture and processing.

HUS:

- ↳ Future research on the scientific fundamentals for socioeconomic development of Vietnam coastal zone and islands
- ↳ Future research on the coastal hazard study for sustainable development

DoFi – KH:

- ↳ Prepares a working program and plan in fisheries development of the province
- ↳ Prepares, disseminates and implements guidelines for provincial fisheries activities-

CTU:

- ↳ (Mekong Delta Farming System Research and Development Institute)
 - Conducts research on sustainable agricultural production, and integrated farming systems

IFEP:

- ↳ Provides consultancy in restructuring management systems and changing production mechanism of fisheries
- ↳ Assesses and makes market plans for fisheries development and products export

▢ Collaborative Response:

Research institutions, universities NGOs, DoSTE

- ↳ To develop coastal awareness campaign

Research institutions, universities, DoSTE, DARD, DPI, NGOs

- ↳ To conduct survey of socioeconomic status/ conditions in the coastal area.

5. Sedimentation pollution from land-based sources (agricultural: pesticides, fertilizers; industrial: heavy metal discharge, etc.)

▢ Current efforts being undertaken:

CFI:

- ↳ Prepares relevant regulations of the government concerning marine and coastal resource use and maritime activities
- ↳ Supports research and management activities and provides other ministries interested in maritime and coastal zone management with knowledge and information concerning law, policy and management

HNIO:

- ↳ Studies characteristics of environment and resources in the sea areas and coastal zones for conservation, rational utilization and sustainable development;
- ↳ Develops multi-purpose oceanographic databases for scientific research, economic development and marine management;
- ↳ Currently researches on the application of remote sensing and GIS to coastal zone management in Vietnam and Malaysia
- ↳ Currently researches on Rapid Assessment of Marine Pollution Program (with Plymouth Environmental Research Centre and Frontier Projects, UK)

HUS:

- ↳ Future research on the predictions modeling for oceanographical structure and fisheries
- ↳ Future research on the coastal hazard study for sustainable development
- ↳ Future research on mangrove ecosystem study
- ↳ Conducts projects under international cooperation such as the Land-Sea-Atmosphere Interaction and Environment in the Coastal Zone of Vietnam

▢ **Collaborative Response:**

Research institutions, universities, DoSTE, DARD, DPI, NGOs

- ↳ To conduct survey of socioeconomic status/conditions in the coastal area.

6. Need to emphasize community-based approaches in ICM (economic and social issues)

▢ **Current efforts being undertaken:**

IMA:

- ↳ Promotes conservation and sustainable use of marine resources in the Asia Pacific-Region
- ↳ Strives to transfer skills to its partners, be they for monitoring reef species trade, baseline biological reef assessments, or cyanide detection test procedures.

▢ **Collaborative Response:**

(for validation with collaborators)

TECHNICAL ISSUES:

1. Difficulty in the differentiation of water resource and coastal issues

▢ **Current efforts being undertaken:**

HUS:

- ↳ Conducts research and training activities (undergraduate, graduate and short-term courses)
- ↳ Future research on the scientific fundamentals for socioeconomic development of Vietnam coastal zone and islands

DoFi – KH:

- ↳ Prepares a working program and plan in fisheries development of the province
- ↳ Prepares, disseminates and implements guidelines for provincial fisheries activities

▢ **Collaborative Response:**

PPC, NGOs, scientific/ research institutions

- ↳ To facilitate information exchange networks

2. Lack of technical information of shrimp farmers

▢ Current efforts being undertaken:

RIMP:

- ↳ Provides information, consultation, investigation, planning and setting up of econotechnical studies in the field of fisheries resources, environment, capture fisheries, aquaculture and processing.
- ↳ Transfers technologies in the field of fishing, aquaculture, fish processing to all economic partners

DoFi – KH:

- ↳ Devises educational programs and plans or training courses for officers and workers in the field of fisheries

IFEP:

- ↳ Provides consultancy in restructuring management system and changing production mechanism of fisheries

▢ Collaborative Response:

PPC, NGOs, scientific/research institutions

- ↳ To facilitate information exchange networks

NGOs, research institutions, universities

- ↳ To give access to training and transfer of appropriate survey and assessment methods.
- ↳ To provide appropriate technology transfer to farmers/fishers/ provincial agency staff

3. Need for farming system models for coastal area

▢ Current efforts being undertaken:

RIMP:

- ↳ Transfers technologies in the field of fishing, aquaculture, fish processing to all economic partners
- ↳ Provides information, consultation, investigation, planning and setting up of econotechnical studies in the field of fisheries resources, environment, capture fisheries, aquaculture and processing.

HUS:

- ↳ Conducts research and training activities (undergraduate, graduate and short-term courses)
- ↳ Future research on the predictions modeling for oceanographical structure and fisheries

DoFi – KH:

- ↳ Devises educational programs and plans or training courses for officers and workers in the field of fisheries

▢ Collaborative Response:

(for validation with collaborators)

4. Need to identify/develop appropriate methodologies for biophysical and socioeconomic surveys

▢ Current efforts being undertaken:

HUS:

- ↳ Future research on the scientific fundamentals for socioeconomic development of Vietnam coastal zone and islands

DoFI – KH:

- ↳ Devises educational programs and plans or training courses for officers and workers in the field of fisheries

Collaborative Response:

(for validation with collaborators)

ANNEX C
TRAINING NEEDS ASSESSMENT SITES

NORTH	Responsible Agencies
1. Quang Ninh	IMA , HIO, HNIO, IUCN, RIMP
2. Hai Phong	IMA , HIO, HNIO, IUCN, RIMP
3. Thai Binh	HIO, HNIO, RIMP
4. Nam Dinh	HIO, HNIO, RIMP
5. Ninh Binh	HIO, HNIO, RIMP
6. Thanh Hoa	HIO, HNIO, RIMP
7. Nghe An	HIO, HNIO, RIMP
8. Ha Tinh	HIO, HNIO, RIMP
9. Quang Binh	HIO, HNIO, RIMP
10. Quang Tri	HIO, HNIO, RIMP
11. Thua Thien-Hue	HIO, HNIO, RIMP
CENTRAL	
12. Da Nang	DOSTE , NIO, RIMP
13. Quang Nam	DOSTE, NIO, WWF
14. Quang Ngai	NIO, RIMP
15. Binh Dinh	NIO, RIMP
16. Phu Yen	IMA, NIO, RIMP
17. Khanh Hoa	IMA, NIO, IUCN, WWF, RIMP
18. Ninh Thuan	SIWRP, NIO, WWF, RIMP, IMA
19. Binh Thuan	SIWRP, NIO, RIMP, IMA
SOUTH	
20. Ba Ria-Vung Tau	SIWRP, NIO, WWF, RIMP
21. Ho Chi Minh City	SIWRP, IUCN, RIMP, IMA
22. Long An	Can Tho University, RIMP, SIWRP
23. Tien Giang	Can Tho University, NIO, RIMP, SIWRP
24. Ben Tre	Can Tho University, RIMP, SIWRP
25. Tra Vinh	Can Tho University, RIMP, SIWRP
26. Soc Trang	Can Tho University, RIMP, SIWRP
27. Bac Lieu	Can Tho University, RIMP, SIWRP
28. Ca Mau	Can Tho University, RIMP, SIWRP
29. Kien Giang	Can Tho University, NIO, RIMP, SIWRP

ANNEX D

MOA AMONG PROJECT COLLABORATORS IN VIET NAM

MEMORANDUM OF AGREEMENT

This Memorandum of Agreement executed and entered by and between:

Department of International Relationship under Ministry of Science, Technology and Environment - a government body mandated to perform state management function in the fields of scientific research, technological development, standardization, industrial property and environmental protection, with principal office at 39 Tran Hung Dao Street, Ha Noi, Viet Nam, herein referred to as DIR/MOSTE and represented by its Vice-Director, Dr Le Dzung.

Institute of Fisheries Economics and Planning (IFEP) - a national academic consultant and management agency in the field of fisheries and aquatic living resources in Viet Nam under the leadership of Ministry of Fisheries (MoFi). IFEP conducts development of strategies and socio-economic long term plans of Vietnamese fisheries; conducts sectoral planning, integrated management of water-bodies and aquatic environment, including coastal and marine waters for sustainable use of aquatic living resources in Viet Nam. IFEP has its principal office at 10 Nguyen Cong Hoan Street, Ha Noi, Viet Nam and represented herein by its Vice-Director, Prof.Dr. Nguyen Chu Hoi.

Institute of Oceanography, Nha Trang - a research institute that conducts studies on marine science, including fundamental studies in marine biology, physics, chemistry, ecosystems, ecology, environment, biochemistry, geology, marine resources, etc. in the South China Sea and adjacent areas, with principal office at 01 Cau Da Street, Nha Trang City, Viet Nam, herein known as ION and represented herein by its Vice-Director, Dr. Vo Si Tuan.

Can Tho University-one of the leading universities in Viet Nam and an important center for research and technology programs in the Mekong Delta, with principal office at 3/2 Street, Can Tho City, Viet Nam, herein referred to as CTU and is represented herein by its Rector, Prof. Dr. Le Quang Minh.

Hai Phong Institute of Oceanology - a research institute that conducts basic research and technological development in the field of marine science with principal office at 246 Da Nang Street, Hai Phong City, Viet Nam, herein referred to as HIO and represented herein by its Acting Director, Dr. Nguyen Van Tien.

Research Institute for Marine Fisheries - a research institute under the Ministry of Fisheries that conducts research on marine living resources, experimental studies and application of new technologies in the marine capture fisheries and processing of marine products, surveying and monitoring of marine environment, with principal office at No. 170 Le Lai Street, Hai Phong City, Viet Nam and herein referred to as RIMF and herein represented by its Director, Prof. Dr. Do Van Khuong.

In Country MOA
Facilitating ICM in Viet Nam
Page 1 of 10

Committee on Frontier Issues under Ministry of Foreign Affairs-permanent body of the National Steering Committee for Bien Dong Sea and Islands and it is responsible for boundary delimitation and marine management and advise the Government in its integrated direction over the maritime issues, to facilitate research and exploitation of marine natural resources for purpose of economic development, consolidation of national defense and promotion of international co-operation in the areas relating to the sea and ocean management, with principal office at 103 Quan Thanh Street Ha Noi, Viet Nam. herein referred to as CFI and represented herein by its Vice Director of Department of Marine Affairs under CFI, Dr. Nguyen Hong Thao.

Department of Science, Technology and Environment of Da Nang City - in charge of the management and control of all environmental problems within the Danang City and help local government for management in the field of science and technology among others, with a principal office at 51A Ly Tu Trong Street, Da Nang City, Viet Nam and herein referred to as DOSTE- Da Nang City and represented herein by its Director, Dr Nong Thi Ngoc Minh.

Department of Fisheries of Khanh Hoa Province - a fisheries management office of the Khanh Hoa Provincial People's Committee (PPC) that instructs and controls fisheries activities in Khanh Hoa province, with principal office at 42 Nguyen Thi Minh Khai Street, Nha Trang City, Khanh Hoa Province, Viet Nam, herein referred to as DOFi-Khanh Hoa Province and herein represented by its Director, Mr. Vo Thien Lang.

Department of Science, Technology and Environment of Khanh Hoa Province- an administrative office of Provincial People's Committee Khanh Hoa, in charge of the management and control of all environmental problems within the Khanh Hoa and help local government for management in the field of science and technology among others, with principal office at 1-Tran Phu Street, Nha Trang City, Khanh Hoa province. Herein referred as DOSTE of Khanh Hoa Province and herein represented by its Director, Mr Nguyen Van Huot.

Ha Noi Institute of Oceanography - a scientific research institute that conducts application and development in the fields of marine science and technology, with principal office at Hoang Quoc Viet Road, Cau Giay, Ha Noi, Viet Nam, herein referred to as HNIO and represented herein by its Director, Prof. Dr. Bui Cong Que.

Sub-Institute for Water Resources Planning - a government organization that prepare strategies and integrated plans for development and protection of water resources in river basins, carries out studies and research programs on water resources and water control projects including pre-feasibility, feasibility, and detailed design, and monitors the implementation of projects dealing with water resources and water environment, with principal office at 253-A An Duong Vuong, District 5, Ho Chi Minh City, Viet Nam, herein referred to as SIWRP and herein represented by its Director, Dr. To Van Truong.

Hanoi University of Science, under the Viet Nam National University (Ha Noi) - one of the leading universities and an important center for education, training and development of research and technology programs of Viet Nam in the fields of natural sciences, including marine science, with principal office at 334 Nguyen Trai, Thanh Xuan, Ha Noi, Viet Nam, herein referred to as HUS and is represented herein by its Rector, Prof. Dr. Nguyen Van Mau.

World Wild Fund for Nature-IndoChina Programme Office - a non government organization concerned with the conservation of biodiversity by helping develop a functional network of well-managed protected areas and endangered species, encouraging more sustainable resource-use patterns, minimizing the negative environmental impact of economic development, promoting conservation awareness, and building local expertise in nature conservation, with principal office at 53 Tran Phu Street, Ba Dinh, Ha Noi, Viet Nam, herein referred to as WWF-IndoChina and herein represented by its Country Representative, Mr. Eric Coull.

International Marinelife Alliance-Viet Nam - a non-governmental organization that promotes conservation and sustainable use of marine resources in Viet Nam, with principal office at Suite 15 A, Citygate Building, 104 Tran Hung Dao Street, Ha Noi, Viet Nam, herein referred to as IMA-Viet Nam and is represented herein by its Country Program Coordinator, Ms. Nguyen Thu Hue.

IUCN the World Conservation Union-Viet Nam Office - a unique global membership organization working on influencing, encouraging and assisting societies throughout the world to conserve the integrity and diversity of nature, and to ensure that any use of natural resources is equitable and ecologically sustainable, with principal office at 15A Tran Hung Dao Street, Ha Noi, Viet Nam, herein referred to as IUCN-Viet Nam and is represented herein by its Country Representative, Dr. Nguyen Minh Thong.

University of Agriculture and Forestry - an agricultural institution catering mainly for the eastern part of South Viet Nam, the southern part of Central Viet Nam, the northern part of the Mekong Delta and the western Highland, covering substantive educational programs and development projects, training technicians in agricultural and related fields and carries out research supporting efficient and sustainable use of agricultural and natural resources, located at Linh Trung Ward, Thu Duc District, Ho Chi Minh City, herein referred to as UAF and is represented herein by its Vice Rector, Dr. Trinh Truong Giang.

WITNESSETH THAT:

WHEREAS, the project entitled "Facilitating Integrated Coastal Management Training in Viet Nam" has gained technical and financial support for implementation.

In Country MOA
Facilitating ICM in Viet Nam
Page 3 of 10

WHEREAS, the general objective of this project is to promote the equitable and sustainable use of coastal resources in the Asian region through the development and implementation of integrated coastal management training tools. Specifically, the objectives of the project are:

- 1) To develop a national pool of coastal management practitioners in Viet Nam from government organizations, the academic community, and non-government organizations.
- 2) To establish a network of collaborators in the country who will facilitate and work together in the formulation and implementation of an integrated coastal management framework in the Viet Nam.
- 3) To sustain the activities of the Network after finishing the project, it joins with the Sub-Committee on Coastal and Marine Environment Education and Training (as the members of the Sub- Committee) under Viet Nam Network on Environmental Education and Communication (VIETNEEC) endorsed officially by the Government.
- 4) To link with other ICM programs in Viet Nam supported by other donors.

WHEREAS, the project envisions bringing together the major stakeholders who will work jointly in the formulation and implementation of an integrated coastal management plan for identified stakeholder levels in Viet Nam;

WHEREAS, the parties herein mentioned, having common interests in implementing training programs in integrated coastal management through a collaborative national training network, have agreed to collaborate on the above-mentioned project and identify a lead institution and organize an Executing Board composed of representatives from North, Central and South Viet Nam with the following tasks:

IFEP will:

- Act as Lead Agency in coordinating preparatory and implementation activities of the project entitled "Facilitating Integrated Coastal Management in Viet Nam" with the following functions:
- Provide assistance to the Executing Board and the collaborating institutions with respect to the development of the integrated coastal management course content and presentation.
- Facilitate receiving and allocation of funds among collaborators for project activities.
- Act as member of Executing Board representing North Viet Nam with the following function:
- Conduct the Training Needs Assessment at designated sites and facilitate scoping workshop.
- Coordinate the integration and analysis of the TNA results and evaluation of the project.

- Facilitate in the design and development of a training course (i.e. curriculum and module content) based on the TNA results and the focal target group as agreed upon by other collaborators.
- Facilitate the validation and revision of the curriculum/modules.
- Provide facilities for the conduct of workshops when necessary, including determination of the workshop sites and field trip sites.
- Identify trainers and further linkages in collaboration with agencies mentioned in this agreement.
- Serve as subject matter specialist and resource persons during the course development and training implementation.
- Participate in training program implementation and evaluation.

ION will:

Act as member of Executing Board representing Central Viet Nam with the following function:

- Conduct the Training Needs Assessment at designated sites and facilitate scoping workshop.
- Coordinate the integration and analysis of the TNA results and evaluation of the project.
- Facilitate in the design and development of a training course (i.e. curriculum and module content) based on the TNA results and the focal target group as agreed upon by other collaborators.
- Facilitate the validation and revision of the curriculum/modules.
- Provide facilities for the conduct of workshops when necessary including determination of the workshop sites and field trip sites.
- Identify trainees/trainers and further linkages in collaboration with agencies mentioned in this agreement.
- Serve as subject matter specialist and resource persons during the course development and training implementation.
- Participate in training program implementation and evaluation.

CTU will:

Act as member of Executing Board representing South Viet Nam, with the following function:

- Conduct the Training Needs Assessment at designated sites and facilitate scoping workshop.
- Coordinate the integration and analysis of the TNA results and evaluation of the project.
- Facilitate in the design and development of a training course (i.e. curriculum and module content) based on the TNA results and the focal target group as agreed upon by other collaborators.
- Facilitate the validation and revision of the curriculum/modules.

- Provide facilities for the conduct of workshops when necessary including determination of the workshop sites and field trip sites.
- Identify trainees/trainers and further linkages in collaboration with agencies mentioned in this agreement.
- Serve as subject matter specialist and resource persons during the course development and training implementation.
- Participate in training program implementation and evaluation.

DIR/MOSTE will:

- Assist IFEP in coordinating national activities of the project.
- Advise IFEP in promoting the project activities.
- Support IFEP in project management in the framework of national regulations on international relationship.

CFI will:

Act as one of the collaborating partners with the following activities to be pursued as contribution to the project implementation:

- Assist in identifying the network of collaborators.
- Provide expertise in training implementation.
- Assist in project monitoring, reporting and evaluation.
- Assist in curriculum, modules and manual development.

DOSTE - Da Nang City will:

Act as one of the collaborating partners with the following activities to be pursued as contribution to the project implementation:

- Identify the target group/trainees.
- Provide baseline information and data.
- Identify the issues, needs of training and education materials.
- Participate in the training program implementation and evaluation.

DOFI- Khanh Hoa Province will:

Act as one of the collaborating partners with the following activities to be pursued as contribution to the project implementation:

- Participate in the development/ design of the curriculum.
- Assist in training implementation through identification of resource persons and target participants.

DOFi-Khanh Hoa Province will: H10

Act as one of the collaborating partners with the following activities to be pursued as contribution to the project implementation:

- Participate in the development/ design of the curriculum.
- Assist in training implementation through identification of resource persons and target participants.

DOSTE -Khanh Hoa Province will:

Act as one of the collaborating partners with the following activities to be pursued as contribution to the project implementation:

- Participate in the development/ design of the curriculum.
- Assist in training implementation through identification of resource persons and target participants.

HNIO will:

Act as one of the collaborating partners with the following activities to be pursued as contribution to the project implementation:

- Provide expertise in curriculum development and manual production including pre-testing of modules.
- Take part in training program implementation as participants/facilitators including training evaluation and feedback.
- Provide data/information and other resources and facilities in the curriculum development and in training program implementation.

RIMF will:

Act as one of the collaborating partners with the following activities to be pursued as contribution to the project implementation:

- Provide expertise in curriculum development and manual production including pre-testing of modules
- Take part in training program implementation as participants/facilitators including training evaluation and feedback
- Provide data/information and other resources and facilities in the curriculum development and in training program implementation.

SIWRP will:

Act as one of the collaborating partners with the following activities to be pursued as contribution to the project implementation:

- Participate in the development of the curriculum and training program implementation and evaluation.
- Take part in training program implementation as participants/facilitators including training evaluation and feedback

HUS will:

Act as one of the collaborating partners with the following activities to be pursued as contribution to the project implementation:

- Provide expertise in curriculum development and manual production including pre-testing of modules.
- Take part in training program implementation as participants/facilitators including training evaluation and feedback

WWF- IndoChina will:

Act as one of the collaborating partners with the following activities to be pursued as contribution to the project implementation:

- Provide expertise in curriculum development and manual production including pre-testing of modules.
- Take part in training program implementation as participants/facilitators including training evaluation and feedback.

IMA- Viet Nam will:

Act as one of the collaborating partners with the following activities to be pursued as contribution to the project implementation:

- Provide expertise in curriculum development and manual production including pre-testing of modules.
- Take part in training program implementation as participants/facilitators including training evaluation and feedback.

IUCN - Viet Nam will:

Act as one of the collaborating partners with the following activities to be pursued as contribution to the project implementation:

- Provide expertise in curriculum development including pre-testing of modules.
- Take part in training program implementation as participants/facilitators including training evaluation and feedback.

UAF will:

Act as one of the collaborating partners with the following activities to be pursued as contribution to the project implementation:

- Provide expertise in curriculum development and manual production including pre-testing of modules.
- Take part in training program implementation as participants/facilitators including training evaluation and feedback

The materials developed and results arising from this cooperative project will be shared by all parties. Should these be published, the donor- the Foundation shall be acknowledged.

This Memorandum of Agreement shall take effect immediately upon signing of concerned institutions.

Disputes or disagreements relating to this Memorandum of Agreement will be resolved by negotiations among.

IN WITNESS WHEREOF, the parties hereto have affixed their signature, this day of 23 May, 2002 on the date written above.

Signed this day by:

DIR/MOSTE


Le Dzung
Vice-Director

IFEP/MoFi


Nguyen Chu Hoi
Vice-Director

ION/NCNST

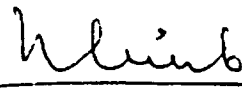
Vo Si Tuan
Vice-Director



CFI/MFA


Nguyen Hong Thao
Vice Director

DOSTE-Da Nang City


Nong Thi Ngoc Minh
Director

DOFi Khanh Hoa Province


Vo Thien Lang
Director

SIWRP


To Van Truong
Director

In Country MOA
Facilitating ICM in Viet Nam
Page 9 of 10


HNIO

Bui Cong Que
Director

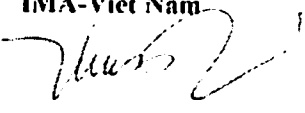
HUS
HOC
HOC
Nguyen Van Mau
Rector

RIMF

Do Van Khuong
Director

WWF Viet Nam

Eric Coull
Country Representative

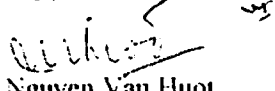
IMA-Viet Nam


Nguyen Thu Hue
Country Coordinator

IUCN Viet Nam


Nguyen Minh Thong
Country Representative

DOSTE-Khánh Hòa


Nguyen Van Huot
Director

UAF


Trinh Truong Giang
Vice Rector

HIO


Nguyen Van Tien
Acting Director

the project is to enhance national capacity building through training on integrated coastal management;

Specifically,

- To develop a pool of coastal managers and trainers in Viet Nam;
- To support the conduct of initial in-country training needs assessment and its presentation;
- To assist in the development of ICM training courses relevant to the coastal management needs of Viet Nam;
- To organize workshops on curriculum and manual development, implement integrated coastal zone management training seminars and training of trainers for participating countries;

WHEREAS, the project envisions to bring together the major stakeholders who will work together in the formulation of the concepts, practice, implementation and training tools of integrated coastal zone management training in Viet Nam;

TERMS AND CONDITIONS

NOW THEREFORE, in consideration of the above-mentioned, ICLARM and IFEP mutually agree as follows:

I. Responsibilities of ICLARM and IFEP

ICLARM will:

1. Act as overall facilitator in the implementation of the ICM training project in Viet Nam.
2. Organize meetings related to the project's coastal management training work in Viet Nam.
3. Take the lead in supporting Vietnamese collaborators in identifying networks of collaborators in cooperation with IFEP.
4. Assist IFEP in exploring and determining the working relationships between collaborating organizations.
5. Assist IFEP and other Vietnamese collaborators in the pursuit of training needs assessment (TNA), curriculum and manual development.
6. Take the lead in providing technical support to all Vietnamese collaborators in training implementation.
7. Conduct process documentation in coordination with IFEP and other collaborators.
8. Access and manage funds intended for the project.
9. Initiate and pursue project monitoring and reporting to donors.

Page 2 of 5

ANNEX E

MOA BETWEEN WORLDFISH CENTER AND IFEP

MEMORANDUM OF AGREEMENT

This Memorandum of Agreement executed and entered by and between:

**THE INTERNATIONAL CENTER FOR LIVING AQUATIC RESOURCES
MANAGEMENT (ICLARM)**

and

THE INSTITUTE OF FISHERIES ECONOMICS AND PLANNING (IFEP)

INTRODUCTION

WHEREAS, the International Center for Living Aquatic Resources Management is an international non-government organization that contributes to food security and poverty eradication in developing countries. Through research, partnership, capacity building and policy support, it promotes sustainable development and use of living aquatic resources based on environmentally sound management. ICLARM has its headquarters at Jalan Batu Maung, Batu Maung, 11960, Bayan Lepas, Penang, Malaysia. It is herein represented by its Director General, Dr. MERYL J. WILLIAMS. The International Center for Living Aquatic Resources Management is hereinafter known as ICLARM;

WHEREAS, the Institute of Fisheries Economics and Planning, hereinafter known as IFEP, is a national academic, consultant and management agency in the field of fisheries and aquatic living resources in Viet Nam under the leadership of Ministry of Fisheries (MoFi). IFEP conducts development of strategies and socio-economic long-term plans of Vietnamese fisheries; conducts sectoral planning, integrated management of water-bodies and aquatic environment for sustainable use of aquatic living resources in Viet Nam. IFEP has its principal office at 10 Nguyen Cong Hoan Street, Ha Noi City, Viet Nam. Institute of Fisheries Economics and Planning is represented herein by its Vice-Director, Prof. Dr. Nguyen Chu Hol;

WHEREAS, the parties having common interests in implementing a training project in integrated coastal management through a regional training network, have agreed to collaborate on the project entitled: "Facilitating Integrated Coastal Management in Viet Nam" (Annex A), sponsored by the John D and Catherine T MacArthur Foundation; Further, the parties have agreed to the organization of an Executing Board, the membership of which includes the Institute of Fisheries Economics and Planning, the Nha Trang Institute of Oceanography and Can Tho University. The Executing Board membership will coordinate activities in the north, central and southern regions of the country respectively.

WHEREAS, the general objective of this project is to promote the equitable and sustainable use of coastal resources in the ASEAN region through the development and implementation of integrated coastal management training tools. The main strategy of

Page 1 of 5

IFEP will:

1. Act as Implementing Agency in carrying out preparatory and implementation activities of the project entitled "Facilitating Integrated Coastal Management in Viet Nam".
2. Provide assistance to the Executing Board and the collaborating institutions with respect to the conduct of the Training Needs Assessment, development of the integrated coastal management course content and presentation.
3. Conduct the Training Needs Assessment (TNA) at designated sites in collaboration with the Executing Board and the Vietnamese collaborators.
4. Provide facilities for the conduct of workshops when necessary.
5. Facilitate and coordinate the design and development of a training course based on the TNA results and the focal target group as agreed to by other collaborators.
6. Facilitate and coordinate the validation and revision of the curriculum.
7. Determine the workshop and field trip sites, curriculum and module content, identify trainers and further linkages in collaboration with agencies mentioned in this agreement.
8. Provide training materials and conduct the training of trainers.
9. Initiate and complete the consolidation of modules.
10. Coordinate the integration and analysis of the TNA results and evaluation of the project with assistance from Philippine collaborators.
11. Receive and allocate funds among collaborators for project activities.
12. Submit technical and financial reports on the agreed dates below:

Period Covered	Date
Upon signature – 30 May 2002	1 st week of June 2002
01 June – 30 November 2002	1 st week December 2002
01 December 2002 – 30 May 2003	1 st week of June 2003
01 June – 30 November 2003	1 st week of December 2003

II. Disbursement of Project Funds:

1. ICLARM shall provide financial support to IFEP as stated in Annex B.
2. Disbursement of funds to IFEP shall be based on the following schedule:

Dates:	Amount (In US\$)
Upon signature and acceptance of this Agreement	9,450.00
Upon receipt of first Financial report and TNA survey update	9,450.00
Upon receipt of TNA workshop technical	12,050.00

report and June 2002 reports	
Upon receipt of December 2002 reports	12,050.00
Upon receipt of June 2003 reports	12,550.00
Upon receipt of December 2003 reports, including the final consolidated modules	12,550.00
Total	68,100.00

3. Financial report shall conform with the agreed format.
4. The currency of the Agreement is in US\$.
5. Conversion from local currency to US\$ shall be calculated on the basis of the rate during the latest transfer of funds to IFEP.
6. All relevant original or certified true copies of supporting documents to the financial report shall be submitted to ICLARM.
7. If for any reason there is an outstanding balance from the advance by the end of this contract, IFEP shall repay the said amount to ICLARM.

FURTHERMORE, the parties agree to review, and where mutually agreed, update project outcomes on a pre-agreed regularity. Specifically, the parties will:

- a. Review workplans, outputs of the TNA design of the curriculum and modules, validation report and other planned activities.
- b. Update the process documents throughout the project life.

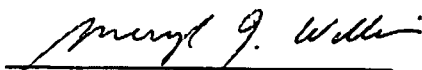
The materials developed and results arising from this cooperative project will be shared by all parties. Should these be published, the donor – The John D and Catherine T. MacArthur Foundation shall be acknowledged;

This Memorandum of Agreement shall commence upon signing of this agreement and will expire on 30 December 2003.

Disputes or disagreements relating to this Memorandum of Agreement will be resolved by negotiations between ICLARM and IFEP.

IN WITNESS WHEREOF, the parties hereto have affixed their signature, this day of _____, 2002 on the date written above.

INTERNATIONAL CENTER FOR
LIVING AQUATIC RESOURCES
MANAGEMENT
(ICLARM)



MERYL J. WILLIAMS
Director General

INSTITUTE OF FISHERIES
ECONOMICS AND PLANNING
(IFEP)



NGUYEN CHU HOI
Vice-Director

ANNEX F

COASTAL MANAGEMENT ISSUES IN VIET NAM

BIOLOGICAL ISSUES

- Biodiversity reduced
- Coastal habitat destruction
- Habitat degradation
- Occurrence of harmful algal blooms (red tide)

Task	Agency
Plan for biodiversity protection	DoSTE
Approval of the biodiversity plan	PPC
Enforcement for biodiversity protection	Dept. of Fishery Protection Dept. of Forestry Protection
Information, communication, education	DoSTE, Dept. of Info. and Culture
Habitat rehabilitation	NGOs, research institutions, local community
Make enforcement policy/authority – institutional arrangement for implementation, coordination	PPC
Implementation of the plan	All stakeholders
Bio-monitoring marine environment for habitats (coral reefs, red tide, water quality, etc.)	DoSTE, NGOs, research institutions, local communities trained to monitor resources
Survey and assessment	

BIOPHYSICAL AND OCEANOGRAPHIC ISSUES

- Coastal erosion
- Environmental destruction due to natural disasters
- Marine pollution
- Tidal and salinity intrusion

Task	Agency
Shore protection (against erosion)	DARD, research institutions, universities
Survey and assessment of bio-physical parameters	Research institutions, DARD, DoSTE
Disaster impact assessment	Research institutions
Pollution control and prevention	DoSTE, local communities
Monitoring of environmental quality	DoSTE, DARD, research institutions
Develop master plan for minimizing natural disaster, action plan	PPC, DARD
Monitoring and assessment of tidal and salinity intrusion	DoSTE, research institutions

INSTITUTIONAL AND POLICY ISSUES

- Endangered species management (e.g. Capacity and capability of research institutions on marine turtle conservation needs to be upgraded)
- Difficulty in integrating ICM project into national projects and local activities (as implemented at provincial level)
- Tidal flat management including new land
- Lack of appropriate mandates/policies and regulations for the conservation and sustainable use of coastal and marine ecosystems including wetland areas
- Lack of coastal management framework
- Lack of local institutional support
- Lack of plan/strategy for environmental planning
- Management of gate system
- Need for land use and water use zoning scheme
- Need for monitoring impacts of land-based pollution
- Need for planning for shrimp farming
- Need for the coordination on the planning and implementation of research projects to avoid overlaps
- Need for unified management among local and central agencies
- Need institutional arrangements/mechanisms for ICM program implementation
- Need management and coordination at the inter ministries/sectors at the national level
- Need policy framework for ICM
- Need to address the management of bird sanctuaries in coastal areas
- Need to improve knowledge of local officers (staff of local government) on ICM
- Promotion of international cooperation

Task	Agency
Develop action framework for coastal area management (draft institutional arrangements, establish integrated MPA system etc) interpreted from the national policy	PPC, DoSTE, DPI, DOFI, DARD, research institutions
Establish the mechanism of framework implementation	PPC
Facilitate training program for coastal practitioners and managers	DoSTE, DOFI, NGOs, universities, research institutions

SOCIOECONOMIC ISSUES

- Conflicting resource uses
- Increasing conflicts in multiple use of coastal resources
- Limited capacity of local communities to undertake coastal and marine conservation
- Community participation in coastal and marine conservation are limited
- Need to address conflict between mangrove protection and shrimp farming
- Varied development concerns (e.g. aquaculture development vs. rice, fishery production)

- Varied development concerns (e.g. tourism, Deep sea port development, aquaculture, water resources)
- Sedimentation Pollution from land based sources (agricultural development, pesticides, fertilizers) (industrial development (heavy metal discharge, etc)
- Need to take into account/emphasize community-based approaches in ICM (economic and social issues)

Tasks	Agency
Develop coastal awareness campaign	Research institutions, universities, NGOs, DoSTE
Improve livelihood opportunities of coastal people	Research institutions, universities, NGOs, Fishery and agriculture promotion center /extension
Provide infrastructure support	PPC, Dept. of Construction, DARD, Dept. of Transportation
Provide credit facilities/programs	Bank for the poor, Bank for agriculture and rural development, other relevant banks
Conduct survey of socioeconomic status/ conditions in the coastal area	Research institutions, universities, DoSTE, DARD, DPI, NGOs

TECHNICAL ISSUES

- Difficult to differentiate between water resources and coastal issues
- Lack of technical information of shrimp farmers
- Need for farming system models for coastal areas
- Need to identify/develop appropriate methodologies for biophysical and socio-economic surveys

Tasks	Agency
Facilitate information exchange networks	PPC, NGOs, scientific/research institutions
Access training and transfer of appropriate survey and assessment methods	NGOs, research institutions, universities
Provide appropriate technology transfer to farmers/fishers/provincial agency staff	NGOs, research institutions, universities

ANNEX G
IDENTIFIED PROJECT STAKEHOLDERS

PROVINCIAL – 5 votes

- Department of Science, Technology and Environment
- Department of Fisheries
- Department of Tourism
- Department of Transport
- Port Authority
- Research Institutions
- Enforcement agencies
 - Coast Guard/Marine police
 - Navy
 - Border force
- Department of Agriculture of Rural Development
- Department of Planning and Investment
- Bank for the Poor
- Provincial People's Committee
- Department of Construction

LOCAL COMMUNITIES – 3 votes

- Village leaders
- Mass organizations (mass based or civil society)
 - Women's organizations
 - Fishers associations
- Fishers/fishermen/fisherfolk

TRADERS/BUSINESS SECTOR

MEDIA

NGOs

- Local
- International

INDUSTRY

- Petroleum
- Oil and gas exploration
- Telecommunications
 - Cable companies

NATIONAL LEVEL – 4 votes

- MOSTE
- Ministry of Fisheries (MOFI)
- MPI (Ministry of Planning and Investment)
- MF (Ministry of Finance)
- MARD
- CFI
- MOCI (Ministry of Culture and Information)

NATIONAL LEVEL (cont.)

- MOI (Ministry of Industry)
- Ministry of Transport
- Ministry of Defense
- National Center for Science and Technology
- MOC (Ministry of Construction)
- Ministry of Training and Education
- General Department of Tourism
- Ports Authority
- NGOs
 - Local
 - International

PROVINCIAL NGO

- IUCN
- CRP (Center for Rural Progress)
- FFI (Flora and Fauna International)
- WWF
- IMA

ANNEX H
PROJECT ACTIVITY WORK SCHEDULE

Original Work Schedule

ACTIVITY	J	F	M	A	M	J	J	A	S	O	N	D
Year 2002												
1. Writing of modules												
2. Revisions – workshops												
3. Finalize the modules												
Year 2003												
1. Finalize the modules												
2. South Pilot Training (Ca Mau Province)												
3. Central Pilot Training (Nha Trang Province)												
4. North Pilot Training (Quang Ninh Province)												
5. Integration of evaluation results and manual revisions												
6. Final printing												

Note: This was revised during the TOT workshop.

Revised Work Schedule

ACTIVITY	J	F	M	A	M	J	J	A	S	O	N	D
Year 2002												
1. Writing of modules												
2. Revisions – workshops												
3. Finalize the modules												
Year 2003												
1. Finalize the modules												
1. South Pilot Training (Ca Mau Province)												
2. Central Pilot Training (Nha Trang Province)												
3. North Pilot Training (Quang Ninh Province)												
4. Integration of evaluation results and manual revisions												
5. Final printing												

Note: E – English Version; V – Vietnamese version

ANNEX I
COASTAL MANAGER'S TASK ANALYSIS

Task 1: Develop a Master and Action ICM Plan		Performance Standard:	
Triggering Event: Need for addressing major issues on coastal development in the province			
Terminating Event: When the master plan is developed			
Ref. No.	Sub-tasks	Performance Difficulties	Skill/Knowledge/Attitude
1.1.1	Identify the objectives and scope of the developing the master plan	<ul style="list-style-type: none"> • Differing views on coastal management • Lack of knowledge and experience in addressing ICM issues • Conflict among users/sectors in the province 	<p>S: Planning skills K: Are aware of the problems and issues of the provincial coastal environment A: Open minded</p>
1.1.2	Collecting and processing existing data and information related to ICM issues	<ul style="list-style-type: none"> • Dispersed information and data sources, accessibility • Willingness to share information by data sources 	<p>S: Data collection, organized, computer skills K: Knowledge on IT, statistics A: Hard working, resourceful</p>
1.1.3	Design the sampling program for each objective and field work/Develop the scenario	<ul style="list-style-type: none"> • Lack of new technology, equipment, tools, methods • Difficulty in achieving balance of benefits between sectors (economic situation) 	<p>S: Sampling skills, computer skills, field work skill, programming skills, application development skills K: Specialization in the identified fields of study A: Hardworking</p>

Task 1: Develop a Master and Action ICM Plan**Performance Standard:****Triggering Event: Need for addressing major issues on coastal development in the province****Terminating Event: When the master plan is developed**

Ref. No.	Sub-tasks	Performance Difficulties	Skill/Knowledge/Attitude
1.1.4	Process and analyze both existing and primary data collected	<ul style="list-style-type: none"> Lack of new technology, equipment, tools, methods Non-uniform methods used, data cannot be analyzed uniformly 	<p>S: Computer skills, programming skills, application development skills</p> <p>K: Specialization in the identified fields of study</p> <p>A: Hardworking</p>
1.1.5	Formulate the plan (writing, etc)	<ul style="list-style-type: none"> Lack of knowledge in formulating the plan Lack of support from policy/decision makers 	<p>S: Planning, Optimizing, Writing skills, Programming, Forecasting skills</p> <p>K: Multidisciplinary knowledge</p> <p>A: Hardworking, Intelligent,</p>
1.1.6	Validate the plan with the local stakeholders	<ul style="list-style-type: none"> Lack of awareness of local people on ICM Difficult to translate new concepts Community involvement 	<p>S: Facilitation skills, Organizing skills, Convincing skill, Reporting skill,</p> <p>K: Knowledge of public situation (culture)</p> <p>A: Harmony</p>
1.1.7	Submit validated/ revised plan for approval	<ul style="list-style-type: none"> Political willingness Bureaucracy (shifts in thinking) Corruption 	<p>S: Planning, Optimizing, Writing skills, Programming, Forecasting skills, Convincing skills</p> <p>K: Knowledge of political situation</p> <p>A: Patient</p>

Task 3: Monitoring**Triggering Event: Need for a monitoring design****Terminating Event: Development of the guidelines for monitoring****Performance Standard:**

Ref. No.	Sub-tasks	Performance Difficulties	Skill/Knowledge/Attitude
3.1.1	<ul style="list-style-type: none"> Identify the objective of monitoring 	<ul style="list-style-type: none"> Diverse coastal situation in terms of geography and biology Complexity of coordinating between and among implementing agencies 	S: Technical skills K: Multidisciplinary knowledge A: Hardworking, Active
2.1.2	<ul style="list-style-type: none"> Identify the appropriate parameters and methods for monitoring 	<ul style="list-style-type: none"> Too varied parameters and methods currently used Difficulty to assess information Non-uniform existing parameters and methods 	S: Sampling, technical and preservation skills (storage of samples and information) K: Knowledge on laboratory procedures, analysis and field work A: Truthful and intelligent, Honest
2.1.3	<ul style="list-style-type: none"> Validate the identified parameters and methods for monitoring 	<ul style="list-style-type: none"> Not enough/lack of facilities to implement methods 	S: Able to synthesize knowledge and inputs to the validation process; K: Practical knowledge A: Decisive
2.1.4	<ul style="list-style-type: none"> Develop the guidelines for monitoring 	<ul style="list-style-type: none"> Availability of funds and modern monitoring equipment 	S: Writing skill K: Knowledge on the practice of monitoring and survey methods A: Hardworking, intelligent, willing, volunteer

Task 2: Survey and Assessment		Performance Standard:	
Triggering Event: No uniform survey assessment methodology			
Terminating Event: Guidelines for uniform survey and assessment developed			
Ref. No.	Sub-tasks	Performance Difficulties	Skill/Knowledge/Attitude
2.1.1	<ul style="list-style-type: none"> Identify the objectives and areas for survey 	<ul style="list-style-type: none"> Complexity of ICM concepts and implementation approaches Diverse coastal situation in terms of geography and biology 	<p>S: Planning skills, Able to synthesize knowledge</p> <p>K: Multidisciplinary knowledge</p> <p>A: Hardworking, Active</p>
2.1.2	<ul style="list-style-type: none"> Identify the appropriate methodology necessary for survey (respondents, etc) 	<ul style="list-style-type: none"> Difficulty to assess information Non-uniform existing methods 	<p>S: Coordinating and facilitating skills</p> <p>K: Knowledge on analysis</p> <p>A: Cooperative, flexible</p>
2.1.3	<ul style="list-style-type: none"> Validate the identified approaches and methodologies 	<ul style="list-style-type: none"> Not enough / lack of facilities to implement methods 	<p>S: Able to synthesize knowledge and inputs to the validation process;</p> <p>K: Practical knowledge</p> <p>A: Decisive</p>
2.1.4	<ul style="list-style-type: none"> Develop the guidelines of survey and assessment 	<ul style="list-style-type: none"> Balance between theory and practice Translating philosophy / theory into tangible actions 	<p>S: Writing skill</p> <p>K: Knowledge on the practice of surveying and assessment</p> <p>A: Hardworking, intelligent, willing, volunteer</p>

Task 4: Awareness, Education and Training**Performance Standard:**

Triggering Event: Need for raising awareness, and capacity building in the area of ICM at the level of community and policy makers

Terminating Event: Program on ICM awareness, education and training developed

Ref. No.	Sub-tasks	Performance Difficulties	Skill/Knowledge/Attitude
4.1.1	<ul style="list-style-type: none"> Identify the target groups for training 	<ul style="list-style-type: none"> Diverse levels of education and knowledge of target groups 	K: Multidisciplinary knowledge, Public knowledge A: Cooperative, Hardworking, Active, Harmony
4.1.2	<ul style="list-style-type: none"> Identify appropriate training, education and communication methods 	<ul style="list-style-type: none"> Different educational level and backgrounds of target groups 	S: Training skills, Communication skills K: Multidisciplinary knowledge, Public knowledge A: Cooperative, Hardworking, Active, Harmony
4.1.4	<ul style="list-style-type: none"> Validate training and education methods 	<ul style="list-style-type: none"> Difficulty in generating cooperation and feedback of target groups 	S: Synthesis skills, training skills K: Multidisciplinary knowledge, Public knowledge A: Cooperative, Hardworking, Active, Harmony
4.1.3	<ul style="list-style-type: none"> Preparation the training and education and awareness campaign materials 	<ul style="list-style-type: none"> Availability of manpower, human resources Lack of baseline data and information 	S: Writing and designing skills K: Multidisciplinary knowledge A: Patient, flexible
4.1.4	<ul style="list-style-type: none"> Conduct training and education and awareness campaign 	<ul style="list-style-type: none"> Availability of fund, facilities and manpower 	S: Training skill, Communication skill K: Knowledge on the theory and practice of ICM A: Hardworking, harmony, friendly
4.1.5	<ul style="list-style-type: none"> Evaluation of training and education and awareness campaign 	<ul style="list-style-type: none"> Lack of feedback from target groups Lack of appropriate indicators for evaluation 	S: Analyzing skill K: Knowledge on the mechanics of evaluation, Public knowledge A: Truthful, hardworking

Task 5: Plan Evaluation		Performance Standard:	
Triggering Event: Need for uniform indicator for evaluation			
Terminating Event: Guidelines for evaluation developed and implemented			
Ref. No.	Sub-tasks	Performance Difficulties	Skill/Knowledge/Attitude
5.1.1	• Develop the indicators	• Diversity of existing indicators	S: Technical skill on the evaluation process K: Multidisciplinary knowledge A: Hardworking, Active
5.1.2	• Pre-testing of indicators	• Inadequate capacity for pre-testing (manpower, facility, funds)	S: Technical skill K: Multidisciplinary knowledge A: Hardworking, Active, Careful
5.1.3	• Develop and publish the guidelines for evaluation	• Inadequate capacity for pre-testing (manpower, facility, funds)	S: Writing skills, Synthesizing skills K: Multidisciplinary knowledge A: Hardworking, Active
5.1.4	• Implement the evaluation	• Lack of cooperation from target groups	S: Writing and designing skills K: Multidisciplinary knowledge A: Truthful and honest

Task 6: ICM Framework		Performance Standard:	
Triggering Event: Needs in ICM in Viet Nam			
Terminating Event: Enhanced local ability in ICM			
Ref. no.	Sub-tasks	Performance Difficulties	Skill/Knowledge/Attitude
6.1	Identify the institutional arrangements and legal framework for ICM in Viet Nam	Lack of knowledge and experience on ICM. Lack of institutional framework on ICM.	S: Ability to collect information to persuade policy makers K: Knowledge on institutional arrangements and legal status of maritime zones A: Supportive attitude on ICM, willingness
6.2	Review worldwide experiences on ICM	Information access. Choosing experience to be applied.	S: Compiling and sorting information Ability to select the appropriate experience. K: Knowledge on local customs, new technology A: Modern not conservative, smart
6.3	Getting consensus and recent practice on ICM concepts in Viet Nam	Varying ideas on understanding ICM. No institutional body for ICM	S: Communication, negotiation and lobbying skills K: Knowledge on recent development on ICM A: Acceptance, open minded, cooperative
6.4	Differences between inter and intrasectoral management	Conservative ideas and ambition for sectoral development.	S: Analysis skills K: Knowledge on sustainable development and identification of conflict of use A: Modern not conservative, cooperative
6.5	Status on biodiversity conservation in Viet Nam	Lack of knowledge on biodiversity.	S: Communication skills, climbing and swimming & diving K: Knowledge on scientific understanding of biodiversity A: Love of nature
6.6	Identify the problem and needs in ICM in Viet Nam	Lack of knowledge and experience on ICM	S: Analysis and problem identification K: Planning and development A: Open-minded
6.7	Components/elements of the ICM process (sustainability)	Lack of knowledge about the components of ICM	S: Analysis; synthesis K: ICM concepts A: Flexible, hard working and cooperative

ANNEX J

PARTICIPANTS OF THE TNA PRESENTATION AND CURRICULUM DEVELOPMENT WORKSHOP

Name	Position	Agency	Address	Contact Information		
				Phone No.	Fax No.	Email
Mr. Dinh Van Uu	Head, Department of Oceanography/ Director, Marine Dynamics and Environment Center	Ha Noi University of Science (HUS) - Viet Nam National University	334 Nguyen Trai, Thanh Xuan, Ha Noi, Viet Nam	84(4)8584945	84(4)8584945	ocean@hn.vnn.vn; uudv@vnu.edu.vn
Dr. Luu Duc Hai	Vice Dean, Faculty of Environmental Science	Ha Noi University of Science (HUS) - Viet Nam National University	334 Nguyen Trai, Thanh Xuan, Ha Noi, Viet Nam	84(4)8584995	84(4)8584945	haihus@hn.vnn.vn
Dr. Nguyen Hong Phuong	Head, Department of Marine Data Management, Center for Marine Data and Remote-Sensing	Ha Noi Institute of Oceanography (HNIO)	Hoang Quoc Viet Road, Cau Giay, Ha Noi, Viet Nam	84(4)8364997	84(4)7561647	nhphuong@netnam.org.vn
Dr. Nguyen Hong Thao	Master-Mariner/ Deputy Director, Marine Affairs Department/Lecturer, National University of Ha Noi	National Steering Committee for Biendong Sea and Islands (NSCBSI), Committee on Frontier Issues (CFI)	103 Quan Thanh Street, Ha Noi, Viet Nam	84(4)0804-4236; 09156-6965 (mobile)	84(4)8236920	thaonh@vista.gov.vn; vinh@cori.ac.vn
Dr. Le Dung	Deputy Director General, Department for International Relations	Ministry of Science, Technology and Environment (MOSTE)	39 Tran Hung Dao Street, Ha Noi, Viet Nam	84(4)9439192	84(4)9439987	ledung@moste.gov.vn
Ms. Nguyen Thu Hue	Country Coordinator	International Marinelife Alliance (IMA)	Suite 1.5A, City Gate Building, 104 Tran Hung Dao,	84(4)9420481	84(4)9420480	nthue@lmamarinelife.org.vn

Name	Position	Agency	Contact Information			
			Address	Phone No.	Fax No.	Email
Ms. Tran Thi Quynh Anh	Training and Education Officer	International Marinellife Alliance (IMA) Viet Nam	Hoan Kiem District, Ha Noi, Viet Nam Suite 1.5A, City Gate Building, 104 Tran Hung Dao, Hoan Kiem District, Ha Noi, Viet Nam	84(4)9420481	84(4)9420480	ttqanh@imamarinellife.org.vn
Prof. Dr. Nguyen Chu Hoi	Vice Director	Institute of Fisheries Economics and Planning (IFEP)	10 Nguyen Cong Hoan Street, Ba Dinh, Ha Noi, Viet Nam	84(4)8326055/ 771-6054; 09034336841 (mobile)	84(4) 8326054/ 771-6054	nchoih@hn.vnn.vn; ifep@netnam.vn
Ms. Le Thi Lan Anh	Researcher, Socio-Economics General Department	Institute of Fisheries Economics and Planning (IFEP)	10 Nguyen Cong Hoan Street, Ba Dinh, Ha Noi, Viet Nam	84(4)7716054	84(4)7716054	lalananh1978@yahoo.com; ifep@netnam.vn
Mr. Nguyen Viet Nghia	Deputy Head, Department of Marine Living Resources	Research Institute of Marine Fisheries (RIMF)	170 Le Lai Street, Hai Phong, Viet Nam	84(31)826986/ Mobile: 84(913) 090355	84(31)836812/ 836542	dangthi@hn.vnn.vn; bionghia@yahoo.com
Dr. Nguyen Huu Cu	Main Researcher, National Project on ICZM In Viet Nam	Hai Phong Institute of Oceanology (HIO), National Centre for Natural Science and Technology of Viet Nam	246 Da Nang Street, Hai Phong City, Viet Nam	84(31)760602	84(31)761523	c/o tdlan@hio.ac.vn; nvtien@hio.ac.vn

Name	Position	Agency	Contact Information			
			Address	Phone No.	Fax No.	Email
Dr. Vo Si Tuan	Vice Director/ Head of the Department of Marine Living Resources	Institute of Oceanography - Nha Trang (ION)	01 Cau Da Street, Nha Trang, Viet Nam	84(58)590205	84(58)590034	thuysinh@dng.vnn.vn
Mr. Mai Van Thang	Head of Environmental Management Division	Department of Science, Technology and Environment (DOSTE) - Khanh Hoa	01 Tran Phu St., Nha Trang City, Viet Nam	84(58)829849	84(58)824676	Thangmv@dng.vnn.vn
Mr. Nguyen Van Loi	Environmentalist/ Specialist	Department of Science, Technology and Environment (DOSTE) - Da Nang	51A Ly Tu Trong, Da Nang City, Viet Nam	84(511)837735 Mobile: 090-5- 111 036	84(511) 810107	icmdng@dng.vnn.vn
Dr. Nguyen Van Be	Deputy-Head, for Education and Research, Department of Environment and Natural Resources Management	College of Agriculture, Can Tho University (CTU)	Can Tho University (Campus II), 3/2 Street- Can Tho City, Viet Nam	84(71)730448/ 730392 (Home: 839690)	84(71)730392/ 830814	nvbe@ctu.edu.vn
Dr. Le Quang Tri	Senior Lecturer/Head of Land Use Planning and GIS Section, Soil Sciences and Land Management Department	College of Agriculture, Can Tho University (CTU)	Can Tho University (Campus II), 3/2 Street- Can Tho City, Viet Nam	84(71)831005/ HCM City: 84(8)8291244	84(71)830814/ HCM City: 84(8)8225871	lqtri@ctu.edu.vn
Dr. Trinh Truong Giang	Vice Rector	University of Agriculture and Forestry, Ministry of Education and Training	Thu Duc District, Ho Chi Minh City, Viet Nam	84(8)8960712/ Mobile: 84(091) 901039	84(8)8960713	ttgiang@hcmuaf.edu.vn; ttgiang@hcm.vnn.vn

ANNEX L

EVALUATION SYSTEM FOR THE ICM TRAINING COURSES

There were 4 types of evaluation that implemented for each ICM training course: process evaluation, co-facilitators evaluation, the post evaluation session and the workshop course evaluation.

The **process evaluation** intends to document the duration and mode of delivery of the modules. For each activity and topic the duration is recorded with its corresponding mode of delivery as it actually occurred (for example: lecture discussion, game, activity). A remarks field is provided to the evaluator. An outsider and another person from the organizing committee can conduct this evaluation. In this case the IUCN is welcome to observe the sessions and fill up the evaluation form. The intention of this evaluation approach is to generate feedback for the improvement of module presentation, to make it more interesting to participants and to make sure that the key points were understood through the chosen approach. Make sure that the evaluator is presented with a copy of the modules and curriculum and is apprised of the development history of the training course, emphasizing that the modules were developed based on a training needs analysis of the intended participants, in this case, the provincial level. Also, please remind the evaluator to note that the presentation techniques and presentation materials have been identified in the trainer's notes and session guide. These can be used as guides for the process evaluation. Each topic should be evaluated with a separate form. A copy of each form has to be made (photocopy) for the reference of the speakers during the post evaluation session. The original copies have to be put together and sent to the WorldFish Center – Philippines for documentation.

The second type of evaluation is the **Co-facilitators evaluation**, using a separate form. Each speaker is evaluated by 3 other facilitators. For example, if Dr. Nguyen Hong Phuong is speaking, 3 other speakers, Dr. Nguyen Van Be, Mr. Nguyen Van Loi and Ms. Nguyen Thu Hue will fill up 1 form each. All the filled in forms will be collected and photocopied. The speaker will retain 1 set which will be used as inputs to the improvement of his module and as reference at the post evaluation session. The original copies will be put together and returned by mail to the Philippines for further analysis and documentation purposes.

The third evaluation is the **Post evaluation session**. The intention of the post evaluation session is for the improvement of the module content and delivery for the next workshop.

If time permits, an evaluation session should be held after each day to reflect on the modules presented for the day. If time does not allow, an overall evaluation session should be held at the end of the workshop. It is necessary that all of the speakers are present during this session to talk about their modules. The reference materials for this session are the forms filled up from the process evaluation and co-facilitators evaluation earlier conducted. This session is essentially a self-evaluation session for the speakers and a validation session. It allows the speaker to describe his performance from his personal point of view and collect inputs from the other speakers. The speaker will then commit to certain revisions as agreed to. A facilitator should be assigned to this session to moderate the discussion and points for improvement, a rapporteur should be assigned to document the process and take special notes of points for improvement that will be implemented in the next

workshop. The post evaluation session report should be made available to all speakers and module developers.

The **Course evaluation** was designed to look into the interest of the participants, how the modules fit in their actual coastal management training needs and will serve as a baseline for further and progressive evaluation some time after the training workshop (after 6 months to 1 year).

For the third ICM training course, a simple feedback sheet was designed in place of the regular course evaluation form. It was implemented for the participants to give a realistic impression to trainers and organizers as to the effects of the training. The feedbacks provided shall help developers in revising contents and methods in the most suitable way for future participants.

PROCESS EVALUATION FORM

Date: _____ Time start: _____ Time end: _____

Module Title: _____

Presenter: _____

Evaluator: _____

ACTIVITY	TIME SPENT	METHOD(S)/MODE(S) OF DELIVERY	REMARKS

CO-FACILITATORS EVALUATION FORM

Date: _____

Module Title: _____
 Presentor: _____
 Evaluator: _____

Instructions: Kindly read the following statements and rate them accordingly.
 Please put a check mark to indicate your response.

1 = poor 3 = good 5 = excellent
 2 = satisfactory 4 = very good

When a written answer is required, please print your reply in the space provided.
 The information will be helpful in improving the module.

I. CONTENT

	1	2	3	4	5
1. Clarity of the module objectives					
a. Objective 1	_____	_____	_____	_____	_____
b. Objective 2	_____	_____	_____	_____	_____
c. Objective 3	_____	_____	_____	_____	_____
2. Emphasis on details	1	2	3	4	5
	_____	_____	_____	_____	_____
3. Time allotment	1	2	3	4	5
	_____	_____	_____	_____	_____
4. Organization and direction	1	2	3	4	5
	_____	_____	_____	_____	_____
5. Please check the method(s) used and rate its relevance	1	2	3	4	5
___ a. Lecture-discussion	_____	_____	_____	_____	_____
___ b. Role-play	_____	_____	_____	_____	_____
___ c. Film/Video Show	_____	_____	_____	_____	_____
___ d. Flip Chart	_____	_____	_____	_____	_____
___ e. Pin-board/meta cards	_____	_____	_____	_____	_____
___ f. Games	_____	_____	_____	_____	_____
___ g. Others (specify)	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
6. Was the content appropriate to the intended audience (provincial level) ?		YES	NO		
		_____	_____		

Please explain why: _____

COURSE EVALUATION FORM

Instructions: Kindly read the following statements. Select the answer that you feel corresponds best to your opinion and rate them as instructed. Some are open-ended questions. We would appreciate your candid response. *Your response will be kept confidential.* Thank you for your continuing to be part of the development process of this program.

Respondent's Profile

Name: _____ Age: _____ Sex: _____

Agency: _____ Position: _____

Agency Address: _____

E-mail: _____ Phone No.: _____ Fax No.: _____

Province: _____ Region: _____

Field of Specialization: _____

Present Work Responsibilities: _____

Date and Place of Course Attended: _____

Educational Background (*you may use the space provided at the back if necessary*):

Degree (BS/MS/PhD)	School	Year of Graduation

Previous Job Experience (*you may use the space provided at the back if necessary*):

Position	Agency	Duration	
		From	To

B. Relevance and Contribution of the

1. Why did you attend the training on Integrated Coastal Management (ICM) [*check as many responses as applicable*]?
 - Know the objectives of the ICM
 - Be equipped with the knowledge and skills on ICM
 - Be aware of new management approaches/schemes on ICM
 - Learn the preparation of an ICM Plan
 - In preparation for some future projects on or related to coastal resource management
 - In line with my duties as Provincial Coordinator
 - Apply the strategies in managing our precious coastal resources

___ Others, please specify _____

2. Did you find the course relevant to your work *[please check one answer]*?

___ No ___ No relevance but gained my interest ___ A little ___ Significantly ___ Yes

Please provide comments: _____

3. In a scale of **1 (highest) to 5 (lowest)**, please rate the following according to its contribution to your professional growth *[please check one answer for each item]*?

<i>Factors</i>	Very Much (1)	Much (2)	Moderately (3)	Little (4)	None (5)
Understanding of ICM					
Awareness of ICM principles and strategies					
Improved knowledge on survey and assessment methods, program planning, implementation, monitoring and evaluation					
Knowledge, skills and roles of a coastal manager					
Others (please specify):					

4. Which among the modules in the NCICM Training Course were beneficial to your work *[check as many module/sub-module as applicable]*?

- ___ Integrated Coastal Management Framework
 - ___ Introduction to ICM concepts and components
 - ___ Issues on institutional arrangements and legal framework on ICM
 - ___ Introduction to coastal biodiversity and its roles in ICM
 - ___ Problems and needs in ICM in Viet Nam
- ___ Awareness, Education and Training
- ___ Survey and Assessment
 - ___ Introduction to survey and assessment
 - ___ Methodology for survey and assessment
 - ___ Guidelines development

- ___ Master and Action ICM Planning and Implementation
 - ___ ICM Issues and Planning
 - ___ Data Treatment
 - ___ Preparation for Sampling Program
 - ___ Participatory Planning for ICM
 - ___ Planning documentation and Approval
 - ___ Planning implementation

- ___ Monitoring
 - ___ Monitoring in ICM
 - ___ Monitoring methods and indicators

- ___ Plan Evaluation
 - ___ Temporal and Spatial Boundaries
 - ___ Types of Evaluation
 - ___ Determining success indicators
 - ___ Conducting evaluations for ICM initiatives

- ___ Field Module

C. Usefulness and Application of Learning from the Course

1. Which aspect of the training was most useful to you in relation to your subsequent/current position and responsibilities?

2. In general, would you say that the course will help you in addressing the needs/problems in your:

- Area of Work Yes No

Why? _____

- Region Yes No

Why? _____

(For items # 3 -5). In a scale of 1 (highest) to 5 (lowest), please **encircle** your answer to the following questions:

3. How would you rate the quality of training you have attended?

1	2	3	4	5
<i>Excellent</i>	<i>Very Good</i>	<i>Good</i>	<i>Satisfactory</i>	<i>Poor</i>

4. Did you get the kind of training you wanted?

1	2	3	4	5
<i>Excellent</i>	<i>Very Good</i>	<i>Good</i>	<i>Satisfactory</i>	<i>Poor</i>

5. To what extent has the training program met your expectations?

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
<i>All of my needs have been met</i>	<i>Almost all of my needs have been met</i>	<i>Most of my needs have been met</i>	<i>Only a few of my needs have been met</i>	<i>None of my needs have been met</i>

6. If a colleague would need a similar training, would you recommend this ICM program to him or her? Please check:

Yes No It depends

6.1. If **YES** kindly check below the main reasons for recommending *[check as many responses as applicable]*:

- Knowledge and skills acquired worthwhile
- Exposure to other experiences useful for my work
- Provides time for reflection and analytical thought
- Improves self confidence
- Other reasons, please specify: _____

6.2. If **NO** kindly check below the main reasons for not recommending *[check as many responses as applicable]*:

- Similar training is available elsewhere
- Poor management of the training course
- Too costly/investment can be put into better use
- Training period is too long/not time efficient
- Aspirations are frustrated
- Learning is superficial, too many modules/topics
- Other reasons, please specify: _____

6.3. **IT DEPENDS** because some conditions may need to be changed, for example: *[check as many responses as applicable]*

- If duration of the course is modified (longer shorter)
- If management of the training course is improved
- If resource persons are upgraded
- If training objectives are modified
- Other reasons, please specify: _____

7. What ICM practices in the module will you adopt/adapt in your work? *[check as many responses as applicable]*

- Integrated Coastal Management Framework
- Awareness, Education and Training
- Survey and Assessment
- Master and Action ICM Planning and Implementation
- Monitoring
- Plan Evaluation
- Others, please specify: _____

8. What were some of the learnings you gained after attending the NCICM Training Course?
[check as many responses as applicable]

It provides a better understanding in the planning and implementation of ICM

It has given me the confidence and capability to tackle ICM activities

Being able to share it at the provincial level

Increased knowledge in project implementation

Development of ICM Planning Strategy Formulation

Others, please specify _____

Thank you very much. Your response will facilitate in improving the training course to the stakeholders at the provincial level in Viet Nam.

FEEDBACK SHEET

To be filled in anonymously.

The feedback you give is meant to give a realistic impression to trainers and organizers as to the effects of the training. Your feedback supports us to develop contents and methods in the most suitable way for future participants. Thank you.

Position: _____

Project: _____

male

female

ICZM-expert

Questions concerning the content of the training:

The content filled my expectations:

true not true

The content filled my needs:

true not true

The content of the training was directed to my actual / to future job requirements:

true not true

I feel I gained a deeper understanding of what "adult education" means:

true not true

Questions concerning the delivery of the training:

Organization of the training:

With regard to contents and objectives the length of the training was perfect:

true not true

The time schedule of the training was exactly right for me:

true not true

The group of participants was adequately recruited:

true not true

The group had an optimal number of participants:

true not true

Methods:

The methods gave possibilities to practice:

true not true

The choice of methods made it possible to participate actively:

true not true

The trainers adequately reacted to needs and feelings in the group:

true not true

The handouts / visualisations are a useful addition to the training:

true not true

On the whole...

I have expanded my skills and competences

true not true

Personally I regard this training as a gain for myself

true not true

If you were the trainer: Is there anything you would improve? (Please explain)

ANNEX M

IMPACT EVALUATION OF INTEGRATED COASTAL ZONE MANAGEMENT TRAINING AT THE PROVINCIAL LEVEL IN VIET NAM

by: Nguyen Chu Hoi¹, Cao Le Quyen² and Nguyen Ngoc Bich³
Edited by: Robert Charles Capistrano⁴ and Joann Glorioso⁵

1.0. Background

The project "Facilitating Integrated Coastal Management (ICM) in Viet Nam" was pursued to enhance capacities for the management of coastal resources in Viet Nam. Its ultimate goal is to produce a reasonable number of skilled coastal management practitioners in the country, equipped with training tools focused on addressing Viet Nam's coastal resource use issues, with an underlying cause for conservation. Initial activities of this project include initial meetings to establish a working relationship with each of the collaborators; put together a situational analysis to generate information on existing coastal management-related projects and programs from government and non-government organizations; generating commitments from organizations and coastal-focused networks and to pursue agreements between and among them; and establish the operational processes to determine the mode of operations in recognition of cultural, socioeconomic, institutional and biophysical considerations and define objectives of the project vis-à-vis commitments to activities.

During the Training Needs Assessment (TNA) Presentation and Curriculum Development Workshop held at Da Nang City, Viet Nam last May 2002, the Institute of Fisheries Economic Planning (IFEP), Institute of Oceanography - Nha Trang (ION) and Can Tho University (CTU) presented the results of the TNA gathered from the different stakeholders from the north, central and south Viet Nam, respectively. This was conducted to determine the training needs of their target population.

The coastal zone management training needs per region of the country (north, central and south) were listed, clarified and validated among the participants. The training needs common among the regions were also identified. The result of the discussion was a country list of coastal zone management needs sorted according to those that can and cannot be addressed by training. Apparently, integration and validation of TNA results, training objective setting, and curriculum design/module outline were discussed through plenary sessions and workshops. Eventually, it was agreed that there will be seven modules to be presented as follows: (1) ICM Framework; (2) Awareness Education and Training; (3) Survey and Assessment; (4) Master and Action ICM Planning and Implementation; (5) Monitoring; (6) Plan Evaluation; and (7) Field Module.

Developing the capability of partners was a primary concern. Thus, a systematic evaluation of the training course delivery and impact was conducted, from which validated recommendations were consequently incorporated. Previously, Haribon Foundation and the Philippine Council for Aquatic and Marine Research and

¹ Vice Director, Institute of Fisheries Economics and Planning (IFEP)

² Officer in Environmental and Aquaculture Economics and Planning, IFEP

³ Officer in Foreign Collaboration, IFEP

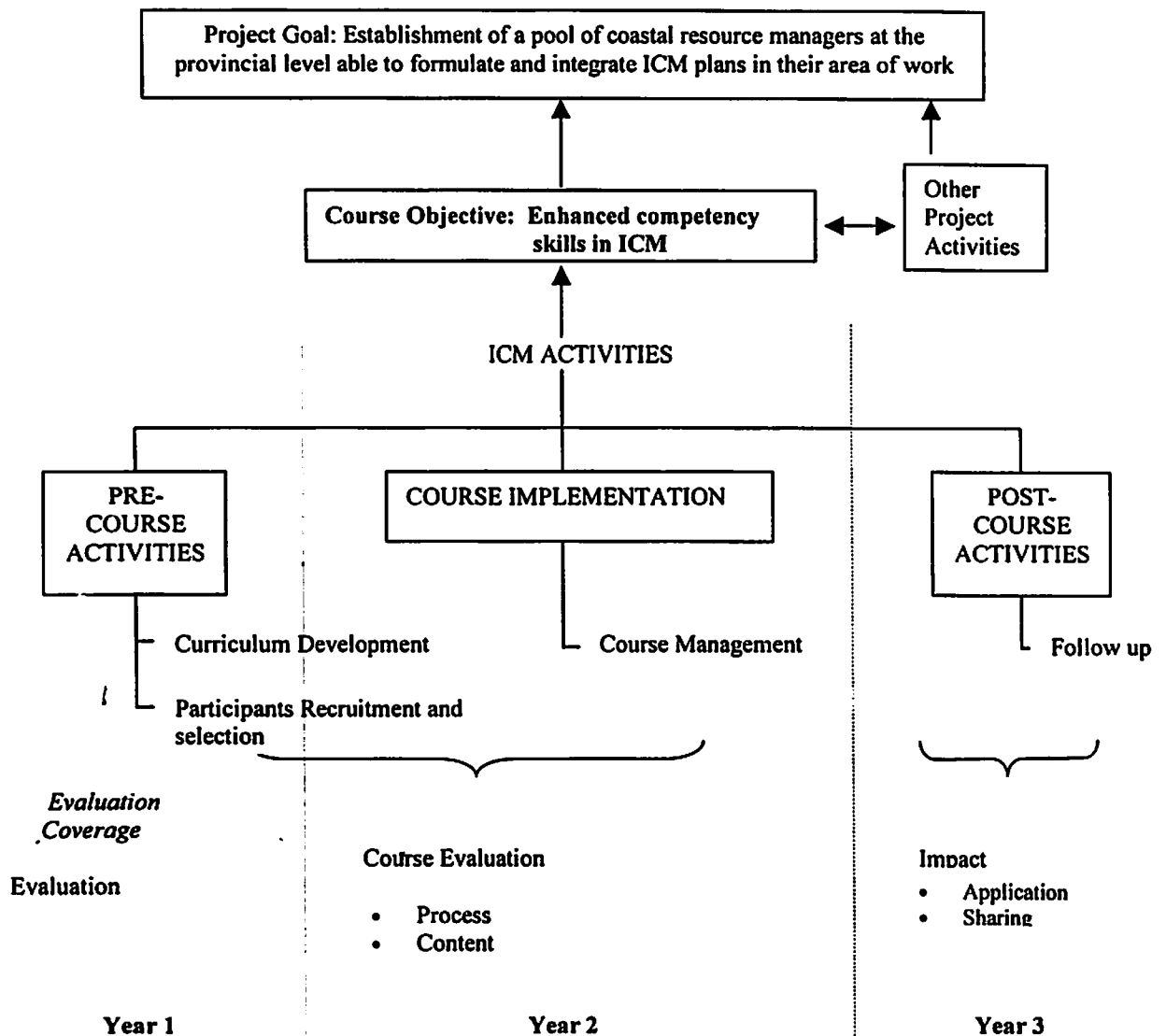
⁴ Training Officer, Haribon Foundation for the Conservation of Natural Resources

⁵ Research Assistant, The WorldFish Center

Development (PCAMRD) facilitated an evaluation of each training module to improve and refine the delivery of trainings. To determine the extent by which the training courses have contributed to the participants' and their organizations' enhancement of ICM activities, an impact evaluation was accomplished. Results of the evaluation were compiled into a report that will be used to improve the course and mode of collaboration.

The impact evaluation, as a post-course activity, will complete the ICM training process (see **Figure 1**) and determine the extent of adoption/adaptation of ICM practices by the collaborator's and participant's work and institution. Such evaluation also identified factors that hindered or facilitated the adoption/adaptation of ICM in their area of work.

Figure 1: Evaluation Coverage



The project was organized by the WorldFish Center (WorldFish) and facilitated by fellow organizing committee members from the Broad-based Coastal Management Training Program (BCMTP) consisting of the Department of Science and Technology-Philippine Council for Aquatic and Marine Research and Development (DOST-PCAMRD), Department of Environment and Natural Resources-Coastal and Marine Management Office (DENR-CMMO), Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR) and Haribon Foundation for the Conservation of Natural Resources (HARIBON).

Ideally, impact evaluation is conducted not less than six months to one year after participation in a training course. Haribon Foundation and IFEP discussed the arrangements for the impact evaluation during the Training of Trainers in 28 November 2003 in Ha Long Bay, Viet Nam. IFEP was tasked to facilitate the process among training participants and Vietnamese collaborators.

1.1. Objectives of the Impact Evaluation

The impact evaluation aimed to determine the extent to which the training program contributed to the participants and their organizations' enhancement of ICM activities. Specifically, the impact evaluation was conducted to:

1. Determine the extent of adoption and/or adaptation of ICM practices in the participant's work and organization; and
2. Identify the factors that hindered or facilitated the adoption and/or adaptation of ICM in their area of work.

2.0. Methodology

The method employed in this impact evaluation was descriptive. There were 3 types of evaluation instruments used for the impact evaluation: (1) survey questionnaire; (2) case study outline for the ICM training participants; and (3) case study for the collaborators. For the survey questionnaire, IFEP made revisions to the questionnaire designed by Haribon Foundation. The questionnaire was useful in gathering quantitative results.

IFEP also translated and revised the case study for the ICM training participants in Vietnamese so participants could confidently express their opinion and ideas. The case studies for the ICM training participants intends to document the experience and lessons learned by the trainees. As agreed between the BCMTP Philippine Organizing Committee and IFEP, there will be two (2) case studies presented each for north, central, and south Viet Nam, respectively. IFEP was tasked to inquire from among the participants who were interested to write a case study. The questionnaire attempted to gather the following information:

- Successes and challenges of the participants involved in the training in managing their own resources.
- ICM networking and participatory principles learned by provincial level stakeholders.
- Actions demonstrated by provincial level stakeholders as a result of realizations from the training.

Participants who committed to write their case studies were assured by IFEP that their presentation will: (1) use language accessible to them; (2) be a personal exchange; (3) be appropriately brief for delivery; and (4) be translated by IFEP in the English language. Six case studies have been prepared by participants of the ICM training courses.

The case study for the Vietnamese collaborators intends to document the experience of the Vietnamese collaborators in project implementation – particularly those who attended the Module Developers’ Write shop and Training of Trainers held in the Philippines last 18 – 25 November 2002. Five case studies in implementing the ICM training program in Viet Nam have been prepared by the collaborators.

3.0 Data Analysis

The data collected from the questionnaire were analyzed using percentage rate. In analyzing the data, the formula used as follow:

$$P = \frac{Fq}{N} \times 100\%$$

In which:

P = Percentage

Fq = The Frequency of Item

N = Total Participant

4.0. Results and Discussion

A total of 72 evaluation forms were sent and 43 forms (60%) were retrieved from the three regions (Table 1). Participants from The training in South Viet Nam provided the highest number of respondents (67%), followed by those from Central (63%) and North (54%) Viet Nam.

Table 1. Distribution of Respondents per ICM Training Course in Viet Nam

ICM Training Course	Number of Training Participants	No. of Respondents	Percentage * (%)	Rank
North	35	19	54	3
Central	16	10	63	2
South	21	14	67	1
Total	72	43		

* Computed as (number of respondents / number of Training Participants) x 100

4.1. Respondent's Profile

Table 2 describes the distribution of respondents by institution during the ICM training workshops in comparison with their distribution during the conduct of the impact evaluation. The majority of participants were still working at the same provincial level in their areas since they attended the workshop. Out of 43 respondents, only one (from North Viet Nam) moved, from the Department of Aquatic Resources Exploitation and Protection to the Department of Rural and Agriculture Development, both at the provincial level.

Table 2. Distribution of Respondents According to Institution

Institution	During the conduct of ICM Training Course		During the conduct of Evaluation		Percentage Difference* (%)
	Frequency	Percentage (%) ^a	Frequency	Percentage (%) ^a	
Dept. of Investment and Planning	6	14.0	6	14.0	0
Dept. of Aquatic Resources Exploitation and Protection	12	27.9	11	25.6	2.3
Dept. of Natural Resources and Env.	8	18.6	8	18.6	0
Dept. of Fisheries	2	4.7	2	4.7	0
Academe	8	18.6	8	18.6	0
Dept. of Science and Technology	3	7.0	3	7.0	0
Dept. of Rural Agriculture	1	2.3	2	4.7	2.4
Provincial Dept. of Tourism	2	4.7	2	4.7	0
Others	1	2.3	1	2.3	0
Total	43	100.0	43	100.0	

* computed as $(B - A) / A$

4.2. Respondent's Level of Responsibility

As the training course is intended for provincial officers, Table 3 showed the trend or shift in the participant's position during the conduct of the ICM course with his/her present job. Results show that there has been professional growth on the part of the participants particularly those who have been promoted from an officer to section chief/manager position. This is seen as an increase in the number of participants who are presently serving as Section Chief/Manager. However, the number of respondents serving as Director still remains the same. This can be explained as the duration between the conduct of training workshop and impact evaluation was short (less than one year).

Table 3. Frequency Distribution Based on Level of Responsibility When the Participant Attended the ICM Training Course and During the Conduct of Evaluation

Level of Responsibility	During the conduct of ICM Training Course		During the conduct of Evaluation		Percentage Difference* (%)
	Frequency	Percentage (%) ^a	Frequency	Percentage (%) ^b	
Officer	31	72	28	65	7
Section Chief/Manager	7	16	10	23	7
Director	4	9	4	9	-
Others	1	2	1	2	-
Total	43	100	43	100	

* computed as $((B - A) / A) \times 100$

4.3. Respondents' Field of Expertise

As shown in Table 4, fisheries and marine resource management (30%) involving fisheries development planning, marine resource and environment planning and aquaculture was cited with the highest rating in terms of the participant's field of specialization followed by environmental management (23%), fisheries boat registration/inspector (12%) and science and technology management (7%). Expertise in foreign investment; ICM; marine and fisheries ecotoxicology; and community economics and development were among the other expertise of the training participants.

Table 4. Distribution of Respondents According to Field of Expertise in Viet Nam

Field of Expertise	Frequency	Percentage (%)
Fisheries and marine resource management	14	30
Environmental Management	10	23
Fisheries Boat registration/Inspector	5	12
Science & Technology management	3	7
Fisheries & Forestry Planning and monitoring	2	5
Foreign Investment and construction management	2	5
Integrated coastal management	2	5
Tourism management and planning	2	5
Marine and fisheries ecotoxicology	2	5
Community economics and development	1	2
Total	43	100

5.0. Usefulness and Application of Learning from the Course

Results showed that there were 13 training aspects that were considered to be beneficial for the respondents. Among these, the module on "Master and Action Planning and Implementation" was chosen as the most beneficial (42%).

Table 5. Participant's Perception on the Benefits of ICM Modules in Viet Nam

Title	Frequency	Percentage (%)	Rank
All parts of ICM lectures	4	9	5
Institutional Arrangements and Legal Framework on ICM	4	9	5
Problems and Needs in ICM in Viet Nam	4	9	5
Participatory Coastal Resources Assessment	10	23	3
Awareness, Education and Training	4	9	5
ICM Concepts and Components	11	26	2
Evaluation and Indicators Development	5	12	4
Master and Action Planning and Implementation	18	42	1
Field Survey and Methods (i.e., SWOT analysis)	3	7	6
Monitoring Methods and Indicators	2	5	7
Communication approaches and campaign in ICM	1	2	8
Prioritizing Issues	2	5	9
Using remote sensing (GIS) in ICM	1	2	8

Note: Participants' provided multiple-answers.

Concepts and components on ICM (26%), participatory coastal resource assessment (23%) and evaluation and indicators development (12%) were also useful for the participants.

5.1. Usefulness of the ICM Training in the Respondent's Area of Work

At the organizational level, Table 6 presents the respondents' rating on the usefulness of the training course in their area of work. About 98% of respondents agreed that the workshop have helped them in their work, only one (2%) respondent disagreed with this idea. This participant came from the Department of Investment and Planning of Tra Vinh province (South Viet Nam), where he works as a chief of the Division of Construction Investment Management. However, he did not give any reason to his answer. This can be explained, as his expertise is not relatively related to ICM field.

Table 6. Respondents' Rating on the Usefulness of the ICM Training in Addressing Their Needs in the Area of Work in Viet Nam

Response	Frequency	Percentage (%)
Yes, the training was useful in my area of work	42	98
No, the training was not useful in my area of work	1	2
Total	43	100

Table 7 describes three (3) major reasons on the benefit of the ICM training in their area of work such as: (1) improving knowledge and skills in ICM (47%); (2) contributing to the development of an ICM plan (38%); and (3) facilitating marine resource management plan implementation (15%)

Table 7. Respondents' Reasons for Citing ICM Training as Useful in Addressing Their Needs in the Area of Work in Viet Nam

Reasons	Frequency	Percentage (%)
Improve knowledge and skills in ICM	16	47
Contribute to the development of an ICM plan	13	38
Facilitated marine resource management plan implementation	5	15
Total	34	100

Note: Only 34 respondents indicated their answers.

The respondents' applied their knowledge and skills acquired from the ICM in different aspects such as concepts on coastal resource ecosystem, causes of pollution, socio-economic aspect of ICM, information and education, environmental impact assessment, networking and survey assessment. In terms of the participants' contribution to the development of an ICM plan, skills in problem solving, planning, systematic survey and setting-up a management plan were made. Protected area management of marine ecosystem and other coastal resources (i.e., turtle conservation) were facilitated as well by other participants.

5.2. Usefulness of the ICM Training in the Respondent's Region

At the provincial level, Table 8 presented the respondent's rating on the usefulness of the training course in their region. About 74% of respondents agreed that the training was useful in their region while 6 participants (14%) expressed that this was not applied in their region and 5 participants (12%) have no response.

Table 8. Respondent's Rating on the Usefulness of the ICM Training in Addressing Their Needs in the Area of Work in Viet Nam

Response	Frequency	Percentage (%)
Yes, the training was useful in my work at the region	32	74
No, the training was not useful in my work at the region	6	14
No answer	5	12
Total	43	100

Table 9 indicates the reasons for citing ICM training course to be useful in addressing their needs at the provincial level in Viet Nam. There were two major responses expressed including (1) integrating ICM in provincial coastal management plan (64%); and (2) cooperation with stakeholders (36%).

Table 9. Respondent's Reasons for Citing ICM Training as Useful in Addressing Their Needs at the Provincial Level in Viet Nam

Reasons	Frequency	Percentage (%)
Integrating ICM in provincial management plan	16	64
Cooperation with stakeholders	9	36
Total	25	100

Note: Only 25 respondents indicated their answers.

In context, integrating ICM in provincial management plan was facilitated by the respondents through:

1. Integrating environmental concerns in setting-up project plans
2. Avoiding overlap in coastal management plans
3. Choosing better management solutions in coastal areas
4. Designing better coastal aquaculture planning
5. Managing conservation work systematically
6. Understanding the role of local communities in ICM plan
7. Combining sustainable tourism plan with ICM
8. Setting-up of MPA and biodiversity project

In cooperating with other stakeholders, the respondents involved local leaders and project staff in facilitating ICM program at the provincial level.

5.3. Application of ICM Skills in the Participant's Work

Table 10 presents the respondent's application of ICM skills applied by the participant's area of work including: (1) application of ICM techniques (40%); (2) public awareness, education and communication (16%); (3) application in fisheries management (14%); and (4) supervising staff members (7%).

Among the ICM techniques utilized by the participants were participatory rural appraisal, stakeholder analysis, survey and assessment, data analysis and environmental impact assessment.

In sharing lessons learned from the ICM training, participants conducted campaigns, community awareness raising on ICM, delivered or re-echoed the ICM training module to other provincial leaders and students.

Table 10. ICM Skills Used by Training Participants from Viet Nam

ICM Skills or Techniques	Frequency	Percentage (%)
Application of ICM techniques	17	
<ul style="list-style-type: none"> ▪ Participatory rural appraisal (1) ▪ Stakeholder analysis (2) ▪ Survey and assessment (7) ▪ Data analysis (1) ▪ Environmental impact assessment (6) 		40
Information, education and communication	7	16
Application in fisheries management	6	14
Supervise staff members	3	7
Project proposal writing and workshop preparation	2	5
Management of national park or wetland project	2	5
Write project proposal	2	5
Integrate ICM in investment projects	1	2
No response	3	7
Total	43	100

The knowledge and skills learned from the ICM training were shared to the following: (1) co-worker (93%); (2) people in the coastal community; (3) students/educational sector (19%); (4) government sector (19%); (5) women's sector (16%). Other sectors involved in sharing lessons learned by the participants were coast guards, investors and commercial industries. For details, refer to Table 11.

Table 11. Stakeholders Coordinated by the Respondent in Sharing ICM Training in Viet Nam

	Frequency	Percentage (%)
With a co-worker	40	93
People in the coastal community	22	51
Students/educational sector	8	19
Government sector	8	19
Women's sector	7	16
Other (coastal guards, investors, factories)	4	9

Note: Majority of participants provided multiple-answers.

5.4. Quality of Training in Viet Nam

Participants from the provincial stakeholders in Viet Nam gave a very good rating on the quality of ICM training (Table 12).

Table 12. Respondent's Rating from Provincial Stakeholders in Viet Nam on the ICM Training Quality

Rating	Frequency	Percentage (%)
Excellent	5	12
Very good	19	44
Good	19	44
Satisfactory	-	-
Poor	-	-
Total	43	100

Similarly, the expectations of the participants at the start of the training were met as shown in Table 13.

Table 13. Respondent's Rating from Provincial Stakeholders in Viet Nam on How Well the Training Meet Their Expectations

Rating	How well did the training meet participant's expectations	
	Frequency	Percentage (%)
Excellent	10	23
Very good	13	30
Good	17	40
Satisfactory	3	7
Poor	-	-
Total	43	100

Table 14 shows the degree of respondents' satisfaction in participating at the ICM training course and their evaluation whether they would recommend the course to their colleagues or not. In general, 88% of the participants were willing to recommend the training course to their colleagues.

Table 14. Number of Respondents Who Chose to Recommend the ICM Training to their Colleagues

	Frequency	Percentage (%)
Yes, I will recommend the training course to my colleagues	38	88
No, I will not recommend the training course to my colleagues	0	0
It depends	5	12
Total	43	100

Table 15 shows the different reasons why the training may be recommended to their colleagues. The majority of respondents (81%) identified knowledge and skills from the ICM training and other participants' experiences as useful to their work. These were their reasons for recommending the ICM training course to their colleagues.

Table 15. Respondent's Reasons from Provincial Stakeholders in Viet Nam for Recommending the ICM Training to Colleagues

	Frequency	Percentage (%)
Knowledge and skills acquired are valuable	35	81
Exposure to other experiences is useful for my work	35	81
Provides time for reflection and analytical thought	31	72
Improves self-confidence	28	65
Other	4	9

Note: Majority of participants provided multiple-answers

6.0. Contribution of the ICM Training Course for the Participant's Competencies

In order to gauge effectiveness, efficiency, and relevance of ICM activities (i.e., improved planning, implementation, monitoring, and evaluation), participants must be able to adopt/adapt the training course contents to their profession. Table 16 presents how the participants rate the different ICM modules that influenced their work. The following modules were viewed by participants as adaptable/adoptable to their work: (1) Introduction to Coastal Resources and Benefit Conflicts (72%); (2) Prioritizing Issues (70%); (3) ICM Concepts and Components (67%); Master and Action Planning and Implementation (67%); (4) Data Analysis (63%); and (5) Problems and Needs in ICM in Viet Nam and Field Survey and Methods (with 60% rating each).

Table 16. Respondent's Rating on the Adoption/Adaptation of ICM Modules in their Work

Module	Frequency	Percentage (%)	Rank
ICM Concepts and Components	29	67	3
Issues on Institutional Arrangements and Legal Framework on ICM	20	47	
Introduction to Coastal Resources and Benefit Conflicts	31	72	1
Problems and Needs in ICM in Viet Nam	26	60	5
Awareness, Education and Training	21	49	
Trainee Requirements Selection	11	26	
ICM Campaign Approaches	16	37	
Materials Development and Production	18	42	
Impact Evaluation	23	53	8
Field Survey and Methods (i.e., SWOT analysis)	26	60	5

Participatory Coastal Resources Assessment	19	44	
Master and Action Planning and Implementation	29	67	3
Prioritizing Issues	30	70	2
Data Analysis	27	63	4
Participatory Planning for ICM	24	56	7
Planning Documentation and Approval	22	51	9
Monitoring Methods and Indicators Guidelines in Monitoring	21	49	
Evaluation and Indicators Development	23	53	8
Implementation of Evaluation Tools	25	58	6
Others	1	2	
No answer	2	5	

Note: Majority of participants provided multiple-answers.

Table 17 highlights the learning insights that the participants gained after attending the ICM training course. The change in knowledge, skills and attitude were manifested in the respondent's answer. About 41 participants (95%) articulated that the course provided them with a better understanding in the planning and implementation of ICM.

Table 17. Learning Insights Gained by Participants After Attending the ICM Training Course

Learning Insights of Participants	Frequency	Percentage (%)
It provides a better understanding in the planning and implementation of ICM	41	95
It has given me the confidence and capability to tackle ICM activities	27	63
Being able to share it at the provincial level	27	63
Increased knowledge in project implementation	34	79
Development of ICM Planning Strategy Formulation	28	65

Note: Majority of participants provided multiple-answers

6.1. Relevance and Contribution of the ICM Training in Viet Nam

Participants were asked to identify reasons in attending the ICM Training Course. Table 18 shows that the majority of the participants believed that the training course will enhance their awareness on the new management approaches/schemes on ICM (88%). While being equipped with the knowledge and skills on ICM become the second reason (84%). Knowing the objectives of ICM (77%), preparing for some future projects related to coastal resource management (74%), learning the preparation of an ICM Plan (70%) and applying strategies in managing coastal resources (60%) were also identified as important responses.

Table 19. Reasons for Attending the ICM Training Course as Expressed by Provincial Stakeholders in Viet Nam

	Frequency	Percentage (%)
To be aware of new management approaches/schemes on ICM	38	88
To be equipped with the knowledge and skills on ICM	36	84
To know the objectives of the ICM	33	77
To prepare for some future projects related to coastal resource management	32	74
To learn the preparation of an ICM Plan	30	70
To apply the strategies in managing our precious coastal resources	26	60

Note: Majority of participants provided multiple-answers

When the respondents were asked on the significance of the training course to their job, 36 participants (84%) responded that the ICM training addressed or supported their needs as a coastal management practitioner. However, 14% indicated that this has little contribution to their profession.

Table 20. Respondent's Perception from Provincial Stakeholders of Viet Nam on the Relevance of ICM Training to their Job

	Frequency	Percentage
No	-	-
Not relevant, but it gained my interest	-	-
A little	6	14
Extremely significant	36	84
No response	1	2
Total	43	100

Reasons cited by participants in terms of the significance of the training were as follows:

1. Fisheries resources in Viet Nam have been degraded. It is important to apply ICM tools to assess the situation. The ICM approach is important in addressing the issues.
2. Although the development plan for each sector has been established, the cooperation and collaboration between them is still weak and limited. The ICM approach will be useful in this process.
3. Although the impact has not been widely felt, the ICM training course helped me solve some specific coastal issues in my areas.
4. The ICM training course equipped me with useful knowledge and skills on environmental protection and building up ICM strategy in the future. This has also improved my self-confidence.
5. In understanding the coastal resources issues and the stakeholders for ICM, it was timely to build a management strategy and supervise local leaders.

6. The training module has been my reference material. However, some trainers have not presented their lectures well. The course needs to have more case studies for participants to practice the theories they have learned.
7. The training course should include communal and district officers as participants.

Table 21 highlights the learning of the participants in improving their knowledge, skills and attitude after attending the training course. Participants articulated that the course provided them with a better understanding of ICM principles and strategies and improved their skills as coastal manager.

Table 21. Respondent's Learning Insights from the Provincial Stakeholders in Viet Nam after Attending the ICM Training Course

Learning Insights	Very Much (1)	Much (2)	Moderately (3)	Little (4)	None (5)	Average
Understanding of ICM	14	19	7	3		1.98
Awareness of ICM principles and strategies	7	21	13	1	1	2.14
Improved knowledge on survey and assessment methods, program planning, implementation, monitoring and evaluation	7	22	13	1		2.19
Knowledge, skills and roles of a coastal manager	9	21	9	4		2.19

6.2. Participant's perception on the benefits of ICM modules to their work

In evaluating the ICM modules which contributed most in increasing their competencies, the respondents rated all the modules almost equally important. The top five most beneficial ICM modules were ranked as follows: (1) Participatory Planning for ICM; (2) Participatory Coastal Resources Assessment; (3) Introduction to Coastal Resources and Benefit Conflicts and Field Survey and Methods (i.e., SWOT analysis); (4) ICM Concepts and Components; and (5) Master and Action Planning and Implementation.

Table 22. Participant's Perception on the Benefits of ICM Modules

Modules	Very Useful (1)	Useful (2)	Satisfactory (3)	Not Useful (4)	No response	Average	Rank
ICM Concepts and Components	14	23	4		2	1.76	4
Issues on Institutional Arrangements and Legal Framework on ICM	10	18	12		3	2.05	
Introduction to Coastal Resources and Benefit Conflicts	17	18	6		2	1.73	3
Problems and Needs in ICM in Viet Nam	11	20	9		3	1.95	
Awareness, Education and Training	12	17	10		4	1.95	
Trainee Requirements Selection	3	23	12	2	3	2.33	
ICM Campaign Approaches	7	20	13	1	2	2.20	
Materials Development and Production	6	20	13	2	2	2.27	
Impact Evaluation	12	19	9		3	1.93	
Field Survey and Methods (i.e., SWOT analysis)	16	16	4	1	6	1.73	3
Participatory Coastal Resources Assessment	14	21	3		5	1.71	2
Master and Action Planning and Implementation	15	15	9		4	1.85	5
Prioritizing Issues	11	15	10		7	1.97	
Data Analysis	12	16	8		7	1.89	
Participatory Planning for ICM	13	18	8		4	1.41	1
Planning Documentation and Approval	10	22	6		5	1.90	
Monitoring Methods and Indicators	10	20	7		6	1.92	
Guidelines in Monitoring	8	21	8		6	2.00	
Evaluation and Indicators Development	8	21	9		5	2.03	
Implementation of Evaluation Tools	5	19	13		6	2.22	

Table 23 presents the participants' self-assessment on the new skills learned. The results of the assessment show that 10 participants or 23% of total population (with 90% assessed confidence level acquired through training) were able to apply their knowledge in ICM. Similarly, 10 respondents (23%) gave a rating of 80% assessed confidence level in applying ICM principles in their work. Only 5 participants (12%) attributed a rate lower than 70% in acquiring new skills in ICM and its practice in their area.

Table 23. Self Assessment of New Skills and Application of ICM Training Course by the Provincial Stakeholders in Viet Nam

Rating	Frequency	Percentage (%)	Rank
95%	2	5	4
90%	10	23	1
85%	6	14	3
80%	10	23	1
75%	9	21	2
Below 70%	5	12	5
No response	1	2	6
Total	43	100	

6.3. ICM-related Policies Initiated by Provincial Stakeholders in Viet Nam

After the ICM training, participants were able to apply their skills in policy development. Table 25 shows that organizational management (i.e., creation of Management Council) tops the list (42%) of policies initiated by the participants followed by coastal zoning (35%) and initiating ordinances related to fisheries management (30%). Other policies initiated by the provincial stakeholders in Viet Nam were collection of fees/fines and penalties against destructive fishing methods (28%) and establishment of marine and fish sanctuaries/MPA (26%). Two participants (5%) indicated that establishment of wetland protection and environmental monitoring scheme were also initiated in their province.

Table 25. Policies Related to ICM Initiated by Provincial Stakeholders in Viet Nam

Policies	Frequency	Percentage (%)
Organizational Development (i.e., Creation of Management Council)	18	42
Coastal zoning	15	35
Ordinance/s related to fisheries management	13	30
Collection of Fees/Fines and penalties against destructive fishing methods	12	28
Establishment of Marine and Fish Sanctuaries/MPA	11	26
Others* (setting-up wetland protection areas and environmental monitoring)	2	5

Note: Majority of participants provided multiple-answers.

6.4. Constraints in Applying ICM in Viet Nam

Major constraints were encountered by participants limiting the application of knowledge and skills acquired in the ICM training. Most of the participants provided multiple-answers to the question. In order of frequency, Table 26

indicates reasons given by the participants which include: (1) funding constraints; (2) lack of ICM projects to apply learning; (3) difficulty in advocating change in coastal management; (4) logistic support; (5) time constraints; (6) shift in responsibilities the following year after the training; (7) political situation in the area. Two participants (5%) commented that there is still a lack of standard ICM manual and the local community's awareness on ICM is still low.

Table 26. Constraints in Implementation of ICM by Provincial Stakeholders in Viet Nam

Reasons	Frequency	Percentage (%)
Funding constraints	41	95
Lack of ICM projects to apply learning	23	53
Difficulty in advocating change in coastal management	14	33
Logistical support	11	26
Time constraints	10	23
Shift in responsibilities the following year after the training	2	5
Political situation in the area	2	5
Others	2	5

Note: Majority of participants provided multiple-answers.

6.5. Response to Hindrances by the Provincial Stakeholders in Viet Nam

The participants had several responses to challenges or constraints encountered in applying ICM in their profession (Table 27). Twenty-two respondents (51%) find ways in writing and submitting ICM-related proposals or projects to central and provincial authorities or donor agencies in order to raise financial support. Five participants (12%) took part in existing ICM projects and two participants (5%) expressed they were working on their own and dedicated more time in addressing issues. However, most of the respondents (35%) did not indicate their response to the question.

Table 27. Responses to Hindrances by the Provincial Stakeholders in Viet Nam

Reasons	Frequency	Percentage (%)
Writing and submitting project proposals to central and provincial authorities or donor agencies for funding support	22	51
Taking part in existing projects	5	12
Can not work on these hindrance (can not provide solution)	5	12
Work on myself and dedicated more time	2	5
No response	15	35

Note: Majority of participants provided multiple-answers.

Specifically, participants cited answers including:

1. Persuading local stakeholders to contribute their effort and counterpart funds for ICM programs or activities.
2. Extending the communication campaigns on ICM through media as means to improve ICM awareness of local community and leaders.
3. Presenting ICM-related strategies to colleagues to apply in ICM project/plan.
4. Establishing strategy for environmental protection in local areas until 2010.
5. Submitting ICM project proposals to local and central leaders for funding support.
6. Shifting responsibilities the following year after the training. However, the respondent will still be involved in ICM project as local consultant.
7. Integrating ICM relevant projects/programs and manage time for these projects.
8. Convincing local leaders and relevant stakeholders to advocate and support ICM project proposals.
9. Participating in various ICM projects in the area.
10. Requesting for financial and technical support from local organizations, NGOs and foreign agencies.
11. Looking for ICM-related projects where one can be involved.

6.6. Resource and Information Sharing

The material-based features of the ICM training manual enabled the participants to effectively apply the lessons learned during the training. Table 27 shows how the participants shared their knowledge through sharing handouts provided during the ICM training course (86%), getting the involvement of co-worker in ICM (47%), giving orientation to fisher folks and other stakeholders (42%) and providing lectures to students (28%). Three participants (7%) expressed that they have shared information on ICM through integrating with mass media (radio, posters, brochures, etc.), providing inputs on tourism development plans and discussing ICM problems with local farmers and leaders.

Table 27. Medium Used in Disseminating Information by the Provincial Stakeholders in Viet Nam

	Frequency	Percentage (%)
Sharing the handouts provided during the ICM training course	37	86
Getting the involvement of co-worker in ICM work	20	47
Giving orientation to fisher folks and other stakeholders	18	42
Giving lectures to students	12	28
Others	3	7

Note: Majority of participants provided multiple-answers

6.7. ICM Partnerships Established by the Provincial Stakeholders in Viet Nam

In terms of establishing new partnerships or networks in their respective area, Table 28 shows that 15 participants (35%) were able to collaborate with other institutions, programs or activities while 21 participants (49%) were not able to forge partnerships with other agencies and 7 participants (16%) did not respond to the question.

Table 28. Distribution of Participants in Terms of Establishing Partnerships related to ICM

	Frequency	Percentage
Yes	15	35
No	21	49
No Answer	7	16
Total	43	100

Of the partnerships established, the projects/activities/programs were identified as (1) establishment of marine and fish sanctuaries/wetland protected areas and other ICM-related projects; (2) surveying and assessing fisheries resources; (3) improving local awareness on ICM and creating alternative livelihoods for women; (4) Supporting and managing rural infrastructure based for the community; (5) conservation and protection of sea animals; and (6) supporting localities involved in fisheries protection programs.

Among the institutions involved in the participants' networking and partnerships were identified as follow:

1. Communal authorities
2. District authorities
3. Provincial authorities
4. Provincial Science & Technology Department
5. Provincial Natural Resource and Environment Department
6. Provincial and District Fisheries Departments
7. Marine Research Institute
8. Dutch Government
9. Environment Protection Department
10. International Flora and Fauna

7.0. Conclusion

Based from the analysis, the ICM training program contributed significantly to the participants and their respective organizations in the enhancement of ICM activities in their own coastal areas.

First, the ICM training course met the participants' and their institutions' demand and expectations. This is expressed through their commitment that they would recommend the course to their colleagues and co-workers. Second, the respondents themselves benefited and applied the different ICM modules in their line of work. All of the training modules were helpful and significant in addressing the ICM issues and needs. The modules on Master and Action Planning and Implementation and Participatory Coastal Resources Assessment were considered beneficial and practical. Participants also cited the skills and tools on designing, preparing and implementing ICM-related survey as survey and assessment of coastal areas is a common task among provincial officers in Viet Nam. From the results, a variety of ICM-related policies have been initiated by ICM participants such as supporting sustainable livelihood for fisher folks, organizational development and establishment of marine and fish sanctuaries/MPA, etc.

In the process of adoption of these ICM practices, the participants and their institutions faced a numbers of constraints such as limited funding, lack of ICM projects to apply learning or logistical support. At current, several training participants are wanting for solutions to these hindrances. Submitting ICM project proposals to local and central leaders for funding support, integrating with other ICM projects/programs or sharing of resources such financial and technical supports from local organizations, NGOs and foreign agencies were the solutions provided by the participants to work on these limitations. Further, establishing new partnerships or networks in their own area or region was made possible through their exposure to the ICM training.

Case Studies of Trainers

Case Study

“When a Highlander Puts His Nose Into the Sea”

Dr. Bui Xuan An, Vice Dean - Faculty of Environmental Technology, University of Agriculture and Forestry

During my participation in the Broad-Based Coastal Management Training Program (BCMTP), I was teaching Environmental Ecosystem Studies at the University of Agriculture and Forestry (UAF); and, I was involved in rural development programs in several localities and in the assessment of several projects related to rural development and environmental resources protection.

The Faculty of Environmental Technology was established under UAF in Ho Chi Minh City in 2001. Responsibilities of the faculty include: training prospective engineers on environmental issues, studying environmental protection, and transferring technologies relevant to environmental protection.

I specialize on Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA) methods. Having participated in community-based development programs enhanced my skills in working with people and relevant authorities.

My relationship with my colleagues is based on respect. I respect the opinions of my coworkers and in jointly implementing assigned duties. When I participated in the project, all my colleagues supported me. However, some people questioned why I am taking part in a coastal project when my area of operation is in the upland areas.

I was interested to participate in the project because I believe that I could learn many things from the trainings and at the same time, contribute my best efforts to the project. To be able to render my full participation in the project, it was necessary to rearrange my working schedule at my office. I had to accomplish some of my work in advance in order to attend all the training courses of the project.

I participated in the Fisheries Resource Management Project in Tam Giang Lagoon funded by SIDA and the Canadian Government. The project used similar methods as the ICM Project. These tools are useful for effective management of coastal natural resources and the environment in sensitive areas. My major expectations from my participation were to gain more knowledge on ICM, improve my understanding of coastal natural resources management, and to enhance my skills in the application of knowledge into practice.

Because I only had a few opportunities to work in coastal areas, I previously lacked knowledge on marine biological species, fisheries, gears and coastal livelihood activities of fishermen. Therefore, I was not familiar with applying management tools in to practice. I have tried to address this issue by learning from my colleagues, co-participants and other people. I attended all training courses such as those conducted by the project in Northern, Central and Southern Viet Nam.

It is interesting for me to understand many actual and useful experiences from the case study reports. For example, the case study on the Hon Mun MPA Project in Khanh Hoa Province, Trao Reef Project, and Nigh Ground in Ben Tre Province. The typical characteristics of each locality and the abundant case studies made lectures on new management techniques interesting.

The actual visits to these areas facilitated our level of understanding, supplementing the lectures given in class. On-site visits or relevant fieldwork should be incorporated in training courses to achieve higher results. I regret not organizing the field activity as part of the training course in Ha Noi. I was deeply impressed by

Case Study

“When a Highlander Puts His Nose Into the Sea”

Dr. Bui Xuan An, Vice Dean - Faculty of Environmental Technology, University of Agriculture and Forestry

the sincere guidance of partners in Nha Trang when we were having the field trip in Nha Trang. We were able to interact with many important people working in the Hon Mun MPA Project for marine resources conservation.

I took part in the project as presenter for Module 3, Survey and Assessment of Coastal Resources. In my lecture, I focused on the relevant skills in working with people and methods such as PRA, SWOT, and stakeholder analysis of relevant partners. These are useful tools, especially in surveying natural resources. They are really necessary in almost all steps of the ICM process: survey, investigation, management planning, progress monitoring and evaluation of the project.

I can say that I have learned the skills that were presented in the Training of Trainers (TOT) course for collaborators in Ha Long on 27-30 November 2003. The main skills taught in this training course were fully systematic. Some components were specific to the conditions of local regions. Unfortunately, the capacity of each facilitator is not the equally the same, so that some parts of the guidelines were incomplete.

After participating the four training courses of the project, I have realized that organization and management of a training course is very important. Collaborators and facilitators originate from different sources, and so coordinating a meeting for everybody is not an easy job. Some attended only for a few days and there were those who were not able to attend/participate at all, affecting the integrity of the course. Each collaborator was only interested and engaged in the particular modules assigned to him/her, resulting to one-sided content of lectures, and missing issues while some issues were reiterated. It was during the TOT course that I found out that presenters and facilitators in the ICM training course were requested to design lecture materials such as the trainer's notes, session guide and handouts.

I have established a good relationship with project collaborators, as well as with the participants of the ICM training courses, and had frequent interaction with the management board of the ICM project. Additionally, I have always communicated with colleagues at the World Fish Center. I have received many documents and information from this organization.

I plan to take part in the establishment of the ICM network from the central level down to the local level. Further discussion is needed to set up the objectives, methods and financial requirement for operation. It is very important to have joint coordination among scientists and managers throughout the country.

The major result or effect of the training course to us was increase in integrated knowledge on coastal management. Before, every collaborator focused in one or several parts/content of the ICM process. Their skills and knowledge were limited to the relevant sectors. Through this project, collaborators have mastered in detail the process of ICM, though no one could claim that they had mastered well the issue of ICM.

Additionally, the teaching skill of collaborators was improved. I myself have improved as a lecturer as I gained more experience in teaching. My lectures are now more interesting as a result of the lessons I have learned from my colleagues. Many of the collaborators have also progressed in their teaching through time and

Case Study

“When a Highlander Puts His Nose Into the Sea”

Dr. Bui Xuan An, Vice Dean - Faculty of Environmental Technology, University of Agriculture and Forestry

experience. At first, they have taught in Ha Noi using plenary lecture. Though they have the knowledge, lectures can become very boring as the participants learn passively this way. In the process, they have considered applying other methods such as case studies, brainstorming, discussions, and assignment setting.

I have experienced and learned lecture preparation from the training course. However, I also have gained skills on how to prepare teaching materials from my 20 years of experience as lecturer. I have greatly benefited from the preparation of the lecture-material requirements of the project. Moreover, I have gained skills in working as a group. My module was linked with the contents of the other modules prepared by other collaborators; so we always tried to work together. Additionally, through the preparation of the working group and field trips, our skill of organization is now highly improved.

I have also enhanced my skills in working with the people in the local communities, as well as with other relevant agencies and organizations through the method of “learning by doing” and fieldwork/field visits.

Lessons learned could be applied to another case. It is necessary to form thorough views on the process, especially when there are many issues and participatory partners.

I believe that community-based integrated coastal management process is necessary for sustainable development of coastal areas where the natural ecosystem is sensitive to the activities of the people. Other participants in another training course could use this case study as reference.

Case Study

“Linking Marine Protected Area to Integrated Coastal Management”

Mr. Ho Van Trung Thu, Project Field Coordinator - Hon Mun Marine Protected Area Pilot Project

Hon Mun Marine Protected Area (MPA) Project is the first pilot MPA project in Viet Nam. The project started in June 2001 with a duration of 4 years implemented by the Ministry of Fisheries, Khanh Hoa Province, and the International Union for Conservation of Nature (IUCN). This project is being supported by the Global Environmental Fund (GEF) through the World Bank, the Denmark International Development Agency (DANIDA) and IUCN.

The coral and marine environment around the islands of Nha Trang gulf, including Hon Mun, Hon Tre, Hon Mieu and Hon Tam are an important international asset. There are 350 species of coral and 220 species of salt-water fishes in this area. There are many other species of sea anemone, crustacean, and mollusks. However, these important resources are threatened. Therefore, the main objective of the project is “*to conserve a representative example of internationally significant and threatened marine biodiversity*”. The project will assist the regional community and other stakeholders concerned in effectively protecting and managing the marine biological diversity around Hon Mun Island. This is also the first management model for a MPA pilot conducted as a trial in Viet Nam.

As the coordinator of the project, I have been involved in coordinating project activities and maintaining relationships among related agencies from the provincial to local levels. I coordinated and organized activities such as community education and raising people’s awareness for marine conservation. I have been the bridge among individuals, organizations, and provincial authorities working to create livelihood opportunities other than aquatic resource use and minimizing pressure on threatened aquatic resources. We have tried to seek directions for sustainable development in aquatic resource use and utilization of environmental resources.

In parallel to sustainable livelihood and economic opportunities for local community, we provided a small credit facility for local people to help them to increase their livelihoods. We created a closer relationship among the local people and the project stakeholders and disseminate information on environmental protection and the project’s goals through focus group discussions and meetings. Such activities help maintain good relationships between the project consultants and the people to understand each other’s expectations, needs and opinions to enhance the implementation of project activities. I organized field activities for the purpose of solving conflicts and establishing mutual agreement related to setting-up of the MPA.

Before I became a trainer for the ICM Training Program, I have participated in various conferences related to marine science and carefully studied this field. Similar to ICM, I have gained knowledge and skills in marine science, particularly on field activities. I have previously conducted participatory rural appraisal, socio-economic surveys, and teaching courses on communication skills and field activities for provincial officers.

I had the consent of Hon Mun MPA project leaders when I was invited to be the resource speaker for the Field Module during the pilot training. For the purpose of information exchange on marine ecosystems, habitats and ecology, I enthusiastically participated and encouraged learning and sharing with other resource speakers and participants. This helps me comply with the objectives of the ICM training in Viet Nam. I gained more knowledge and skills regarding institutional arrangements and policies on marine environment.

Concepts on MPA and ICM in Viet Nam are basically new. Training and improving institutions, policies and approaches for stakeholders concerned is

Case Study

“Linking Marine Protected Area to Integrated Coastal Management”

Mr. Ho Van Trung Thu, Project Field Coordinator - Hon Mun Marine Protected Area Pilot Project

very important for coastal management practitioners. With my participation from the training course, I become motivated to study and discuss with co-trainers and participants to improve my knowledge and skills. In a way, this improved my capacity to take part in similar projects for the future. In my organization, we will contribute and share practical experiences in marine projects. I will re-echo such ICM training with the junior staff in our organization to strengthen their skills and knowledge on MPA management and ICM.

Previously, I participated in research and management programs related to the marine environment but I must agree that ICM modules were useful for our trainers. Since everyone in the group has his or her own expertise, these courses provided opportunities for learners to discuss pressing issues at the regional or provincial level and implement solutions effective policies. The ICM training was a good way to bring together marine researchers and managers to build a network of ICM practitioners in Viet Nam in the future. I am keenly interested in database establishment and look forward that this will be acknowledged to strengthen partnerships for the future. Database information is important in the study, exchange, in discussions and finding solutions to achieve a common action plan.

I was pleased to be invited to participate with the Broad-based Coastal Management Training Program (BCMTP) of the Philippine collaborators and take part in the Training of Trainers (ToT) course in Ha Long Bay, Viet Nam. I gained knowledge and skills from the course, particularly negotiation and conflict resolution skills. The lecturers for the course systematically organized and delivered training course process for participants for us to understand both theory and practice. However, the course may be improved if video clips of similar situations were presented after practical exercises. Analyzing situations discussed by resource speakers through video clips can help learners draw and understand practical experiences better. The duration and timing of the training course was suitable and successfully organized.

In terms of the application of knowledge and skills gained from the training course, I have organized a similar training course for our organizational staff to help them understand and apply the concepts and its application with their present job. The ICM training project's objective of sharing ICM principles and extending its application to wider parties were made possible.

Although ICM is a new and difficult science, this requires close cooperation at all levels and aspects of stakeholdership. Also, ICM implementation requires its personnel to think creatively and encourage participation among stakeholders. Financial considerations are also important, as many stakeholders will need to sustain efforts for the success of any ICM program.

The participatory mechanism and approach applied in ICM may be strengthened and maybe transformed into a co-management approach to contribute to the success of ICM. What I want to emphasize here is an institutional arrangement and organizational approach towards better management through a combined 'top-down' and 'bottom-up' approaches to better involve all stakeholders. Thus we make use of the entire support of all levels and make efficient and effective decisions. I believe these approaches will be effective in applying them in context of the Hon Mun marine protected area establishment and management.

Case Study

“Linking Marine Protected Area to Integrated Coastal Management”

Mr. Ho Van Trung Thu, Project Field Coordinator - Hon Mun Marine Protected Area Pilot Project

In working for an NGO, I was able to establish closer relationships with other NGOs. Being a marine researcher, I cooperate with various government and local authorities and have the advantage and experience in establishing such relationship.

If I have the opportunity, I shall take part in ICM action plans in Viet Nam. The establishment and integrating nationwide inshore management network is necessary and feasible. This can be carried out by ways such as e-mail, newsletters or posting information on websites for discussion. Each part should have its own coordinator who regularly liaises with country coordinators and government agencies with the necessary information in order to examine, collect and disseminate information and ideas nationwide and around the world.

In my opinion, lecturers have gained experiences and lessons from these training courses, particularly communication skills. The course is highly applicable and practical. However, it would be better if resource speakers could provide more examples of ICM situation within and outside Viet Nam and share the over-all results after implementing the project in a particular province.

The ICM Program is a whole new model and will need the cooperation of many stakeholders. It is an experimental model and is now highly appraised for its success. Therefore, skills and techniques in this program will be helpful in its application in many other programs that requires the participation of community and other stakeholders concerned. This is relevant to the development of MPA management in Viet Nam. Programs are at the initial step of implementation. To achieve long-term goals of ICM, knowledge and skills acquired through the ICM modules were very important and new useful tools or concepts.

Viet Nam has an establishment plan of a nationwide MPA system. Thus, experiences and lessons learned from these modules play an important role through the participation of learners to MPA system in the future. Viet Nam is in its economic, industrial and service development process. As such, human impact to the marine environment is unavoidable. As such, we should have a network and standard system for offshore and inshore activities as well as for areas that may cause negative effects to the marine environment. Setting-up a mechanism and promulgating policies is entirely new in Viet Nam and at the regional level. However, we need to begin right now or this may cost much more in the future. If we set our vision, this will require ICM programs at the regional level for exchanging experiences. A genuine information exchange is necessary in the trend of global development. This is a key to solve indifferences at the regional/international stature in order to protect the environment, for socio-economic and sustainable development of the world.

Case Study

“ICM: Lessons from the Mekong Delta, Viet Nam”

Dr. Le Quang Tri, College of Agriculture-Can Tho University

My role in my institution when I encountered the Broad-based Coastal Management Training Program were:

- Vice Dean and Senior Lecturer at the College of Agriculture, Can Tho University, teaching on the fields of land evaluation and land use planning.
- Secretary of two international projects -- Environment and Integrated Coastal Management Project, and Farming Systems Project.
- Manager of many local projects of the provinces in the Mekong Delta that to face the change of the rice-based land use system to rice and aquaculture system in the areas along the coast.
- Responsible for international relations and cooperation affairs of the College of Agriculture, Can Tho University.

Can Tho University (CTU) is located in the heart of Mekong Delta. It is the largest state university in the region, and is one of the leading universities in Viet Nam. It is an important center for learning, research and technology. CTU's outreach programs and satellite colleges serve communities throughout the Delta. It works closely with provincial authorities, private and public enterprises, and the surrounding farming communities. At present, Can Tho University offers 43 undergraduate programs, 12 Master's, and 5 PhD programs. For SY 2003, nearly 18,000 fulltime students are enrolled in the University, and an additional of about 16,000 studying at satellite colleges in the Mekong Delta provinces. The College of Agriculture is one of biggest colleges in Can Tho University, with 4-5 years undergraduate programs: agronomy, agriculture, animal husbandry, veterinary medicine, food technology, environment and natural resource management, and land management.

Before my participation in the BCMTP, my understanding of ICM was very general, especially in different ecological zones of the coast and offshore. At that time, I was involved in and had greater knowledge on aquaculture and agricultural land use systems. We were mostly doing research and experimentations geared towards improving the income of farmers who have been living there for a long time. We didn't have any collaborative work with other agencies/institutions on this. In fact, we were not even aware of their activities. However, during my participation in the program, I had the chance to work with different institutions involved in coastal zone/resource management: WorldFish, IFEP, Nong-Lam University, and provincial offices of some other institutions; I was able to understand ICM concepts and components, analyze ICM practices, became aware of worldwide experiences on ICM, gained knowledge on institutional arrangements and legal framework on ICM, became aware of the importance of intersectoral management, able to understand biodiversity and its roles in ICM, and identify the problem and needs in ICM in Viet Nam. Because of all these, I did not hesitate to join the BCMTP collaboration. I participated all the workshops: orientation in Hai Phong, TNA presentation and ICM curriculum development workshop in Da Nang, and the Module Developers' Writeshop and Training of Trainers (ToT) in the Philippines. These events not only have helped me improve my knowledge on ICM, but also gave me the chance to share and exchange experiences with all the other participants coming from different institutions in Viet Nam and the Philippines. I think I did have a very good time joining the field of ICM, not that I had mentioned it before.

Case Study

“ICM: Lessons from the Mekong Delta, Viet Nam”

Dr. Le Quang Tri, College of Agriculture-Can Tho University

I am now the Secretary of the Environment and Integrated Coastal Management project funded by the Dutch government. This project is specific to the application of the ICM concept in the coastal area of Mekong Delta, Viet Nam; therefore, during my participation in the BCMTP, I tried to link and apply the methods in ICM with my project. I gained a lot of knowledge and skills from the case studies of Philippines and Indonesia, and applied them in managing my project, which is now running very well. One of the most important topics covered was how to resolve the conflict between natural conservation and the improvement of the lives of people in the coastal areas. In the last two years, our project has had a new air in research activities for mangrove forest, and socio-economic understanding in study areas along the coast of the Mekong Delta, Viet Nam; so, my expectation, as well as my institute's, is that in the future, we can send more of our staff, especially the younger ones, to participate in BCMTP's training courses, in order to improve their knowledge and skills on ICM.

One of the problems that my institute has encountered during project implementation was the insufficient knowledge about ICM: the concept/framework, how to work on it, and application/implementation. As a result, objectives of the project were not met, especially the issues related to the activities of local communities on ICM. Moreover, local experts also lack knowledge on ICM, and getting their participation was another thing. At the start of the project, our understanding of ICM was very general, posing difficulties in project implementation; thus, I had to learn and participate in training programs related to coastal management. This is why I participated in BCMTP.

After participating in the BCMTP, I knew how to operate our project on ICM and was able to transfer the knowledge to the people involved in our ICM project. In my fieldwork, when I worked/dealt with people at the provincial and district levels, I was able to use the experiences that I gained from BCMTP in teaching or discussing with these people. During the program, in the three workshops that I have participated, I had a lot of opportunities to exchange and share the knowledge with collaborators, particularly in the field of ICM in Mekong Delta, Viet Nam. People in provincial offices have a lot of experience in working with the communities in relation to ICM, so we had a lot of sharing and exchanging of knowledge based on real situations in the study area. It is important for me to learn from their experience.

In participating in the BCMTP, most especially the training of trainers (ToT), I have gained knowledge on ICM, improved my skills in organizing training courses and designing activities in the course, known the TSC format and learned how to prepare the training notes and the outline of the program, learned how to prepare a PowerPoint presentation as teaching aid, how to motivate participants, and how to facilitate/become a facilitator. These things are very useful to me, not only in my training activities for the local level, but also in my teaching work at the university.

At the Module Developers' Write-Shop and Training of Trainers (ToT), we, the collaborators of the project "Facilitating ICM in Viet Nam" were able to convene and validate our module outputs.

As a result of my collaboration with BCMTP, a group of ICM people was established in our university, members were those involved/have been involved in

Case Study

“ICM: Lessons from the Mekong Delta, Viet Nam”

Dr. Le Quang Tri, College of Agriculture-Can Tho University

ICM projects. The Department of Environmental and Natural Resources (DENR) under the College of Agriculture of CTU, was responsible for administering this group. During the curriculum development for the M. S. course on Environmental Sciences and Management course, the subject of ICM was taken into account. Environmental monitoring and management, planning and sustainable land use, conservation and sustainable tourism have been included in the curriculum.

We have established partnerships with local authorities responsible for the ICM program in 8 provinces along the coast of Mekong Delta mainly, the provincial offices of the Department of Land Resources and Environment, working on the knowledge, qualifications and skills needed by staff members working on ICM, specifically on environmental management and natural resources management of the coastal areas in the provinces, and the curriculum development of training courses at the local levels.

The relationship with local partners in the different provinces along the coast of Mekong Delta depends on whether it's a local or an international project. We assist the local government in organizing the training courses, and in developing an ICM curriculum for the staff of provincial forestry offices. From their learnings in these training courses, these people can now participate in local ICM projects, and carry out the socioeconomic study in the coastal project areas. However, we have encountered problems like people not being able to apply ICM to their line of work after the project has ended, since their work is not along this field. Another problem was that some of the people who participated in the local program changed jobs and moved to another place; so, we had to set up a new group for the module. There was no continuity towards fully understanding ICM and in accomplishing the work to be done.

It'll be very difficult to sustain the ICM training initiatives that our group has started. However, I have always tried to keep the group going on with the remaining activities of the training program for the local people in the different institutions based on the local project, and set up the international project in the coastal areas of Mekong Delta. At some point, the project failed due to organizational restructuring of the administration. Given this issue, it'll be very hard to say that we can keep it going in a long-term basis given the present situation in the Mekong Delta, where the farmers' concern is the benefit derived from the coastal resources. Right now, a great proportion of the land along the coastal areas of Mekong Delta has been transformed from rice farming to aquaculture due to the large income/benefit from shrimp farming. Therefore, the water and soil qualities of these areas have to be taken into account; and so, I proposed to do the planning and policy for implementing a training program on ICM from the national level down to the village level. This will only be realized if the central government gives it some attention, and if the establishment of the Department of ICM in the coastal provinces pushes through. From these, a network (among Vietnamese collaborators) would be formed, to prepare and plan their activities for a 10-year period, with details for every year.

Case Study

“ICM: Lessons from the Mekong Delta, Viet Nam”

Dr. Le Quang Tri, College of Agriculture-Can Tho University

I have several recommendations based on my experiences on ICM training courses and application of knowledge that I gained from BCMTF:

- There is a need to organize a seminar-workshop for local decision makers and people working on coastal management. This is necessary as a starting point for their understanding of ICM, before they begin to participate to any ICM project/program at the local or regional levels.
- In the project implementation, we have to analyze our stakeholders, the local people/communities. We have to consider their way of living, customs and traditions, and social background.
- We have to keep the communication line with the local people/ communities open. The participation of the people is a major requirement to the success of the ICM training courses.
- There should be policy guidelines for the people involved in the ICM project so as to sustain the network/collaboration and keep the project going.
- There is a need to get the support from leaders of institute and local government units to facilitate the implementation of the project and expansion into larger scales.
- The people who will work on ICM, who will form the network/collaboration, should have a high level of commitment to the project, those that will accommodate/spend more time working on the project.
- Cooperation, teamwork and good working relationship between agencies with ICM projects and the local government in the organization of the ICM training courses or any ICM action program is very important in facilitating the implementation of ICM training courses at the local level, after BCMTF.

Case Study

“Developing a Plan for Integrated Coastal Management in Ha Long Bay, Quang Ninh”

Dr. Nguyen Chu Hoi, Vice Director - Institute of Fisheries Economics and Planning-Ministry of Fisheries

When I encountered the BCMTP, I was the Vice Director of the Institute of Fisheries Economics and Planning (IFEP) and Senior Expert in Environmental and Aquaculture Planning and Management. Prior to that, I was the Task Leader of a national project on ICM for coastal developments in Viet Nam (from 1996 to 2000). Simultaneously, since 1991, I was teaching (as visiting professor) ICM, Marine Environmental Monitoring, and Marine Resources and Environmental Management in the National Universities of Ha Noi and Hai Phong, and in the Nha Trang Fisheries University. At the same time, I was the National Coordinator of several international projects related to ICM and the coastal and marine environment in Viet Nam, and a member of international and regional groups (Annex 1) such as the ASEAN Regional Forum.

As part of my management and leadership responsibilities at the institute, I have guided and led my staff into building and promoting development and management plans for aquaculture and the different levels of the environmental sector: central, regional, provincial, and district levels. In particular, I have great interest and strong expertise in coastal resources management and Marine Protected Area (MPA) management. Therefore, the integrated coastal management (ICM) approach is my scientific pursuit and is the field that I really want to be engaged in.

IFEP is an academic organization in charge of fisheries and aquatic environmental economics, and sectoral and intersectoral planning, organization and management. The main functions of IFEP are as follows:

- Primarily, to provide research work on economic, management and planning problems of fisheries, and the fields of aquatic environment: resource use and production forces distribution, regional and local economics, environmental economics and impacts.
- Provide research on the development strategies and long-term planning and development programs.
- Conduct research to: establish information and data relevant to fisheries and environmental economic zoning; formulate a fisheries sector development plan and aquatic environmental plans for the country and the whole region; and build and develop intersectoral relationships with the fisheries and aquatic environment and resources sector.
- Support the Ministry of Fisheries (MoFi) in establishing: measures in production and management reorganization, the economic and technical norms, and sectoral institutional arrangements.
- Guide, support and provide technical assistance to the local units particularly in establishing the fisheries and aquatic environmental development plans, and programs for reorganization and production management.
- Provide training services related to fisheries and aquatic environmental economics and management, as well as planning studies for sectoral officers at the central and local levels. IFEP disseminates research and planning results nationwide, coordinates and exchange information and experiences with agencies from other countries and other international organizations.

In terms of my capacity as a coastal management practitioner, I have been engaged in many types of consultancy work to ICM-related projects in Viet Nam: Hon Mun MPA Project of IUCN, MPA System Planning Project for Viet Nam, Capacity-21 Program, and Agenda-21 for Viet Nam. I have conducted/coordinated several ICM projects: KN 06-07 project (Research on Building Approaches to Coastal Area

Case Study

“Developing a Plan for Integrated Coastal Management in Ha Long Bay, Quang Ninh”

Dr. Nguyen Chu Hoi, Vice Director - Institute of Fisheries Economics and Planning-Ministry of Fisheries

Management in Viet Nam To Ensure Environmental Safety and Sustainable Development), Strengthening ICM Capacity in the Tonkin Gulf (ongoing project of MoFi, in coordination with NOAA and IUCN), and the project on Building Sustainable Environmental Strategies for the Fisheries Sector in Viet Nam towards 2010 (ongoing).

To implement these projects successfully, I, as a project coordinator or task leader, have to effectively supervise and work closely with my staff and representatives from other institutions. I regularly consult my staff if they need technical assistance or any type of support, and address their needs efficiently. I always share and impart my ICM experience and knowledge with them to ensure that they are updated and effective in their work. Therefore, my staff understands ICM knowledge and skills, as well as their duties at work. In return, they support me in my involvement in BCMTP and help me to complete relevant tasks.

When I decided to become involved in BCMTP as country coordinator, my personal expectation, as well as my institution's, was that this program could help improve the capacity of Vietnamese ICM practitioners in the country, specifically the provincial ICM officers who are directly in charge of managing coastal zones and their resources, and solving coastal problems and issues prevailing within their respective provinces. If the BCMTP can do this then, it will significantly contribute to facilitating effective and sustainable management of the coastal zones of Viet Nam at present and in the future.

In my opinion, all of the projects that I have conducted or been involved with have benefited from the BCMTP in terms of the knowledge and experience that I gained from my ICM partners (inside or outside Viet Nam). Exchange of information with project collaborators has helped me improve the ICM framework for Viet Nam, to become more appropriate or suitable to the actual condition and situation of Viet Nam's coastal areas. One of the most important outputs of BCMTP is the ICM manual, which is being finalized and will be released soon for the benefit of all ICM practitioners in Viet Nam. Through this manual, to which my project partners and I have devoted our time and effort to develop, we can disseminate our ICM knowledge and experience to all of the other Vietnamese practitioners, and help them to manage their coastal resource areas effectively and sustainably.

For my project “Strengthening ICM Capacity in the Tonkin Gulf”, I recognized that there were other projects related to coastal management issues in this area, especially within Ha Long bay. One example is the KN 06-07 project, as mentioned earlier. This project comprehensively studied the coastal zones and established coastal profiles for the whole of Viet Nam. From this information, the project has developed a working framework for ICM in Viet Nam with development directions and principles. However, this coastal area, Ha Long bay, still lacks a feasible ICM plan, which has to be approved and implemented by Quang Ninh provincial authorities.

This feasible plan should be an output of ICM planning processes utilizing the intersectoral, participatory and integrated approach. To fill in this gap, a case study research on this particular coastal area should be implemented, and the results/output distributed nationwide to help other coastal areas manage their own resources.

Case Study

“Developing a Plan for Integrated Coastal Management in Ha Long Bay, Quang Ninh”

Dr. Nguyen Chu Hoi, Vice Director - Institute of Fisheries Economics and Planning-Ministry of Fisheries

To address the need for a feasible ICM plan for Ha Long Bay, a case study on “Developing a Plan for Integrated Coastal Management in Ha Long Bay, Quang Ninh” have been proposed and approved. The Vietnamese Government has also funded this project, with some helps from NOAA and IUCN. I am the project coordinator and shall supervise my staff in cooperating with other relevant institutions in Viet Nam during the implementation of this case study.

Different institutions will be involved in this project and will become members of the ICM network once this project has been implemented:

1. Legislation Department – Ministry of Fisheries
2. Provincial Legislation Department
3. Hai Phong Institute of Oceanology
4. Frontier Board – Ministry of Foreign Affairs
5. National Directorate of Aquatic Resources Exploitation and Protection
6. Department of Investment and Planning of Quang Ninh Province
7. Ha Long bay Management Board
8. Department of Natural Resources and Environment of Quang Ninh Province
9. Transportation Department of Quang Ninh Province
10. Board of Coastal Guards of Quang Ninh Province
11. Center for Marine Environment Research and Consultancy
12. Research Institute for Marine Fisheries

This case study project is an output of all the ICM initiatives that I have adopted and applied to actual conditions in Viet Nam.

The output of this project will be a feasible plan for ICM in Ha Long Bay, where a lot of economic activities are going on: urbanization, tourism, mining and conservation. Eventually, Quang Ninh provincial authorities will adopt this ICM plan and implement it in managing their resources specifically their most valuable asset – Ha Long bay, a world heritage site.

The results of this case study will include experiences and lessons learned, which other ICM practitioners nationwide can benefit from and apply to their own coastal areas. Learnings from the project will be written comprehensively and shall document the whole process of developing an ICM plan for any coastal area:

1. Lesson 1: In order to implement ICM successfully in any area, with Ha Long bay as an example, there is a need to build up a decision-making process using inter-sectoral approach.
2. Lesson 2: The involvement of local communities in the ICM planning process is currently weak and insufficient; therefore, the role of these communities in ICM needs to be clearly identified to ensure the sustainable existence of ICM in these areas.
3. Lesson 3: There is a strong need to create alternative livelihood programs for small-scale fishing communities in the three floating fishing villages within the natural world heritage site of Ha Long bay.
4. Lesson 4: The management of the natural world heritage values of Ha Long bay needs to be included in the ICM framework since about 80% of impacts

Case Study

“Developing a Plan for Integrated Coastal Management in Ha Long Bay, Quang Ninh”

Dr. Nguyen Chu Hoi, Vice Director - Institute of Fisheries Economics and Planning-Ministry of Fisheries

on the bay come from land-based activities: urbanization, harbor construction, aquaculture, tourism and coal mining.

5. Lesson 5: It is necessary to improve the awareness of local communities and tourists regarding the importance of conserving the coastal areas.
6. Lesson 6: ICM have to be a effective tool for promoting the Comprehensive Development Framework (CDF) for these coastal areas.

Finally, other Vietnamese collaborators can use the results of this case study as a vivid example when delivering any lecture or presentation for future ICM practitioners.

Case Study

“ICM Through a Model of Locally Managed Marine Reserve in Trao Reef, Van Ninh, Khanh Hoa”

Ms. Nguyen Thu Hue, Country Coordinator - International Marinelife Alliance

activities. Project activities have been integrated into local socio-economic development plans. Opportunities and challenges of other sectors such as tourism, port construction were intensively discussed in relation with the project.

During the project implementation, our organization has been aware of the importance of integrated approach in coastal resources conservation and development initiatives. Participation of various stakeholders is required during the project planning and implementation. We have been successful in facilitating many dialogues and forum for those who have conflicting interest. We equally raise their voice and find solutions together, for example, the case between shrimp farmers and lobster rearers. District level plays a vital role in this process. New organizational arrangements have been functionally set-up.

IMA Viet Nam and I have been successful in setting-up working relations with Ministry of Fisheries agencies, Ministry of Natural resources and Environment agencies, NGOs and international organizations who share their concern on marine and coastal resources and environment. We plan to fully apply where possible, skills and approaches of ICM in our next interventions. Other ICM facilitators took part in this training course are holding important positions relating to ICM in Vietnam. IMA Vietnam and I shall actively maintain the ICM training program in Vietnam for our work, particularly for the ICM development of Vietnam.

Case Study

“ICM Through a Model of Locally Managed Marine Reserve in Trao Reef, Van Ninh, Khanh Hoa”

Ms. Nguyen Thu Hue, Country Coordinator - International Marinelife Alliance

- IMA Vietnam works with local NGOs and other community-based organizations and communities themselves in addition to government agencies to build their long-term capacity in addressing the issues of poverty reduction through harmonized coastal marine conservation and livelihoods enhancement. Being the sole NGO working on marine issues in Viet Nam, IMA
- Viet Nam has facilitated the first ever network of marine conservation and sustainable aquaculture in the country, through both formal and non- formal training, capacity building provided to relevant stakeholders.

Working to Protect the Coastal Resources

As a coastal resources manager and practitioner, prior to joining the ICM training course, I understood ICM as sharing of power and management of those who directly benefit from the resources. At that time, my knowledge about the nature of the coastal area was scattered without a system

Prior to joining this training course, I utilized the personnel based on their strengths or expertise. For example, my working group has much experience on fisheries. Thus, our discussion on coastal management tends to be more fisheries-oriented.

Being work-driven, our organization has established relationships with government agencies and International organizations engaged in coastal resources management. However, prior to joining this training program, our relationship and communication no broader strategic perspective. Communication flow happened on a case-to-case basis without proper attention to the complexity of the integrated coastal management.

I was asked to join this training course at the right time when IMA started to implement a project on facilitating a local management on coral reef areas in Trao Reef in Van Ninh district, Khanh Hoa province. This is a community-based coastal resources management initiative. The project, focusing on coral reefs is significant as biodiversity issues as well as socio-economic issues. Coral reefs are some of the most diverse and productive areas of marine ecosystems. Though present in just 0.25% of the world's oceans, they provide shelter for 25% of the total marine species in the world. According to RUBEC (1998), "healthy coral reef has an annual [economic] productivity of 37 tons/km² while dead reef can only provide under 5 tons/km² per year." This yield may even be lower in places where coral has predominantly vanished. It is therefore of great importance that coral reefs are both rehabilitated and protected. In Xuan Tu village, approximately 780 of 803 total households rely on the sea to make their living. Only about 20 households are involved exclusively in agriculture. For this village, therefore, the purpose of this project is to ensure a productive reef is essential.

Ran Trao is adjacent to Xuan Tu and Ha Gia villages in Van Hung Commune, Van Ninh District, Khanh Hoa Province. These villages sit approximately 55 km. from Nha Trang by Highway 1, and have about four-km. of coastline. The area has geographical and natural resource characteristics that have made this a favorable location for the development of agriculture, forestry, fisheries, tourism and other

Case Study

"ICM Through a Model of Locally Managed Marine Reserve in Trao Reef, Van Ninh, Khanh Hoa"

Ms. Nguyen Thu Hue, Country Coordinator - International Marinelife Alliance

services. As a result of these ecological conditions, the primary livelihood in this commune and those nearby is fishing, particularly reef fishing. While the province still has some of the richest coral reefs all over Viet Nam, Van Phong Bay itself has 13 prominent coral reefs in addition to large area of sea grass (including dominant species such as *Enhalus acoroides* and *Thalassia hemprichii*). Trao Reef is one of the coral reefs in this province that has potential for rehabilitation.

According to some village elders, coral reef resources adjacent to Xuan Tu village are seen as "... a gift from god to the local people..." The resources have been diverse and abundant and for many years the local people have relied on them for survival and development. In recent years, Xuan Tu village and Van Hung commune benefited from development of lobster cage culture and black tiger shrimp rearing. However, these economic practices are not sustainable and have caused serious environmental damage. Furthermore, over-all development and natural resource use has been unmanaged. Over fishing and unregulated and destructive fishing practices have further depleted live reef fish and associated species both for 'trash fish' to feed the lobsters, as well as for the rapidly growing international coral reef fish trade. These unsustainable practices are issues that this project deals with. Recent marine field surveys have shown that:

- Hard coral cover on local reefs is rapidly decreasing with an average of 10 – 20% in a recent survey and peaking at 40-60% on Trao Reef.
- The amount of fisheries resources was 10% of the total resources in 1980s.
- Coral reef destruction for shrimp ponds have lead to negative impacts such as lesser lobster juveniles available and slower growth and decreasing lobster population.
- If the coral ecosystem and its resources continue to be destroyed, not only will fishing resources be affected but mariculture will suffer a total failure.

The villagers are facing two options:

First, if coral resources are not managed and protected: serious consequences will occur since the local people have few alternatives to mariculture and fishing to ensure their livelihoods. The local fisheries will continue to be greatly harmed due to increasing exhaustion of coastal areas resources and inexperience in fishing offshore.

Second, if coral resources are well managed and protected: mariculture can be developed and biodiversity and coral reef associated ecosystems will not deteriorate enabling its rehabilitation and recovery. Lobster and other cage culture will grow hand-in-hand with maintaining the fisheries in the area. The socio-economic situation and people's living conditions will be enhanced. In addition, with its favorable geographical conditions, local people will benefit from participation in tourism services.

The over-all goal of the project is to sustainably manage and conserve the coastal coral reef ecosystem and its associated resources in Van Hung Commune (Van Ninh district, Khanh Hoa province), enhancing the socio-economic situation through improved management of current livelihood options and increasing the over-all diversity of options.

Case Study

“ICM Through a Model of Locally Managed Marine Reserve in Trao Reef, Van Ninh, Khanh Hoa”

Ms. Nguyen Thu Hue, Country Coordinator - International Marinelife Alliance

Specific objectives were:

- To facilitate the establishment of a marine reserve, following the principle of co-management, where local community is central in all activities with the support of local government and other stakeholders.
- To strengthen the capacity of the local community to effectively plan and implement their coastal management plan under the umbrella of the local government.
- To directly reduce the extent of destructive and unsustainable fishing in the project area.
- To noticeably rehabilitate both coral reef and its resources in the boundaries of the marine reserve.
- To commence, select and pilot sustainable fishing methods and alternative aquaculture, which have a reduced effect on the marine environment, in particular the coral reefs.
- To determine an appropriate, effective model of marine reserve management to support replication of similar projects across Viet Nam.

We have found out that it is not possible to implement this objective if there are no integrated and appropriate approaches among the stakeholders. The training course on ICM took place at the right time and I joined with enthusiasm and full participation. From the beginning, I firmly believe that our project will benefit much from the ICM training program.

Knowledge Exchange Through Training

Vietnamese collaborators have been equipped with two types of helpful skills: (1) skills to be a trainer; and (2) knowledge and skills on ICM principles. Additionally, all facilitators have a chance to exchange experience with those ICM practitioners who know deeply ICM through their own work. Such experiences and skills could be applied in many other field of activities such as training, training management, negotiating, even outside the ICM context.

The ICM training project has achieved its objectives. The results of the project should be expanded to other coastal areas of Vietnam and should be applied in the field as soon as possible. However, effective coordination and cooperation among agencies and organizations is of utmost importance, ensuring its consistency, efficiency and effectiveness.

Our team consists of professionals with strong economic and fisheries background. In early days, our discussion focused much on fisheries-related issues. As mentioned above, the Trao Reef MPA requires a multidisciplinary approach with participation of various stakeholders representing different interest and responsibility. After the training and consultation with other facilitators, more aspects of resources, ecosystems and management was considered in our interventions.

On the organizational and operational set-up, the project has a harmonized coordination among authorities at district, communal level and the community. Information on coral reef, reef fishes resources, water quality, economic calculations in fisheries and mariculture was discussed during planning and implementing

Case Study

“ICM Through a Model of Locally Managed Marine Reserve in Trao Reef, Van Ninh, Khanh Hoa”

Ms. Nguyen Thu Hue, Country Coordinator - International Marinelife Alliance

Introduction

I am working with International Marine Alliance (IMA) as Country Coordinator of IMA Program in Viet Nam. IMA is an international, non-government and non-profit organization working to promote sustainable use of marine and coastal environment and resources and improve the living of the coastal communities in Asia Pacific Region. In 2000, IMA fully operated in Viet Nam. IMA Viet Nam acts as an active member of Viet Nam's marine conservation network providing relevant technical advice and support to government agencies and local coastal community to promote effective management of coastal environment and resources of Vietnam, contributing to marine bio-diversity conservation and poverty reduction strategies of the country through the following major interventions:

- Promotion of community-based initiatives, especially locally managed marine reserves and operations to serve as a tool to involve community and local government participation in coastal resources management.
- Development of a national Live Reef Fish Trade (LRFT) profile and data collection system to reform the trade to be non-destructive and sustainable
- Building the capacity for marine conservation in Viet Nam through promoting and strengthening the effectiveness of partnerships and alliances.

Among the programs carried out by IMA Vietnam include:

- Increase economic opportunities for the poor coastal communities in selected areas through promoting active participation in managing coastal resources in a sustainable manner, i.e., responsible fishing and environmental-friendly aquaculture, removing barriers that prevented them from enjoying a fair trade of their fishing and aquaculture products, such as lack of access to market information, low negotiation skills, etc. IMA Viet Nam worked to improve their capacity through awareness, education and skills training and empowered them to get better access to resources to equally participate in the management of natural resources. IMA Viet Nam has facilitated successfully the first locally managed marine reserve in Khanh Hoa province (south Center of Vietnam) where all such community-based initiatives were included.
- Contribute to system change of Viet Nam's policy with regard to managing the coastal resources, especially the reef-based ecosystems, through working directly with the government fisheries officials, businesses and fishing communities, building their capacity in assessing the live reef fish resources, promoting non-destructive fishing methods, reforming the live reef fish trade to be non-destructive and sustainable. Market forces rule the water and they must be part of solution. IMA Viet Nam with its partners have investigated and documented the live reef fish market chain (species, operators, capture methods, prices, middlemen, export system, destination, etc.) from reefs in the key collection areas to the ultimate markets in Southern China and Hong Kong. In addition, IMA Viet Nam has conducted surveys and analysis of national and local policies, regulations, and management and enforcement activities related to the live reef fish trade.

Case Studies of Trainees

Case Study

"Coastal Zone Management and Analysis Methods Applied to Can Gio Beach Improvement Project to Enhance Tourism Value"

Huynh Tien Dat, Environment Department - Ho Chi Minh Natural Science University

Approximately 13 km of Can Gio Beach was improved stretching from Dong Hoa to Can Gio. The length from sea line to ocean is about 1 to 5 km. Included in the improved beach area is Dong Nai River estuary to which several environmental issues are attributed, such as sedimentation and coastal accretion-associated dynamics. Ongoing activities are aquaculture, fishing, and income generating but environmentally unsound activities. These activities have marred the otherwise beautiful beaches that are interesting for tourists in these areas. However, the coastal zone management question is: "Should we improve the coastal zone to become a beach suitable for tourism?"

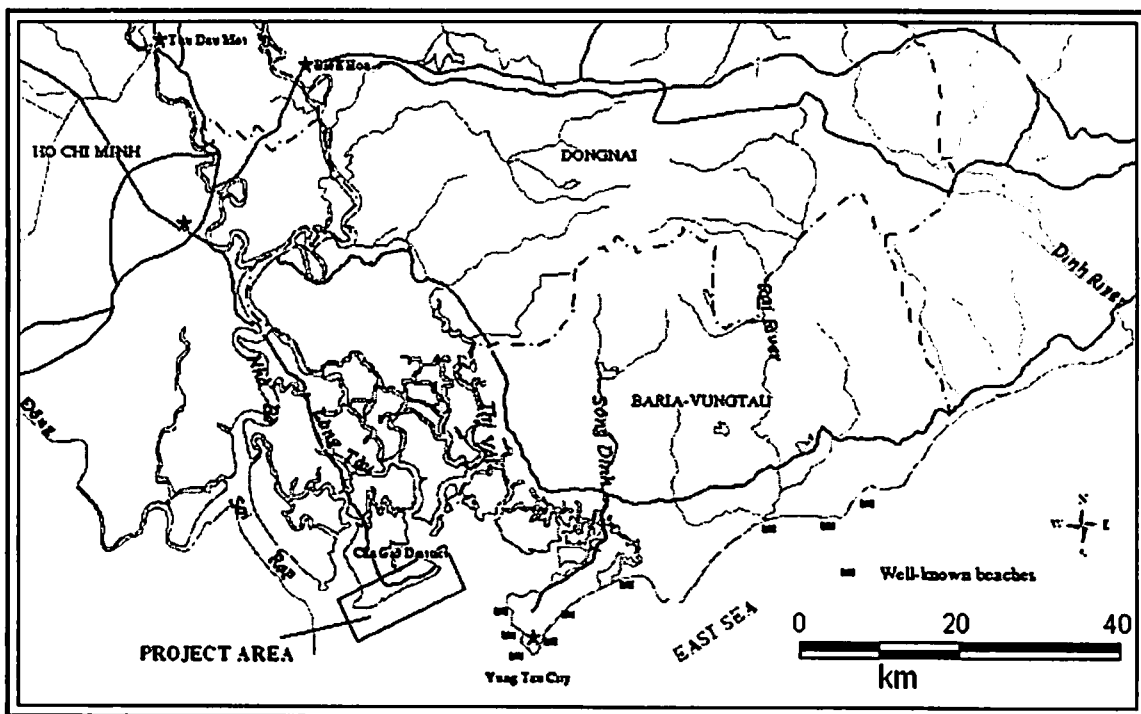


Figure 1. Positions of improved areas in Can Gio Beach Improvement Project.

Introduction of the Improvement Project

The Can Gio Beach Project began to improve the area in order to become suitable for tourist and bathing area. The following modifications were proposed:

- Improving water quality. Only 30% of the seawater areas are suitable for bathing. The remaining water is turbid.
- Replacing unsuitable sand with better sand for a minimum standard for bathing. The natural soil structure of Can Gio Beach has a poor standard for bathing.
- Modifying the form and topography of the areas. The form of the Can Gio tidal areas are not suitable for having a huge area with an average tidal flats at around 2-4.5 km. wide. The rate of coastal descent is too small (0.2-2.5%).

Case Study

“Coastal Zone Management and Analysis Methods Applied to Can Gio Beach Improvement Project to Enhance Tourism Value”

Huynh Tien Dat, Environment Department - Ho Chi Minh Natural Science University

- Enhancing of mud alluvium areas at the coastal zone. High levels of mud are dissolved in surface seawater and the sea bottom is covered by soft mud while water is often turbid.

Impact Assessment of the Project Based on ICM (Integrated Coastal Management)

There are several impacts on the physical environment taken into account for the Can Gio Beach Improvement Project ranging from biophysical, social, economic, financial and institutional parameters.

Forms of coastline. The improved areas' length almost covered the entire Can Gio Beach having 13 km. and an average length of 4 km (from land to sea). The improvement for such a big area affected the tidal surface area, the change in the rate of coastal descent and the length of mangrove and tidal areas.

Hydrology regime. The modification of the tidal zone to provide scenic area for tourists will silt up the Ha Thanh and Rach Lo estuaries. These rivers are important in improving land productivity and provide farmers with fresh water for shrimp culture, salt making, waste water conveying from production sites to the sea, and household use. If the rivers are filled up, farmers engaged in shrimp culture and salt production will be affected. Simultaneously, irrigation systems must be built. The seawater flow along the coastline was restricted by manmade banks and dykes, reducing the water available for bathing purposes. The river flow brings mud from Long Tau and Soai Rap rivers to the beach. The nutrients in the river flow are a source of food for many aquatic species of high economic value such as mollusks and crabs. The restriction and modification of water flow will affect the coastal ecosystem and reduce the productivity of the coastal zone.

Water quality. Water quality in Can Gio is determined by interactive factors: the quality of water discharged by rivers, urban and industry wastewater along the coastline, and the water running into the sea. The development of tourism will add to this pollution resulting in an increase of polluting substances around the beach and the tourism areas. Tourism development, local urbanization and particularly the planting of trees and gardens is perhaps related to the use of fertilizers and pesticides that affect the water quality along the coastline.

Natural calamities. Increasing tourism development will spur the development and improvement of infrastructure, enhance economic assets and increase coastal population size. This may also result in increase in resource vulnerability (i.e, through typhoon, etc.) though the frequency of such outcome is very low.

Extraction of soils and sand. People often take soil and sand from the seaside to layer the land surface and improve the tidal areas. Such actions will adversely affect the environment because this soil is spread anywhere and will destroy the habitat for animals. Taking the soil from the seabed may cause the reduction of oxygen level and restrict the regeneration of flora and fauna in these areas.

Case Study

“Coastal Zone Management and Analysis Methods Applied to Can Gio Beach Improvement Project to Enhance Tourism Value”

Huynh Tien Dat, Environment Department - Ho Chi Minh Natural Science University

Toxic compounds in the soil. This refers to toxic compounds (i.e., high metal content, organizational compounds, etc.) that originates from industrial centers and pesticide-use.

The population increase in coastal areas due to the number of tourists, local people, industrial and agricultural activities therefore raising the amounts of toxic compounds. Maintaining trees and flowers require the use of more pesticides, which drain into the ecosystem when it rains. These are strong compounds that may have negative effects on the environment. Toxic chemical compounds tend to attach to smooth sediments. These sediments flow from rivers and mud in estuaries and are found in special areas. The greater the increase in sediment quantity, the more the mud accumulates.

Construction using sea sand resources. The construction of banks, reclaimed land surfaces, artificial bathing beaches and entertainment areas will create an increase in demand for sand, rock, and cement. The materials must be transported from other places. The demand for building materials will increase and consequently deplete natural sources of materials and result to the opening of additional quarries and pits.

Effect on natural biological systems. Mollusks are species that live on the tidal flats and inhabit coastal areas of Gach Rai Bay. Mollusk populations will be affected by resource extraction and activities that intend to improve the tidal areas. The mollusk species with high economic value are often collected from coastal areas including oysters (*Arca sp.*). Along the shores of Ganh Rai – Soai Rap, crustaceans such as shrimps abound. Crustacean resources include two main species: green shore crabs and shrimps. Giant fresh water shrimps are also an important natural resource.

Human impacts on the environment and natural resources. For area development and tourism industry improvement, we need to invest in the following infrastructure:

- Despite the recent construction of main roads, the transport infrastructure is not sufficient for tourism development. The quality of roads and traffic safety are not good.
- Irrigation systems require investment to avoid environmental overload.

Maintenance and improvement. Can Gio Beach is an alluvial area and extended with deposits of silt every year. Because the impact of environmental factors such as wave action, tidal action, river and estuarine forces, Can Gio cannot achieve a status that can promote ecotourism. There will be a problems maintenance and beach improvement for bathing.

An increase in tourism will increase solid urban waste. It is important to plan for a sewage system. The current waste processing method involves landfilling or burning. Can Gio Island has not developed due to its isolation. In this situation it is difficult to address waste management. The landfill method of waste disposal in Can Gio is difficult to carry out because of the geological characteristics of the island. Waste burning is commonly practiced and will contribute to air pollution. Such

Case Study

"Coastal Zone Management and Analysis Methods Applied to Can Gio Beach Improvement Project to Enhance Tourism Value"

Huynh Tien Dat, Environment Department - Ho Chi Minh Natural Science University

problem must be considered when we undertake projects and it is an important factor to consider for tourism in the long-term.

Water supply. Nowadays, people often buy fresh water from other places as Can Gio's ground water is limited. Increasing tourism will increase the demand for fresh water, especially for bathing activities. The government must have a long-term plan for fresh water supply for these areas to include access to fresh water for all stakeholders to avoid competition.

Waste treatment. Development of coastal tourism will result to increase in wastewater and will therefore require an increase in waste treatment capacity. This wastewater cannot be directly disposed because the self-cleaning capacity of the environment is not sufficient for large number of people associated with tourism. We must take care to build the waste treatment systems and recognize it as a main factor for the sustainable development of tourism.

Relation to coastal and institutional development. There are a lot of famous beaches in Vung Tau: Sau, Truoc, Dua, Nghinh Phong and Long Hai beach, which are 10-20 km from Can Gio and are accessible by boat in 10-12 minutes. It is possible to develop eco-tourism at Can Gio and Vung Tau. This will be interesting for tourists to go to both places to see the beautiful estuarine areas of Can Gio and the beach of Vung Tau. In addition, the government must manage the development of a district so as to coordinate the development of many areas.

Water traffic. The development in the areas will increase sediment input into estuaries, so that the need for dredging and improvement of waterways will be necessary in estuaries associated with Soai Rap River.

Irrigation. The modifications will change the flow of rivers such as in Ha Thanh, Rach Lo. These will affect irrigation activity in inland areas related to shrimp culture and salt production.

Small-scale industry. Increasing tourism potential will promote the development of small- scale industry and services.

Competing uses for land. The increasing tourism potential will increase many services such as: hotels, flower gardens, artificial ecological areas, so that the structure of land-use will change. It is important that the government manage such changes to protect areas.

The impact on people's living conditions. Site-seeing value as tourism development will increase benefits received from site seeing and the natural beauty of the area.

Income generation. Enhancing tourism potential will increase the income for the coastal community and provide business and tourism services but this will depend on the knowledge and capital of the community. Increased impact on resources will need careful consideration.

Case Study

“Coastal Zone Management and Analysis Methods Applied to Can Gio Beach Improvement Project to Enhance Tourism Value”

Huynh Tien Dat, Environment Department - Ho Chi Minh Natural Science University

Fishing and Aquaculture. Aquaculture activities and coastal modification activities will affect environmental conditions of fish habitats and production areas of many flora and fauna species, thus affecting fishing and aquaculture production. The time required for the restoration and rehabilitation of the environment can be extended and livelihoods of the local population currently depending on these natural resources may be enhanced through the tourism industry. Aquaculture and fishing detritus supply food sources for the town and other provinces, and are the main occupation of local communities.

Urban development and provision of community services. During the initial stages of tourism development, the demand for houses will exceed the supply capacity. This will cause a decrease in residential lands available in the town thereby putting land demand pressure on the areas immediately surrounding the tourism areas. There are some protected areas belonging to Can Gio so the improvement of these protected areas must be planned.

Cost of living standards. Increasing tourism at Can Gio Island may cause an increase in property value and prices. This will result to unbalanced living standards. The level of education of community is very low. There is a significant difference between the living standards of the rich and poor people in the community. Poor communities may not have opportunities to develop themselves.

Aesthetic value. The protected areas, such as mangrove forests and estuaries at Can Gio have high ecological and eco-tourism values both at the national and international level.

Community health. Beach improvement for tourism development may affect the health and well being of the community.

Other social services. For the local population, water resource use, electricity and telecommunication services will be affected in an increase of tourism.

Conclusions

The impact analysis of the project within the ICM framework presented many conflicting issues and considerations. Biophysical conditions such as land surface, tidal fluctuations, coastal soil resources, and water quality are not suitable to develop a beach with the standard quality required. We should consider the socio-economic impact, the livelihoods and standard of living of the local population, and natural resources at all stages of the project.

Beaches suitable for bathing are only 10 km from the coastal improvement area. The proximity of these beaches will interact with any kind of development planned. Whether we should develop coastal and seaside tourism or not involves many issues and probable impacts that need careful planning and analysis.

Case Study

“Conflicts Between Tourism and Conservation of Sea Turtle Resources in Con Dao National Park”

Mr. Le Doan Dung, Research Institute for Marine Fisheries

Identification of case study

In 2001, I visited Con Dao Island as part of my research on sea turtles, and participated in solving issues relating to the protection of sea turtles in Con Dao National Park. In Viet Nam, the protection of sea turtles has been initiated and carried out in recent years, but this issue exists worldwide, particularly in South East Asia where protection has been implemented earlier. The protection of sea turtles is scientifically and politically significant.

Bay Canh is one of 16 islands located in the big archipelago of Con Son, about 6-7 nautical miles from Con Dao town. Lots of turtles spawn every night Bay Canh Island. Since 1995, the staff of Con Dao National Park has actively implemented the protection of sea turtles in the island. They constructed shelter areas for protecting and saving sea turtles, and assigned persons to look after sea turtles every night. This program is supported by WWF.

Together with activities aimed at saving sea turtle resources are the activities of the busy tourism industry.

There have been some conflicts among the different activities in the island: the protection of fecundity areas, natural and artificial incubation clutches, and tourism activities. Tourists who visited these islands have collected turtle eggs for different reasons. At that time, with the approval and agreement of Con Dao National Park authorities, I undertook a field trip to this island wherein I studied and observed the spawning habits of sea turtles, as well as the tourists who collected ova, and then met with the management board of the park to discuss and solve these issues.

Initial status before attending the ICM training course

Sea turtles are conserved under the national law, Decree 48 CP; and the international law pertaining to the agreement on the international trading of wild animals and plants threatened with extinction - CITES. In addition to this, the government of Viet Nam has formally approved the memorandum on the conservation of sea turtles and their habitats in the Indian Ocean - South East Asia regions in July 2001. Together with the memorandum, the Ministry of Fisheries has initiated a program on turtle protection establishing a management board responsible for the assessment of activities relating to conservation and management of sea turtles in Viet Nam.

The above actions are evidence importance and the need to conserve sea turtle resources, as part of our precious marine natural heritage. If the sea turtle resources are degraded, it will have a negative impact on some ecosystems, specifically on the ecosystems of corals and seagrass.

For a long time, there have been numerous activities of tourists in these islands. When visiting the island and beaches, they always liked to steal turtle eggs and often dug up incubation clutches for collecting ova, which decreases hatch rate. Besides this, lights and noise at night and the discharge of waste materials: empty bottles,

Case Study

“Conflicts Between Tourism and Conservation of Sea Turtle Resources in Con Dao National Park”

Mr. Le Doan Dung, Research Institute for Marine Fisheries

waste paper and nylon bags prevent the turtles from spawning in the grounds at night.

These above activities continued frequently from 1995 up to now which negatively impacted on conservation efforts of turtle resources in Con Dao National Park. Annually, large quantities of turtle eggs are lost, addled and unfecundated. The turtles swim back to the sea and they are not willing to come back.

If these issues continue to occur, the sea turtle resource will be difficult to conserve and will become threatened and degraded (according to the report by the newly established Con Dao National Park, they have noticed that the precious species – *Eretmochelys imbricata* – which was once a common visitor to the grounds, is no longer appearing). Given the importance of sea turtles, if the sea turtles are killed there will be negative impacts on people and reduced benefits.

The issue was becoming urgent while we could not find effective approaches to protect the resource. It is difficult to tackle these issues because they are related to the benefits and revenue from tourism activities.

Changing process

Conflicts related to the use of coastal resources always occur at the local and regional level, especially with regard to the sharing of resources and associated benefits among sectors. Therefore, the solving of these issues requires the participation of authorities at all levels and relevant partners.

In such situations, the issue is how to implement measures to protect the sea turtle while maintaining tourism activities? Tourism activities should comply with the relevant laws. After thinking, I decided to appraise this issue through discussion with the management agencies. I have found that it is difficult to make recommendations to the management agency regarding my position on this issue. Firstly, I am pessimistic about whether I will be listened to, but after persisting persuasion and the explanation of the reasons and examples that illustrate the necessity of establishing regulations to conserve turtles as well as tourism activities, finally the management board of Con Dao National Park has agreed to the suggested action plans. Some regulations are given as follows:

- Forbidding collection of turtle eggs in the sand grounds
- No discharge of waste materials in the sand grounds because such discharge prevents spawning activities in spawning grounds
- Not walking and using lights when the turtles are in the grounds
- Penalties for breaking these laws, in accordance with the regulations of the national park

All regulations are printed and posted in the turtle conservation stations.

It is understood that it is difficult to comply with and enforce these regulations for every body, especially for tourists who frequently visit here and like to collect and steal turtle eggs. The forestry guarders on the island are not enough to control the

Case Study

“Conflicts Between Tourism and Conservation of Sea Turtle Resources in Con Dao National Park”

Mr. Le Doan Dung, Research Institute for Marine Fisheries

tourists. During the tourist season, we have observed that the amount of turtles spawning in the spawning grounds is much decreased. Many turtles crawl into the spawning ground but they return to the sea without spawning when they meet obstacles, noise and light.

This issue related to the awareness and habits of people is solved. The tourists who steal and collect turtle eggs do not recognize the negative impacts. Therefore it is necessary to educate the people and improve their understanding of the conservation importance of sea turtles. The managers, the scientists and the officers who directly participated in this activity have played important roles in these education activities.

When the tourists arrive to visit the island, they are now brought to a meeting to be informed about the importance, significance and scientific and political value of sea turtle conservation, and the difficulties and shortage of physical resources for forestry guards to implement such duties is explained.

Through the meetings and through the propaganda issued by the panel such as leaflets, the people gradually understand the issues and are willing to take part in the protection of the environment when they are visiting the island every time (for example, cleaning the obstacles in the spawning grounds, not littering on the sand).

When the people understand this issue, the threats to the turtles spawning in the spawning grounds and the incubation clutches are decreased significantly, and therefore the amount of spawning turtles in the spawning grounds is clearly increased every night. Fecundity in the natural and artificial incubation grounds are increased, and the annual amount of small turtles reared in the sea increases.

Results

The results are some regulations on conservation and tourism issued by Con Dao National Park. The management board in general, and the staffs for taking care and managing the island in particular, will be responsible for controlling and monitoring visitors when they visit the island. The tourists have to comply with the regulations prepared by the national park during their visit.

In Viet Nam, the activity of turtle trading is not operating strongly; only some households take part in sea turtle trading. However, the economic value of turtle and turtle eggs is not high, so the regulations issued by the national park do not impact on the poor and help the implementation of conservation efforts. If the incubation grounds are not managed well or managed unscientifically, the survival rate of small turtles in the wild is decreased through a change of: turtle nests' density, temperature of turtle nests' incubation temperature and the physiological function of air exchange. Additionally if the technical aspects of removing nests and selecting places of incubation and the methods of rearing small turtles are not done correctly, this will impact on conservation success. However, if managed well, the protection of incubation places can be an effective management tool especially in the places where eggs are not removed or collected by passing people or visitors to the islands.

Case Study

“Conflicts Between Tourism and Conservation of Sea Turtle Resources in Con Dao National Park”

Mr. Le Doan Dung, Research Institute for Marine Fisheries

It is urgent to educate and improve the awareness of communities for the managers to effectively solve the above issues. Before 1995, there were few studies on sea turtles in Viet Nam. Therefore, the general understanding of the Government, communities and non-government organizations and relevant groups with regard to sea turtle conservation was limited. Starting in 1995, Con Dao National Park has implemented a project to manage sea turtle spawning in the sand grounds by capturing, marking and rearing turtles in the sea. Through these methods and some others methods applied at Con Dao, the awareness of local people has improved.

In recent years, the government has recognized the significance of degraded marine resources, so they have focused on the protection of natural resources by the establishment of marine protected areas, national parks, and management and planning of the protected areas (for example forbidding fishing in certain areas, fish spawning grounds, spawning grounds of sea turtles etc.). These issues are related to the activities of integrated coastal management (ICM). However, the concept of ICM is strange and new for the people and their understanding of the concepts is limited. Therefore, through solving the relevant issues of sea turtle conservation in national parks, results are achieved as follows:

- Quantity of people trained on the skills of ICM is increased through the dialogues. The more people understand the more participate in the activity of marine sources protection
- Supplementing some regulations on conservation areas and these regulations are applied and implemented by the people.
- Sea turtle resources are increased.

The lessons learned

From the above-mentioned results, lessons derived as: In order to ensure that ICM solutions and approaches are feasible at local areas; they need to comply with the real socio-economic conditions of local community. At the same time, these policies also have to benefit local people in the project area.

To ensure the sustainability of ICM project, it is necessary to have a long-term funding as well as stable income sources for local community. Appealing private firms participate and support this ICM project is a good solution to this problem.

ICM in the world in general and in Viet Nam in particular originates from an urgent requirement of humans and nature. How can people take advantage of and sustainably use natural resources without negatively impacting on nature? In Viet Nam, degradation and unsustainable use of natural resources has occurred. Everybody should have awareness of and understand this issue clearly. Therefore, the project on ICM was established to meet this requirement. Before attending the training course, many participants and I did not exactly understand these concepts: what is ICM?, what is the profile of ICM?, how do they mobilize the peoples' powers?. The lessons and knowledge learnt from the courses help us in our work. We now understand why the integrated coastal areas are managed, what the steps for the establishment of planning in Viet Nam are, and the ways to solve the conflicts that

Case Study

“Conflicts Between Tourism and Conservation of Sea Turtle Resources in Con Dao National Park”

Mr. Le Doan Dung, Research Institute for Marine Fisheries

arise when implementing the works etc. Additionally, the skills of explanation for persuading people to implement actions are useful. I have heard that since initiation, the project has organized some training courses in Northern, central and Southern Viet Nam. The participants are mainly provincial managers with limited number. It will be better if the project is continued and expanded in scope to invite local people (at the district and commune levels), the people that formulate the nucleus in the local areas for disseminating the experiences and -knowledge of ICM to different subjects. I think that the project would thus be more completely implemented and achieve better results.

Case Study

"Community-based Coastal Fisheries Resources Management in Coastal Villages in Ninh Ich Commune, Ninh Hoa District, Khanh Hoa Province"

Ms. Le Thi Thu Hong, Khanh Hoa Department of Science, Technology and Environment

Identification of Case Study

Nha Phu lagoon in Ninh Hoa district, Khanh Hoa province is an area with abundant fisheries resources and very nice natural landscapes with typical tropical ecosystems such as coral reefs, sea-grass beds, and mangroves. Due to the growth of the population and economic development, increased coastal fishing, the use of destructive fishing methods (i.e., as dynamite, toxins, electric gears) and the conversion of mangrove forests and coral environments into shrimp or fish farming areas, fisheries resources in the lagoon have been decreased and the natural ecosystems in the lagoon areas are also destroyed. This problem has also caused serious conflicts and violence among fisheries communities around the lagoon and among communities and fishers in other areas (from Nha Trang and Van Ninh), who use the lagoon for fishing. At the same time, the social security in the coastal communities in and around the lagoon is affected negatively.

Therefore, it is urgent to solve these serious problems and find appropriate management methods for coastal fisheries resources conservation that still ensures economic development and environmental protection. The Provincial Department of Khanh Hoa Science, Technology and Environment has implemented a project aimed at community-based coastal fisheries resources management in the coastal villages of Ninh Ich Commune, Ninh Hoa District, Khanh Hoa Province.

Initial status before attending ICM training programs

According to Patrick Christie of University of Environment and Natural Resources of Michigan, coastal management methods, especially coastal fisheries resources management in tropical countries, consists of the following development stages:

1. *Pre-colonial management* - The fisheries resources management mainly consists of forbiddances and penalty forms to control the over-exploitation of fisheries resources.
2. *Centralized management* - The Government stipulates fisheries resources management and the local communities do not participate in management. This form is popular in many countries in Asia, Africa and the South Pacific region (including Viet Nam). However, the fisheries resources and environments are still not managed effectively in this manner, therefore fisheries resources are continuously decreased and social conflicts still often occur.
3. *Community-based coastal management* - This is a form of management that concentrates more on the integration of society, economics and environmental information at the community level and on giving recommendations to local authorities for controlling fisheries resources from a "bottom-up approach".

Case Study

"Community-based Coastal Fisheries Resources Management in Coastal Villages in Ninh Ich Commune, Ninh Hoa District, Khanh Hoa Province"

Ms. Le Thi Thu Hong, Khanh Hoa Department of Science, Technology and Environment

This measure has been tested successfully in the Philippines and propagated in other countries. However, this management approach has weak points and unsuitable aspects for practical conditions in Viet Nam.

In Viet Nam there have recently been some projects on community-based fisheries resources management, such as **Fisheries Management in a Reserved Lake** undertaken by Research Center for Fisheries Aquaculture No. 3, and **Aquatic Resources Management in Tam Giang Lagoon, Thua Thien Hue Province**, but both of these projects only assess the present status of fisheries resources, socioeconomics and general management. These projects do not find solutions for supporting fishers and local authorities to manage and appropriately use the natural resources. They do not create livelihoods for the people, or manage and plan the usage of land areas and water surfaces. The gap between the poor and the rich people in fishing communities are not reduced and therefore the fisheries resources and environment are degraded and over-exploited.

The project on **Building Capacity for Live Coral Fish Trading in Viet Nam through Non-destructive and Sustainable Fishing** on the other hand has been carried out by the International Marine Life Alliance (IMA) in Van Hung Commune, Van Ninh District. This project sought a step-by-step process to find an appropriate management approach for fisheries resources for the actual conditions of the local area. Ninh Ich commune, located at the side of Nha Phu Lagoon, has typical general socio-economic characteristics of small coastal fisheries in Khanh Hoa Province, but has unique natural conditions, social customs and habits etc. Therefore, it is necessary to seek an appropriate management approach based on the experiences of domestic and foreign projects, which we need to study carefully.

Ninh Ich Commune is located in the south of Ninh Hoa District, next to Nha Phu Lagoon towards the East. It has a land area of 6,602 hectares (has.) with coastline of 10 km., and the population of the commune is 7,248 inhabitants. The people of Ninh Ich commune are mainly dependent on the marine resources. The total number of fishing boats is 202, which are mainly operated near or in the lagoon. In addition, the commune has 116.65 ha of shrimp and crab farming ponds and 450 people engaged in farming. Nha Phu Lagoon covers an area of 5,000 ha during the highest tidal level, but only 3,000 ha at the lowest tidal level. The tidal ground is thus a large area of approximately 1,500 ha where fishing activities are operated busily.

Since 1975 up to the present, Nha Phu Lagoon has been the general fishing ground for fishers of Ninh Hoa and Nha Trang. However, when the fisheries resources were over-exploited and fishers use destructive fishing measures such as explosives, toxins, fine mesh trawling etc, that resulted in disputes over the fishing grounds between fishers living near the lagoon and fishers from Nha Trang that fish at the lagoon, that caused violence. Therefore, peace and security in the region is not ensured and the natural ecosystems and fisheries resources in the lagoon are destroyed and degraded. As the situation became more serious, the Khanh Hoa People's Committee issued Ordinance No 26/UB dated 1 June 1994 dealing with the conservation and development of fisheries resources in Nha Phu Lagoon; the Department of Fisheries coordinated with frontier post No. 368 to implement

Case Study

"Community-based Coastal Fisheries Resources Management in Coastal Villages in Ninh Ich Commune, Ninh Hoa District, Khanh Hoa Province"

Ms. Le Thi Thu Hong, Khanh Hoa Department of Science, Technology and Environment

Ordinance No. 26/UB. Even if the issue has shown that the use of destructive fishing methods is decreased when the situation is frequently monitored and enforced, but if this is not monitored, conflicts and destructive practices occur again. Therefore, there is an urgent need for the participation of relevant institutes, authorities and the communities living near Nha Phu Lagoon in order to manage fisheries resources, protect the environment and maintain a healthy society.

Process of change

To solve the conflicts related to socio-economic development, maintaining fisheries resources, and protecting natural ecosystems in the region, we have undertaken specific activities as follows:

- Organizing socio-economic surveys for communities in fishing villages in Ninh Ich and based on this information, developing approaches for creating livelihoods that will eradicate hunger and alleviation of poverty, and gradually improving the awareness of communities regarding maintaining and rehabilitating fisheries resources and protecting natural ecosystems.
- Organizing communities toward enhancing ownership responsibility, self-management of communities, launching a movement "all people unite to construct new life", forming traditional rules to social security, protection of fisheries resources and environment, establishment of new social customs and lifestyle, stimulating the local people to participate in activities of protection and rehabilitation of fisheries resources and environment, etc.
- Inviting scientists from the Nha Trang Oceanography Institute and the Research Center for Aquaculture No 3 to carry out evaluation surveys on the present status of resources in Nha Phu Lagoon to facilitate the development of methods to rehabilitate fisheries resources and natural ecosystems; organizing scientists and consultants to transfer models of effective livelihoods to communities and to study and plan towards sustainable aquaculture development.
- Developing communities by creating livelihoods and assisting people to appropriately use natural fisheries resources, such as forming nucleus groups with active members; training these groups to provide knowledge about sustainable aquaculture and fishing, supporting them to form models of appropriate livelihoods for their level of knowledge, education and access to capital, etc. From this training they become focal persons who will share experiences to the communities. The effective livelihood models include those based on swimming crabs, blood cockle farming, lobster hatching, etc. These species are easy to maintain and do not require additional feeding or much investment. These groups also help to organize the community to catch natural resources according to the seasons but so as to limit overexploitation and ensure rehabilitation of natural resources.
- Improving the awareness of communities should be made through training courses, meetings, knowledge and information dissemination, etc. The nucleus

Case Study

"Community-based Coastal Fisheries Resources Management in Coastal Villages in Ninh Ich Commune, Ninh Hoa District, Khanh Hoa Province"

Ms. Le Thi Thu Hong, Khanh Hoa Department of Science, Technology and Environment

groups disseminate knowledge and experiences learnt to the communities; the scientists and managers help people to gain knowledge and understanding on the policies, the inter-relationship between the people, natural environment, and access to capital resources, etc. The people learn by directly observing and through the use of popular education materials suitable for the education level of the people.

- Establishing specific regulations on fishing and environmental protection with the participation of communities.
- Strengthening monitoring and evaluation of authorized institutes with the participation of communities.
- Coordinating with banks and local authorities to establish regulations on loans and create conditions for communities to gain access to capital resources for participating in new livelihoods, eradication of hunger and alleviation of poverty.
- Coordinating with local authorities, and research institutes to undertake surveys, develop plans for the sustainable development of aquaculture, instilling ownership of the land and water-surfaces to the people for building livelihood models according to plans.
- Cooperating with local authorities and communities to carry out resource rehabilitation activities such as rearing shrimp seed in the sea, rehabilitation of mangroves, placing artificial reefs into new habitats for marine species etc.

After two years of implementing these activities, the natural resources have been improved significantly:

- Blood-cockle stocks in the lagoon were previously low but are now increasing with a high population density in the tidal areas of Tan Thuy and Tan Dao villages; the stock of whole region is now approximately 100 tons. Natural blood-cockle resources and natural stocks of other species such as clams, ark shell, and snails have also increased.
- Blue mussel resources were previously degraded but have now recovered in some areas such as in areas belonging to Tan Dao hamlet and Ngoc Diem hamlet.
- A high density of small lobsters is now present in Nha Phu Lagoon, mainly in Mui Khe Cay reefs, the reefs of Ngoc Diem, Cat Loi villages, and in the reefs of Khi Island and the base of Hon Thi Mountain.
- Planting and rehabilitating 6,300 mangrove trees near the lagoon. Planning and distributing 20 ha of water-surfaces to households for sea-farming and appropriate management according to regulations. If any household does not follow such regulations, their area of water-surfaces is reclaimed.

Case Study

"Community-based Coastal Fisheries Resources Management in Coastal Villages in Ninh Ich Commune, Ninh Hoa District, Khanh Hoa Province"

Ms. Le Thi Thu Hong, Khanh Hoa Department of Science, Technology and Environment

- In addressing credit capital, the Bank for Agriculture and Rural Development has provided loans to 14 households a total sum of 108 million Viet Nam dong (VND) or approximately US\$ 7,000. In addition, 20 million VND (approximately US\$ 1,300) was funded by Khanh Hoa Fisheries Extension Center and households have invested private funds in creating new livelihoods.
- In creating new livelihoods: over 100 households participated in the models of new livelihoods with 10,000 pickets for swimming crab farming, living standards of communities have improved which has contributed to improving environmental protection. Destructive fishing methods have been eradicated and households abide the fisheries law. The conflicts among communities are resolved and people share experiences on sea farming with each other as friendly-relationship is enhanced.
- The relationship among the community, scientists, and banks etc. has been built, facilitating better opportunities for development.
- The awareness of people has greatly improved.

Results

After implementing the project for two years, we have established the model of coastal fisheries management through which it is possible to increase the strength of coastal areas in Khanh Hoa province with the participation of communities, and gradually rehabilitate and maintain coastal resources. Living standards of coastal communities have gradually improved. The mechanism for providing loans to support people seeking new livelihoods was established.

It could be said that the activities of the project were operated in a way similar to integrated coastal management framework that is aimed at changing human behavior with regard to the sustainable use of natural resources towards economic development and appreciation on the protection of resources and the environment. However, this is a single sector activity in fisheries resources protection and does not mobilize the participation of various components, especially enterprises, donors, and central authorities. Also, the process of project implementation is insufficient and needs to be supplemented, understanding considerably the management approach on the use of natural resources. We wonder if when the project has ended, the positive results of the project will still be maintained or not. The activities of the project are experimental and many models have failed but they provide us experiences and awareness on community-based effective management of the natural resources and the environment. If we have earlier accessed ICM principles such as: concepts, functions, the process of engaging community participation and management, the establishment of the general mechanism, the cooperation of stakeholders, we could achieve a high level of success in implementing the project. We hope that managers of multi-sectors, at multi-levels, enterprises and communities are encouraged to participate actively in coastal resources management.

Case Study

"Community-based Coastal Fisheries Resources Management in Coastal Villages in Ninh Ich Commune, Ninh Hoa District, Khanh Hoa Province"

Ms. Le Thi Thu Hong, Khanh Hoa Department of Science, Technology and Environment

Lessons Learned

We attended the training course on integrated coastal management organized by the Institute of Fisheries Economics and Planning and other Vietnamese coastal resource management practitioners and collaborators and the training course on Marine Protected Areas (MPA) facilitated by the Hon Mun MPA Project in Khanh Hoa Province in 2003. The knowledge on ICM provided by the training courses was useful and practical for us in our role in natural resources management of Khanh Hoa. In practice, the ICM program assisted us in sustainable utilization of natural resources, conservation of biodiversity, prevention of natural calamities, controlling environmental pollution, strengthening benefits of communities and society; sustainable development of the economy and optimization of multiple resource use, participation of multiple stakeholders and in conflict resolution related to resource access.

Khanh Hoa is a coastal province located in the south central part of Viet Nam, with over 500 km coastline, beautiful landscapes, tropical seas, and typical marine ecosystems. Economic activities are thriving in the region and therefore the use of natural resources and the environment are under pressure. Awareness and information of ICM are the new issues for scientists, managers and authorities in Khanh Hoa Province. Therefore, we expect that the ICM project under the Institute of Fisheries Economics and Planning will continue to provide assistance through training and education on ICM for local subjects, and help localities achieve the sustainable development of society and the economy.

Case Study

“Protection and Conservation Methods in the Alluvial Areas of Ngoc Hien District, Ca Mau Province”

Nguyen Tan Cuong, Department of Science, Technology and Environment

Ca Mau Province has 102 km of coastline, of which 107 km is located in the East and 147 km is located in the West of the gulf of Thai Lan. The total area of the territorial waters is 67 000 km². Ca Mau has many large estuaries throughout its coastline such as Ganh Hao, Bo De, Rach Goc, Ong Trang, Bay Hap, Ong Doc, and Khanh Hoi. There are a lot of small irrigation canals adjoining each other to form a system of irrigation canals. Along the Western coastline, alluvial deposits form new alluvial coastal grounds. In particular, the alluvial area in the Cua Lon River has a high rate of accretion, growing at about 50-80 m per year. The accretion process is formed by material sediment sources from coastal stream flows, tidal currents, and even from mangrove forests. This area has high biodiversity largely due to the ecology of the mangrove forest that serves as a habitat for many coastal animals, and provides nutrition sources for fisheries. To protect biodiversity in the area, the People's Committee of Ca Mau Province has established a resolution, Document No. 1293/QĐ - CTUB on 19th September 2000, which forbids organizations and individuals from fishing within the 240 km² alluvial grounds of West Ngoc Hien district, extending from Mui Bun to Ba Quan, as marked by stakes. It aims to manage and protect areas where marine resources live, reproduce and develop, and provide nurseries for fisheries in the sea around Ca Mau and neighboring seas. There are relevant political, economic and social components to this study. When the local community are involved in all resource conservation and protection activities, their knowledge and awareness of the coastal habitats and ecosystems will be improved; they will no longer exploit the natural resources nor catch fish in these prohibited areas.

Biodiversity in the mangrove forest within the alluvial grounds of Ngoc Hien District, Ca Mau Province has been exploited and damaged for many years. This threatens the ecosystem balance and may cause degradation of natural resources in these areas. Ca Mau authority has tried to solve these problems in order to protect mangrove and alluvial habitats, as well as improve the awareness of the local people. Setting up and implementation of the project on “Applying ICM Tools and Approaches in the Management of Alluvial Grounds in Ngoc Hien District, Ca Mau Province” in which I have been involved, is one of their initiatives to resolve these issues. The ICM training course in Southern Viet Nam and the Training of Trainers (TOT) course in Ha Long City have helped me a lot in contributing to this project. At present, the management and protection of these alluvial grounds are relatively effective. Biodiversity of the mangrove forest will be conserved and illegal exploitation of mollusks, animals and plants in the mangrove forest shall be controlled or put to a full stop. This will help maintain the ecosystem balance, and create favorable conditions for the sustainable development of these species.

A variety of activities have been undertaken to solve these problems:

- Planning and conduct of surveys by relevant organizations.
- Implementation of training courses for the local community, aimed at improving their awareness on decision-making processes to enable them to actively participate in this process. Communication campaigns through radio, television and personal contacts with the farmers were undertaken as part of the project.
- Implementation of participatory methods in protecting the resources in mangrove forest.

Case Study

“Protection and Conservation Methods in the Alluvial Areas of Ngoc Hien District, Ca Mau Province”

Nguyen Tan Cuong, Department of Science, Technology and Environment

The implementation of this project is supported by relevant local organizations: Ca Mau People’s Committee, People’s Committee of Cai Nuoc and Ngoc Hien Districts, Fisheries Department, and the Department of Aquatic Resources Exploitation and Protection. They expressed their support through the creation of a regulation issued on 19 December 2000, Decision No. 1293/QS - CTUB. This regulation prohibited all fishing activities within 240 km² of alluvial areas in the West of Ngoc Hien District.

Objectives of the Project

- Conserve ecological values and resources that are considered in the country as standard ecological forms since these ecological resources and habitats are invaluable assets. Thus, the need for an approach that integrates science and socioeconomic aspects, that is the ICM approach.
- Strengthen the important functions of mangrove forests in alluvial areas: protecting coastal environments and local communities from natural disasters, reducing coastal erosion, increasing coastal accretion, and protecting fisheries, forestry and agriculture production, as well as residential areas and assets of the local communities.
- Generate employment opportunities in the forestry sector and develop resource-based enterprises compatible with the forest resources and are environment friendly. These jobs and resource exploitation activities have to be in line with the objectives of sustainable forest management and protection. This can be done through effectively integrating three sectors: fisheries, agriculture and forestry (V-A-C). It is necessary to improve the sustainable attributes of the V-A-C system help increase the economic productivity and benefits of mangrove forest for the local people.
- Improve rural infrastructures in order to improve living conditions of the local people.
- Improve community awareness on the values of mangrove forests and wetland habitats.
- Contribute to the consolidation of national defense in terms supporting national political security, as well as the security of the society in the South of Viet Nam.

Scope of the Project

According to Decision No. 142/2003/QS - TTg issued by the Prime Minister on 14 July 2003, stipulating the conversion of Dat Mui Natural Protected Area into Mui Ca Mau National Park. The areas of alluvial protected zones covers a total of 41 862 ha of which 15,262 ha is inland protected zones is and 26,600 ha is the area for littoral zones.

Case Study

"Protection and Conservation Methods in the Alluvial Areas of Ngoc Hien District, Ca Mau Province"

Nguyen Tan Cuong, Department of Science, Technology and Environment

Results

The implementation of management methods in these alluvial areas i.e. patrolling, controlling and monitoring, resulted to decreased illegal and uncontrolled fishing, as well as overfishing in this area.

At present, the alluvial zones are strictly protected. The implementing agency provides a working budget for this project annually in order to carry out the implementation of management methods. However, this fund is very limited. It would be ideal if the WorldFish Center can provide financial support to this project in order to sustain the protection and conservation activities in this alluvial zone.

Experiences Learned from the ICM Training Course

From a participant's perspective, I think that the project "Facilitating ICM in Viet Nam" is a good project with useful training courses. The ICM course was able to cover the entire content of ICM, as well as the necessary tools in ICM. The training modules, as developed and presented by local and foreign experts, is very easy to handle and comprehend, and is very diversified. The way that the trainers presented their lectures was very interesting and innovative, creating a very stimulating and exciting learning environment. Application of specific knowledge such as the concept of ICZM, awareness education and training approach, participatory coastal resources assessment and ICM training organization to actual circumstances is likely feasible. These concepts, methods and approaches can be applied to any coastal area. Therefore, the ICM project, as well as its training courses, is effective and highly applicable in the coastal provinces.

Case Study

“The Application of ICM in Marine Turtle Conservation in Da nang, Central Viet Nam”

Mr. Nguyen Van Duc, Department of Aquatic Resources Exploitation and Protection of Da Nang City

To evaluate the impact of the successfully implemented project on Integrated Coastal Management (ICM), I would like to present the pilot research of the Da Nang Fisheries Resources Protection Department in the coastal zones of Da Nang wherein I am in charge of the activities. It is a case study on fisheries resources protection involving endangered fish species such as the marine turtle.

Marine turtles play an important part in the environment, and has socioeconomic importance. They are important to the tourist industry, in research purposes, and conserving turtles can help generate employment for the local community. Marine turtles belong to a special species with complex ecological characteristics that involve various resources. As such, it can be a good indicator for environmental quality and coastal zone management, a matter that can be further studied.

The sea around Da Nang is one of the turtle’s habitats and natural spawning grounds in Viet Nam. With the rapid development in modern science and technology, resource exploitation techniques are now advanced and highly effective; as a result, we are faced today with serious coastal management issues: deteriorated and over-used resource stocks, depleted natural resources, and degraded natural environments. The marine turtle is one of the species in danger of extinction. Its existence is in a critical situation due to the impact of human activities such as greatly reduced natural habitat and spawning grounds, and over-exploitation. These factors have resulted to a significant decline in the number of turtles at the global scale.

I have taken several steps in order to contribute to the conservation and protection of this rare and invaluable marine species:

- Attended the training course on “Turtle Management and Conservation” to increase my knowledge on the biological and ecological aspects of the marine turtle, as well as the methods for its management and conservation. After the training, I was able to disseminate the knowledge, as well as the information materials, with the fishermen I have been in contact with, specifically those who have applied for registration of their fishing boats.
- Participated in surveys and investigations on the current status of turtle populations.
- Categorized, measured and tagged captured turtles with ID cards before releasing them back to the natural environment, as part of monitoring and evaluation.

The turtle is an invaluable resource: it is important economically, culturally, and ecologically. Its ecological role and sensitivity/vulnerability to harmful human activities resulting to extinction has not been estimated. Therefore, we have implemented a program for its management and conservation, and further researched the issues for three months before attending the training course on ICM. We are carrying out our action plan and implementing specific solutions aimed at relieving the effects and harmful impacts of human activities on turtles, and at protecting fisheries resources, the marine environment and biological diversity.

Case Study

“The Application of ICM in Marine Turtle Conservation in Da nang, Central Viet Nam”

Mr. Nguyen Van Duc, Department of Aquatic Resources Exploitation and Protection of Da Nang City

The Ministry of Fisheries (MOFI) is concerned with raising awareness about the value and importance of turtles, as well as the need to protect other rare marine species. There are existing policies on protecting the environment and marine species that refer to the conservation of the marine turtle and its habitat. We have been working and cooperating with the International Union for the Conservation of Nature (IUCN) and the World Wildlife Fund (WWF) - Indochina Programme in carrying out conservation activities:

- Survey on the actual state of the turtle population through interviews with the fishermen and other people living around Son Tra peninsula. Results showed that the turtles still inhabit and spawn on lands around Son Tra peninsula, and that the fishermen sometimes caught the turtle in their fishing grounds.
- Training course on turtle management and conservation for government officers and fishermen aimed at disseminating knowledge on bioecology, the importance of marine turtles, and to guidelines for management and conservation methods.
- Survey of the lands around Son Tra peninsula to identify conservation areas for turtle spawning. Canoe trips to potential sites for surveying turtle spawning were undertaken to identify and measure the width and length of sand areas where turtle used to spawn. At the same time, the survey team also used GPS (Global Positioning System) tools to map, take pictures and locate the target areas. The field surveys resulted in the identification of seven important spawn sites of turtle in succession from North to South:

1. Five sites located in Northern Son Tra:

- Lien Xo site, formerly Da Nghe.
- Black rock (Am areas) - 450 m in length and 25 m wide. This site is subdivided in to two smaller areas with a range of rocks among them.
- Suoi Tien site - 120 m in length and 25 m wide.
- Ban site.
- North Sand - 220 m in length and 25 m wide. This site is subdivided into two smaller sites: 16⁰07'00 North latitude and 108⁰18'34 East longitude.

All sand areas in the North of Son Tra Island are small and unpopulated. There are only a few fishermen who fish and exploit fisheries resources there by using longline for squid and dive to catch lobster shrimps.

2. Two beaches located in Southern Son Tra:

- South Sand - 950 m in length and 60 m wide. Coordinates of the center are located at 16⁰06'04 North latitude and 108⁰17'10 East longitude.
- Bamboo Beach - 500 m in length and 60 m wide, alongside the Northern beach site.

Case Study

“The Application of ICM in Marine Turtle Conservation in Da nang, Central Viet Nam”

Mr. Nguyen Van Duc, Department of Aquatic Resources Exploitation and Protection of Da Nang City

These two Southern beach sites are relatively larger than the Northern sites. It is convenient for road and waterway transportation. However, the road is quite sloping. Before 2001, the local people have witnessed turtles spawn in these two sand areas. However, at present, due to the development of tourism, turtles rarely spawn in these areas; they have moved to the upper beaches of Northern Son Tra peninsula.

Based on the preliminary results of the turtle management and conservation project under the financial and technical support of WWF - Indochina Programme, we continue to carry out following activities:

- Coordinate with the Tho Quang Farmer Association in establishing a volunteer group comprised of people concerned with nature and has free time. This group will carry out daily surveys within the beaches around Son Tra peninsula to determine if turtles still spawn in these areas. Depending on actual field survey data, we shall develop a long-term plan for the conservation of this rare animal.
- Work with technical experts, disseminate information based on experiences, develop skills in seeking and identifying signs and tracks of turtles, measure the size of turtles, rescue turtles' eggs, record all data gathered and prepare reports.
- Implementation of these turtle management methods for conservation activities has increased the awareness of the local communities on the importance of turtles. The local people now inform us when a turtle has been caught by trawlers or gillnets, and they now work with us in identifying the species of turtles, measuring the size, clamping ID cards and releasing them back to nature. Fishermen immediately release the turtles that have been captured in their fishing gears.

These describe the research project on marine turtles that was implemented by the Fisheries Resources Protection Department with technical support and funding from NGOs. It served as a created a “green light” for fisheries protection activities that are becoming more and more efficient. If we continue to receive funding and technical support from NGOs, we would be able to pursue this initiative and conduct further research on protected resources in conformity with the existing local policies i.e. research on coral reefs and other invaluable and rare marine species, so as to further relieve threats to rare marine species. These activities will guarantee a high quality marine environment and coastal zone, underpin marine biodiversity and contribute to the development of various sectors.

With the useful knowledge obtained from the training course on ICM, I feel more confident in applying the knowledge in fisheries resource protection and conservation activities in my work location. Furthermore, these skills and knowledge helps me adapt to different circumstances related to ICM. Therefore, from a participant's point of view, I think that the ICM project has an enormous ability for practical application and will achieve good results.

Case Study

"Applying Integrated Coastal Zone Management Experience in Natural Resource Management of Nam Dinh Province"

Nguyen Van Phan, Department of Science, Technology and Environment of Nam Dinh Province

Overview of the State of Coastal Resources in Nam Dinh

Nam Dinh has more than 8,000 square meter sea surface area and 72 km of coastline. Nam Dinh consists of 3 coastal districts surrounded by twenty villages around the coastal area: Giao Thuy; Hai Hau; and Nghia Hung. It has large estuaries namely Red River, Day River, and Ninh Co River. The population density is high and the growth rate is increasing resulting to shortage of agricultural and urban land. Efforts should be made to expand the area of land towards the sea and to develop new areas where standard of living is low. Due to lack of knowledge and information, people destroyed the mangrove forests in favor of shrimp aquaculture causing the deterioration of the wetland ecosystem.

Overexploitation of resources and activities significantly reduced marine species and depleted marine resources. Trade and navigational activities have intensely polluted the aquatic environment with industrial discharge and toxic wastes such as oil and heavy metals.

Land-based pollution increased through industrial and agricultural activities and urban waste. Factories and industrial zones located upstream were discharging wastes that flowed downstream causing the pollution of coastal zones and estuaries.

The coastal zone of Nam Dinh is a small part of the Tonkin Gulf and has similar characteristics with this broader region in terms of economic potential. With similar circumstances such as, sedimentation and consolidation of alluvial ground in Nghia Hung and Giao Thuy have resulted to coastal accretion towards the sea from 80-100 to 10-20 m each year along the coastal areas of Hai Hau district. According to statistics provided by scientists, there are over 40 fish species in Nam Dinh sea with economic value. The tidal amplitude is strong that means the reaction level between the sea and the coastal zone is greater. Demersal fisheries at tidal and mangrove areas are divided into two classes: mollusks class and Crustaceans class (27 species). The demersal marine species with the highest economic value are shrimps and crabs. There are 8 species of shrimps (i.e., small shrimps, Japan shrimps, tiger shrimps, etc.) distributed around the alluvial sea grounds of Giao Thuy and Nghia Hung. There are four types of marine crabs with *Scylla serata* as the most valuable species. These are widely distributed but concentrate in mangrove forest areas. At present, there is a trend to commercialize marine crab farming to attain over 160 tons/year total production. The volume of standing stock of swimming crabs is huge and includes species of high economic value.

In terms of fish biodiversity, there are 233 species of 71 classes that occupy 8 typical ranges of marine ecosystem at Tonkin Gulf. Despite the high economic value of 30 species, the amount of the stock available is low.

Other than shrimps and crabs, squid as an aquatic resource is distributed from inshore to offshore with 17 species of 2 classes. As the offshore areas in Nam Dinh are not so deep and has a low level of capture technology-use, the total squid catch is quite low.

Case Study

"Applying Integrated Coastal Zone Management Experience in Natural Resource Management of Nam Dinh Province"

Nguyen Van Phan, Department of Science, Technology and Environment of Nam Dinh Province

Also, there are various flora systems in the coastal areas of Nam Dinh consisting of seagrasses and mangroves. In general, the economic value of coastal resources in Nam Dinh province is high and the total production of capture fisheries fluctuates between 5 000 to 7 000 tons/ha/year.

The present state of Xuan Thuy National Garden (Xuan Thuy wetland conservation nature area) is as follows: Con Ngan and Con Lu alluvial grounds of Giao Thuy district have been consolidated for 40 years. Its forest, fisheries and terrestrial resources contribute to high biodiversity in the area, typical of natural ecological conditions of estuaries. The area has unique geographical features as well as colorful flora and fauna. The alluvial grounds of Con Lu are an ideal habitat for various species of migratory birds. According to ornithologists, there are at present 150 bird species in the area including seven rare and endangered species. The most common species reach a population of 25 000. There are also many species of trees and mangrove ecosystems. The mangroves create a preventive wall to protect the area.

There are 35 000 inhabitants living along the 11 km coastline. The local people depend mainly on agriculture and fisheries for their livelihood. Unfortunately, the 2 000 to 3 000 people involved in daily resource extraction activities such as mangrove deforestation for shrimp farming resulted to resource depletion and reduced fisheries productivity in Con Lu and Con Ngan.

The Coastal Environment Without ICM Strategy

The following narrates the coastal environment situation before the introduction of ICM concepts and practices.

Awareness of local authorities and communities on coastal area management, protection and sustainable use was limited. The extraction of natural resources was deregulated as people exploited the fisheries using destructive fishing gears in Xuan Thuy National Park. In particular, people engaged in dynamite fishing, cutting of mangrove forests and unabated catching of bird species. There was no effective solution for generating alternative employment and income improvement for coastal communities aimed at decreasing pressure on coastal resource use. There was no Comprehensive Master Plan in managing wetland areas in order to socio-economically develop the province. The shift from agricultural land use for crops and cattles occurred partially and developed without planning. These resulted in water resource depletion and soil erosion along the coastal areas.

There was no detailed plan that clearly established the borders of the Xuan Thuy National Park, which subsequently resulted to resource exploitation at the outskirts of Xuan Thuy National Garden to some extent. Shrimp farming was practiced extensively while fish production and species rapidly declines. The ecological approach to tourism was not considered as part of natural resources development.

Some economic enterprises submitted project proposals for mineral resource exploitation at environmentally sensitive areas. These proposals did not consider the conservation value of natural resources nor the important role natural resources play

Case Study

"Applying Integrated Coastal Zone Management Experience in Natural Resource Management of Nam Dinh Province"

Nguyen Van Phan, Department of Science, Technology and Environment of Nam Dinh Province

at the national and international levels in mitigating coastal zone erosion, maintenance of dykes, and possible environmental threats to human inhabitants. One mining project covered seven coastal villages including Xuan Thuy National Park and erosion-prone areas of Hai Trieu and Hai Hau.

Detailed plans for urban areas, tourism areas and industrial zones did not take into consideration the protection of natural resources and environmental issues, leaving them vulnerable to negative impacts of soil, air and water pollution. Exploiting sand for salt production at Hai Hau diverted the stream and resulted in coastal erosion.

There is no legal policy or institutional basis for management and protection of coastal resource at the macro-level. Coastal resource management strategies still overlap in terms of ineffective enforcement, regulation and implementation. This management issue has been ongoing for the last 10 years at the expense of coastal resources of Nam Dinh affecting the sustainability of natural resources and threatening coastal communities. The effects are expected to result to the loss of income and affect the socio-economic development of Nam Dinh province in the future.

The introduction of integrated coastal zone management has provided brighter options for us. ICZM (Integrated coastal zone management) activities received much attention from the Peoples' Committees and coastal districts. In Viet Nam, ICZM received active support from international organizations and central institutions, with suitable strategies for proposing and establishing a legal basis to natural resources management of the Nam Dinh coastal area.

Important Consideration for ICZM in Nam Dinh

ICZM scenarios in Nam Dinh include:

Apart from the Province Committee, the commune's People's Committee and the coastal districts plan to further explore the economic potential and use of coastal areas to include:

- A shift from agricultural to aquatic farming and capture fisheries.
- Prepare a project proposal for ecological tourism in the coastal areas.
- A plan to transfer the use of coastal alluvial ground from agriculture to aquatic farming and urban land in Nghia Hung District, Giao Thuy Province.
- The Government will initiate the establishment of Xuan Thuy National Park
- Income and employment issues in the coastal district at Nam Dinh Province will be considered and resolved.
- Local communities' awareness in protecting the natural coastal resources will be enhanced.

Case Study

"Applying Integrated Coastal Zone Management Experience in Natural Resource Management of Nam Dinh Province"

Nguyen Van Phan, Department of Science, Technology and Environment of Nam Dinh Province

- International organizations and the National Science Division now welcome research proposals for the protection and suitable exploitation of coastal resources. Thus, several projects have since been supported to protect and conserve valuable natural coastal resources at Nam Dinh Province.

Provincial Stakeholder's Participation

Since participating the ICM training course organized by IFEP (Institute of Fisheries and Economic Planning), I become equipped with knowledge and experience from the course. I am now actively working with my colleagues, taking advantage of the support given by government bodies, local government agencies, Provincial, District and Communal Peoples' Committees, especially the Nam Dinh ICM Project of the province to participate and contribute to ICM (Integrated coastal management) initiatives including:

- Teaching knowledge and skills on ICZM for management staff, coastal provinces, and coastal district officers and publishing related articles on ICZM for distribution at the provincial and district workshops.
- Conducting survey assessment for initiating ICZM plan for the coastal communities in Nam Dinh Province.
- Participating in decision making policies, organizing legal bodies, and establishing the main functions of Xuan Thuy National Park.
- Contributing knowledge to complete the project development for ecological tourism of coastal areas and to closely work with the Xuan Thuy National Park Management Board to gather funding support for the Xuan Thuy National Park supported by the Dutch Government.
- Sharing ideas for the Coastal Land Use Plan and the transfer of land-use to aquatic farming.
- Directly supporting the creation of plans for the sustainable use and development of coastal mineral resources and to prevent exploitation of mineral sand at Xuan Thuy National Forest and the coastal areas at Hai Trieu - Hai Hau.
- Creating a plan to protect the environment and sustainably develop Giao Lam Coastal Industry areas at Giao Lam District.
- Coordinating with the Environmental Center of the Consolidated University to carry out surveys on coastal resources at Nam Dinh and rapid assessment of communities.
- Working with the Management Board of Xuan Thuy National Park to identify and establish the borders of the National Park and the policies on natural resource management in these areas for submission to the Peoples' Committees Union for legal agreement.

Case Study

"Applying Integrated Coastal Zone Management Experience in Natural Resource Management of Nam Dinh Province"

Nguyen Van Phan, Department of Science, Technology and Environment of Nam Dinh Province

- Making plans for environmental monitoring system while considering possible effects of anthropological pressures to estuary and coastal resources.

A Provincial Officer: Initiating ICM in Nam Dinh

During an ICM Workshop in Nam Dinh Province issues were discussed in the context of the ICZM framework. In our project, I was in-charge of facilitating means to address ICM issues. The workshop helped provincial and district leaders, and management officers in improving their awareness on the sustainable use and conservation of natural resources in coastal areas.

Our project assisted the Provincial Peoples' Committee to improve policies relevant to coastal resource management such as: legal decision for the establishment of Xuan Thuy National Park; allocating, decentralizing power and clearly determining individual duties; hiring additional officers; and updating material, facilities and equipments for natural resources protection. We prevented illegal fishing and mangrove deforestation. We promulgated policies on urban areas and coastal industry zones aimed at environmental protection, as well regulations in on exploitative mining at sensitive areas of the coastal zone.

The project coordinated with the Xuan Thuy National Garden authority to create an action plan for an ecological tourism project that is supported by the Dutch Government. These activities composed of awareness raising, increasing management capability, and taking control of the tourism operation activities for key village officers, national park officers and near-village officers. Ecological tours were designed so as to preserve the ecosystem of Xuan Thuy National Park. We have completed the establishment of a tour service system in these areas.

We facilitated technical consultation for the Provincial Peoples' Committee to strengthen and improve the cooperation among the agriculture, fisheries, and environmental sectors in establishing a master plan for wetland ecosystems. Particularly, we have taken into consideration the conversion of agriculture land (paddy field) into aquaculture and found solutions to many key issues at the local level by prohibiting destructive activities to natural resources.

We discussed with the Department of Natural Resources and Environmental and the Provincial Peoples' Committee in relation to working with the Netherlands Government to allow Nam Dinh authorities to continue the second phase of the ICZM project in this area. This project has been approved and we are carrying out 10 missions within the context of the action plan of the ICZM strategy at Nam Dinh province.

In order to develop solutions for the sustainable use of natural resources at Xuan Thuy National Park, I significantly facilitated in:

- Rehabilitating natural environment in areas that were degraded and protecting the biodiversity of mangrove ecosystems.

Case Study

"Applying Integrated Coastal Zone Management Experience in Natural Resource Management of Nam Dinh Province"

Nguyen Van Phan, Department of Science, Technology and Environment of Nam Dinh Province

- Determining organisms and biological systems suitable to the natural conditions of the wetland conservation areas and integrating economic development and intensive environmental protection.
- Conducting surveys, collecting data on the state of the environment and natural resources and validating development factors in these areas.
- Determining whether agriculture, aquaculture and afforestation suit the conditions in these areas and applying suitable capture fisheries methods to ensure sustainable and effective resource use.
- Finding solutions for conflicts between resource-use and afforestation interests in wetland areas in coastal zones.
- Applying progressive techniques learned and consolidated from experiences to establish a balanced ecosystem in wetland areas.
- Determining effective way of managing wetland areas and its comprehensive development.
- Building and managing protected areas and developing the outskirts of conservation zones.

Among such comprehensive strategy, our project expected long-term results as follows:

- The awareness of the community about environmental protection and sustainable development increased significantly.
- The management abilities of the province, district and village leaders strengthened and now clearly aimed at contributing to ICZM activities at Nam Dinh.
- There are positive solutions for ICZM that will be applied to these areas aimed at environmental protection and sustainable development in coastal areas.
- The beneficiaries of ICZM activities are the communities.
- The budget for ICZM activities increased. This is seen clearly in the new programs for management and use of natural resources of coastal areas at Nam Dinh province.

Case Study

"Applying Integrated Coastal Zone Management Experience in Natural Resource Management of Nam Dinh Province"

Nguyen Van Phan, Department of Science, Technology and Environment of Nam Dinh Province

Lessons Learned

With Viet Nam having 3,260 km coastline with diverse natural resources and the potential for socio-economic development in many provinces stretching from the North to the South of the country, there is a need to address and advocate the importance of ICZM.

From the ICZM project, I personally gained:

1. The scientific knowledge on the importance of coastal resources.
2. The methodology on making strategies and action plans related to ICZM.
3. The ability to train management officers at local level about ICM knowledge, skills, and experiences.
4. The facilitation of a legal framework for ICZM in my own area.

The above experiences can be applied in many different sectors in managing natural resources and the environment, particularly in wetland areas. Our ICZM project can be applied at almost all coastal locations and zones in Viet Nam. In fact, Nam Dinh province has been applying effectively many concepts and components of the Broad-based Coastal Management Program (BCMTP) in its own ICM work.

Case Study

"Applying Integrated Coastal Zone Management Experience in Natural Resource Management of Nam Dinh Province"

Nguyen Van Phan, Department of Science, Technology and Environment of Nam Dinh Province

- Determining organisms and biological systems suitable to the natural conditions of the wetland conservation areas and integrating economic development and intensive environmental protection.
- Conducting surveys, collecting data on the state of the environment and natural resources and validating development factors in these areas.
- Determining whether agriculture, aquaculture and afforestation suit the conditions in these areas and applying suitable capture fisheries methods to ensure sustainable and effective resource use.
- Finding solutions for conflicts between resource-use and afforestation interests in wetland areas in coastal zones.
- Applying progressive techniques learned and consolidated from experiences to establish a balanced ecosystem in wetland areas.
- Determining effective way of managing wetland areas and its comprehensive development.
- Building and managing protected areas and developing the outskirts of conservation zones.

Among such comprehensive strategy, our project expected long-term results as follows:

- The awareness of the community about environmental protection and sustainable development increased significantly.
- The management abilities of the province, district and village leaders strengthened and now clearly aimed at contributing to ICZM activities at Nam Dinh.
- There are positive solutions for ICZM that will be applied to these areas aimed at environmental protection and sustainable development in coastal areas.
- The beneficiaries of ICZM activities are the communities.
- The budget for ICZM activities increased. This is seen clearly in the new programs for management and use of natural resources of coastal areas at Nam Dinh province.

Case Study

"Applying Integrated Coastal Zone Management Experience in Natural Resource Management of Nam Dinh Province"

Nguyen Van Phan, Department of Science, Technology and Environment of Nam Dinh Province

Lessons Learned

With Viet Nam having 3,260 km coastline with diverse natural resources and the potential for socio-economic development in many provinces stretching from the North to the South of the country, there is a need to address and advocate the importance of ICZM.

From the ICZM project, I personally gained:

1. The scientific knowledge on the importance of coastal resources.
2. The methodology on making strategies and action plans related to ICZM.
3. The ability to train management officers at local level about ICM knowledge, skills, and experiences.
4. The facilitation of a legal framework for ICZM in my own area.

The above experiences can be applied in many different sectors in managing natural resources and the environment, particularly in wetland areas. Our ICZM project can be applied at almost all coastal locations and zones in Viet Nam. In fact, Nam Dinh province has been applying effectively many concepts and components of the Broad-based Coastal Management Program (BCMTP) in its own ICM work.