

Mid-term Evaluation  
of  
Locally Based Coastal Fisheries Management  
in Pathew District, Chumphon Province  
(LBCFM-PD)

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Southeast Asian Fisheries Development Center

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of  
Locally Based Coastal Fisheries Management  
in Pathew District, Chumphon Province  
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September 15, 2004

Dear Mr. Ruangpanit,

With reference to the Letter of Agreement between the Training Department of the Southeast Asian Fisheries Development Center (SEAFDEC/TD) and I, as the Consultant, to make available to SEAFDEC/TD the Personal Service Agreement for the Mid-term Project Evaluation Consultant of the Locally-based Coastal Fisheries Management in Pathew District (LBCFM-PD), I am pleased to inform you that the Mid-term Project Evaluation has been completed within the period of time set out in the Agreement.

Attached herewith please find a copy of the report on Mid-term Evaluation of the LBCFM-PD for your consideration. I would be most grateful if you could be so kind as to inform me in due course whether the above report is acceptable. Should you need any further detailed information regarding this matter, please do not hesitate to let me know.

Looking forward to hearing from you, I remain,

Yours Sincerely,



Somsak Chullasorn

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## Table of Contents

		<u>Page no.</u>
<b>Part I</b>	Background	1
<b>Part II</b>	Outline of the project	1
<b>Part III</b>	Objectives	2
<b>Part IV</b>	Output	2
<b>Part V</b>	Approaches and Activities	3
	1) The Project Approaches	3
	2) Major Activities	3
	a) Base Line Survey (Activity I)	3
	b) Establish and Extend LBCFM (Activity II)	4
	c) Encourage Local Business (Activity III)	4
	d) Enhance Human Resource Capacity and Participation (Activity IV)	4
	e) Develop Extension Methodologies and Strengthening the Extension System for Sustainable Use of Coastal Resources (Activity V)	5
	f) Rehabilitate and Enhance Coastal Resources (Activity VI)	5
<b>Part VI</b>	The Duration of the Project and the Five-year Plan	5
<b>Part VII</b>	Organization of the Project	6
<b>Part VIII</b>	Input	7
<b>Part IX</b>	Funding	7
<b>Part X</b>	The Findings	7
	1) General Feature of Coastal Fisheries	7
	2) The Relevance of the Project to the Development Priorities and the Needs of the Region	8
	3) Overall Objectives of the Project	9
	4) Quality, Clarity and Adequacy of the Project Design	10
	5) The Efficiency and Adequacy of the Project Implementation	11
	6) Adequacy of Technical Expertise	12

	<u>Page No.</u>
7) The Managerial and Work Efficiency of the Project Team	13
8) Implementation Difficulties	13
9) Adequacy of Monitoring	14
10) Reporting and Extent of National Support	15
11) Harmonized Coordination Work Among National Component	15
12) Project Results	15
13) Prospect for the Gradual Phasing Out of the Project Activity by SEAFDEC	17
<b>Part XI</b> Conclusion	18
<b>Table 1</b> Five Year Plan Proposed by the DOF (Budget)	20
<b>Table 2</b> Five Year Plan for Target Activities	20
<b>Table 3</b> Participation and Responsibility	21
<b>Table 4</b> Main Activities: Five-year Plan	22
<b>Table 5</b> Status of staff of CMFRDC and CMCRRC engaged in LBCFM-PD	23
<b>Chart 1</b> Outline of Steering Committee and Implementing Committee	24



## **Mid-term Evaluation of the Project Locally Based Coastal Fisheries Management in Pathew District (LBCFM-PD)**

### **I. Background**

Prior to the year 2001, the Department of Fisheries (DOF), Thailand, envisaged to undertake the coastal fisheries management project in Chumporn Province. There are several alternative sites in the province to be considered, but finally the DOF selected Pakklong Sub-district, Pathew District as the pilot project site. The reason to select this site was mainly due to the Royal Project Council plan to implement comprehensive development projects there under the "Master Plan of the Royal Project on Coastal Resource Conservation and Rehabilitation, Pathew District, Chumporn Province". The Royal Project consists of four programs namely, Natural Resource and Environmental Protection and Prevention Program, Natural Resource and Environmental Rehabilitation Program, Quality of Life Development Program, and Tourism Development Program. The LBCFM-PD is the project under the first two programs. The project aims to establish a workable framework for five years and the Cabinet has already approved this plan, together with an allocation of budget (Table 1 and 2).

Before commencing the project activity, the DOF, Thailand, at the third Fisheries Consultation Group (FCG) meeting in March 2001, had proposed this project to collaborate with SEAFDEC. The DOF and SEAFDEC/TD agreed to put together this collaborative pilot project in order to transfer technologies, knowledge and lesson learned through the implementation of this project to other SEAFDEC member countries.

### **II. Outline of the Project**

It is clearly observed from Table 1 and 2 that the project proposed by the DOF puts an emphasis on the promotion of sustainable use of coastal resources by establishing a demarcated zone preserved mainly for small-scale fishermen. The demarcation of the project area, where the fishing grounds for coastal fisheries came from the consensus among fishers, stakeholders and the DOF officials. The project also includes management of the demarcated zone where particular types of fishing gears, i.e. trawls, push nets and short-necked clam dredges are prohibited.

The DOF has set up a tentative schedule for a five-year implementation as shown in Tables 1 and 2. It is obvious that the artificial reef installation and management of destructive fishing gears are given high priority in terms of budget allocation of the work plan. Provision of artificial reef and responsible fishing gears to the fishing communities are considered the main activities of the project. Investigation into sea water quality, environment, fishery resources and socio-economic aspects, seed releasing for rehabilitating fishery resources and formation of fisheries groups are also included in the project activities.

When the DOF and SEAFDEC/TD have agreed to work together on the Royal Project in Pakklong Sub-district under the FCG scheme, the project proposal planned

by the DOF has been transformed into a collaborative project with minor changes in the framework of the project implementation and some new activities have been added. After developing this project into the DOF and SEAFDEC/TD collaborative project, it is entitled “Locally Based Coastal Fisheries Management in Pathew District, Chumporn Province” (LBCFM-PD).

### **III. Objectives**

LBCFM-PD project has set up three overall objectives as follows:

- 1) The establishment of sustainable coastal resource management at local level
- 2) The rehabilitation of coastal resources
- 3) The alleviation of poverty in coastal fishing communities

The purpose of this project is to establish a practical framework for locally-based coastal fisheries management through the encouragement of fisher participation, supported by the creation of alternative job opportunities in coastal fishing communities.

### **IV. Output**

Through the implementation of the project, the following results are expected:

- 1) Locally Based Coastal Fisheries Management (LBCFM) in Pathew District, Chumporn Province

If the LBCFM work follows the planned activities effectively, resource users and stakeholders will be able to utilize coastal fishery resources in sustainable ways. The destructive fishing practices that have been prohibited in the demarcated zone, are monitored, controlled and eliminated.

- 2) People’s production and living condition improvement

LBCFM is an integrated approach which will help improve the production and living condition. Over-fishing, over-capitalization and destructive fishing practices problems will be solved and it leads to more stable social and economic surroundings for resource users and their families. Diversification of income sources will reduce over-dependence on coastal fishery resources.

- 3) Enhancement of the capability of local government, people and organizations in community development

It is expected that local government, people and any participatory organizations, having joined the project, will be capable of resource management and community development activities. This project aims to strengthen institutional arrangements in coastal resource management and community development, and the local people and organizations must be involved in self-help economic and social activities.



- 4) Practices are converted into the DOF policy on coastal resource management

The project involves a process of converting the practices undertaken in Pathew District into the policy of the DOF on coastal fishery management.

## V. Approaches and Activities

### 1) The Project Approaches

There are three approaches mentioned in the project objectives, namely, 1) CBFM and CM approach, 2) resource enhancement approach and 3) job creation approach. Although these approaches are practical and realistic, the project aims mainly at the first approach concerning participatory management and institutional strengthening method. In fact, the other two approaches also need such arrangements in order to refrain from conflicts in utilizing the resources and fishing grounds in the artificial reef installation area and to encourage the local business to achieve the third approach.

As this project is located in Pakklong Sub-district and under the Royal Project, the implementing agencies include central organizations (e.g. the DOF and SEAFDEC/TD), provincial and district offices of the DOF and other organizations, Sub-district Administration Organization (Ao.Bo.To.) and other supporting agencies. The project may diversify its approach to a certain extent. The participation and responsibilities of organizations concerned are shown in Table 3.

### 2) Major Activities

The project has established the five-year work plan and the main activities as presented in Table 4. The project comprises six major activities. The TD working group and the DOF staff have finalized the agreed proposal with budget allocation and officially submitted it on October 5, 2001. After that the TD and DOF staff in charge has continued to prepare for the implementation of the following project activities.

#### a) Base Line Survey (Activity I)

The objective of the base line survey is to obtain necessary data and information for both the establishment of sustainable, coastal resource management and community development. A series of scientific and socio-economic surveys has been planned and conducted. The survey consists of socio-economic, oceanographic and environmental, carrying capacity, landing, fishing technology and mapping aspects. The survey also includes some particular topics which depend on people's idea on management aspects and their demand for the proposed activities of the project. The base line survey also concerns data collection for monitoring and evaluation of the project activities as designed. The results of the survey and analysis will be applied for the benefits of the people and communities at every opportunity.

b) Encourage and Extend LBCFM (Activity II)

The project will carry out three kinds of activities by consensus among resource users and stakeholders and propose applicable models for coastal resources management at the project site. These activities aim at encouraging fishers' self-regulating activities in the demarcated zones, establishing community-based management groups and enhancing local government abilities in coastal resource management.

In order to undertake the first activity, the project will support fishers and aquaculturists to operate responsible fishing and aquaculture and participate in the management of the demarcated zones by providing them necessary data and information as well as training courses according to their needs.

The project will also advise and assist fishers in organizing community-based management groups, as they are expected to work as a unit of management. There will be a network of groups at the project site to undertake self-management tasks at the demarcated zone. The necessary advice and technology transfer will be provided by the project staff.

As Ao.Bo.To. is a local administrative organization in the project site, the project will transfer information and advice to the Ao.Bo.To. to strengthen the institutional framework and encourage the organization to be responsible for the coastal resource management at the next step. The project believes that Ao.Bo.To. will develop a workable management system in collaboration with the resource users, the stakeholders, and the DOF.

c) Encourage Local Business (Activity III)

The project will assist the local people in increasing household income by improving the technologies of handling, marketing and processing fisheries products as well creating alternative job opportunities both inside and outside the fishing communities.

The project will provide information and technology for aquaculture promotion, processing of fisheries products and other local business. Necessary training programs including micro credit scheme will be prepared for women as the target group. The project also supports 'One Tambol, One Product' activities carried out by the Ao.Bo.To. and other local government agencies.

d) Enhance Human Resource Capacity and Participation (Activity IV)

Building awareness and consensus, as well as enhancing human resource capacity, are the most basic activities to achieve smooth and effective project objectives. The project will prepare a series of training and educational courses concerning the framework of resource management, responsible fishing and aquaculture operations not only towards resource users, stakeholders and local government officers but also towards youth and school children.



The project encourages the people's participation in group activities. Training courses will be arranged to make a business plan to diversify the people's economic activities including fisheries and other fields. Target groups are broadly based, with women as a particular group.

e) **Develop Extension Methodologies and Strengthening the Extension System for Sustainable Use of Coastal Resources (Activity V)**

The project will develop extension technologies and methodologies to help resource users and stakeholders understand the necessity of coastal resource management and explore new approaches to enhance people's self-regulation on fishing activities and participation in the community development.

Texts, manuals and any visual methods will be prepared and developed by the project. They will enable resource users and stakeholders to understand the content of fisheries laws and the framework of resource management. The project will introduce and prepare participatory methods such as participatory resource assessment and mapping.

f) **Rehabilitate and Enhance Coastal Resources (Activity VI)**

The DOF will commence the installation of artificial reef. Thus the people should work together to participate in the decision-making process of selecting the location for the artificial reef placement. The artificial reef will be used as a management tool to prevent commercial fishing gears from invading the demarcated zone, to be used as local fishing grounds for the fishers, and to enhance coastal resources through seed releasing program providing fingerling by the DOF. Participation in the resource assessment is also an approach to evaluate the use of artificial reef by the beneficiaries of the project.

## **VI. The Duration of the Project and the Five-year Plan**

The duration of the project is five years, and it has started following the Thai fiscal year in October 2001 with the expectation to complete the project in September 2006. The TD has joined the project since January 2002. The project will be divided into two phases in practice and could be flexible.

The first phase of the project will focus mainly on the activities of the base line survey, training matters with a campaign for enhancement of awareness building and rehabilitation activities of coastal resources. The base line survey will concentrate on identifying resource and environmental condition, and socio-economic surroundings in order to comprehend the characteristics and problems existing at the project site.

In the second phase, the project will concentrate on establishing and functioning the CBCRM framework and promoting alternative job opportunities in a more practical way. During this phase, the project staff will gradually phase out their involvement in the project activities, while fishers, fisher groups, and the Ao.Bo.To. will enhance their participation in planning and implementing the project activities.

However, the project activities will be evaluated to review the original plan after having implemented the project for two years. The base line survey will be continued to monitor the progress of the project activities.

## **VII. Organization of the Project**

LBCFM-PD is a collaborative project between the DOF and the SEAFDEC/TD under the FCG scheme. It is also implemented under the Royal Project in Pathew District. In order to achieve the objectives of the project, the Steering Committee (SC) which consists of the representatives of the DOF and SEAFDEC will be established (Chart 1). The responsibilities of the SC are as follows:

- 1) To guide the policy and the direction of the project implementation
- 2) To review the implementation plan of the project and budget allocation
- 3) To monitor and evaluate the implementation of the project
- 4) To coordinate with all institutions involved in the project

The DOF by the Director General will officially nominate the committee and it is recommended that the chairperson of the committee is a DOF expert.

In order to implement the project smoothly and successfully, the Implementing Committee (IC) should be established to manage the daily operation of the project under the control of the SC. The IC will have the following operational functions:

- 1) To make the demand-led work plan of the project together with budget allocation
- 2) To manage and coordinate any administrative affairs with the agencies involved
- 3) To review and self-evaluate the implementation of the project
- 4) To prepare annual progress reports of the project from the technical, financial and administrative aspects

The committee will comprise the implementing group of the Chumporn Marine Fisheries Research and Development Center (CMFRDC) and the SEAFDEC/TD, the Provincial and District Offices of Fisheries, the Ao.Bo.To. in Pakklong Sub-district and other agencies concerned.

It is expected that the field office will be set up at the site during the first phase of the project. The functions of the field office are to establish a two-way contact between the IC and the target people and target groups, and to be used by staff of the IC to carry out related activities at the project site. The field office will phase out its role, and the Ao.Bo.To. and the groups of people will take its place during the second phase.



## VIII. Input

The major input for the project will be provided by the DOF and the TD. The input from the DOF will be machineries, equipments and expertise according to the budget allocation plan. The TD will also share the inputs. Both organizations will provide in-kind and man power contribution.

## IX. Funding

The DOF have already had the budget plan for the five-year implementation as shown in Table 1. The total budget for project implementation is established at 15.20 million baht. The SEAFDEC/TD also provides a financial assistance to the project using the "Japanese Trust Funds" which is supported by the Government of Japan.

## X. The Findings

In order to evaluate the LBCFM-PD project which has been implemented for two years, a number of documents related to the project, e.g. Background and Project Proposal, Quarterly Reports, Annual Report and various documents from the Technical Seminar have been used for the studies. Travel to Chumporn Province for a short trip to collect data and information from various provincial and local organizations concerned, and discussion with the key persons of the project and concerned stakeholders had been completed.

### 1) General Feature of Coastal Fisheries

The Coastal fishery resources in Thailand have been heavily exploited since the introduction of trawling from the early 1960's. Several signs of over-fishing and over-capitalization are visible and there is a considerable concern, particularly because the demands for fish for local consumption and for export have increased significantly, the vast majority of fishers are artisanal, and small-scale fishers are dependent on coastal waters for their livelihood. The trawl and push net fisheries are considered the most destructive gears. Recently, short-necked clam dredge, light-luring anchovy purse seine and stick held cast net and falling net have been mentioned and considered to be destructive gears as well. Environmental degradation, especially in the estuarine and inshore waters is also another concern. The necessity for managing the coastal fisheries has been recognized and several efforts have been made. Licensing of vessels and banning of trawl and push net fishing within 3 km have not been very successful because of the inadequate monitoring and enforcement, and this problem needs to be addressed. The DOF has invested heavily in a large artificial reef installation program, partly to enhance and conserve marine resources and partly to discourage trawling and push netting. The concern is that the cost-effectiveness of these measures has not been achieved and this would affect the continuance and expansion of such efforts. The country needs the development and testing of methodologies to undertake the evaluation or assessment. The DOF is convinced that community-based fishery management may be the only viable option



to manage the coastal waters, to develop and test methodologies, and to build up its capacity to enable these efforts.

As for coastal aquaculture, shrimp farming has shown tremendous development over the last two decades. The country would be a leader of the region in terms of technological development and of the world in terms of production. The environmental and social problems encountered are quite similar throughout the country.

In Chumporn Province, like other regions of the country, open access to coastal resources and uncoordinated and unregulated use of the resources cause conflicts among various stakeholders. Many measures for aquatic resource and coastal ecosystem management have failed because of the lack of cooperation and participation from the concerned stakeholders. Moreover, monitoring, control and surveillance are capital intensive and time-consuming. Community participation could reduce the time and cost, and produce tangible and sustainable results.

## 2) The Relevance of the Project to the Development Priorities and the Needs of the Region

As it is obvious from the outcome of the Regional Workshop on Coastal Fisheries Management based on Southeast Asian Fisheries organized by SEAFDEC in November 1996 that members of the region recognized an increasing necessity for action for sustainable coastal resources management system, i.e. community-based fisheries management and co-management. A participatory approach to be developed to suit the circumstances of each member country must be considered as a high priority in coastal fisheries management.

On 19-24 November 2001, the ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security in the New Millennium, "Fish for the People" was organized in Bangkok.

The Conference concluded with "The Resolution and a Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region" together with various technical conclusions and recommendations that had been adopted by the Senior Official for using as a guideline in particular coastal fisheries and resource management.

The Conference agreed to acknowledge the needs for enhancing human resource capacities at all levels and encouraged greater involvement by stakeholders to facilitate consensus and compliance in achieving sustainable fisheries; to encourage effective management through delegation of selected management functions to the local level; to work towards the conservation of aquatic habitats essential to enhance fisheries resources; to promote aquaculture for rural development; and to improve post-harvest technologies to ensure fish quality assurance and safety management system which are appropriate for small and medium-sized enterprises in the region, etc.



It is clearly seen that the outline of this project including purposes, objectives, approaches, activities and the expected outputs are considerably relevant to the development priorities and the needs of the countries in the region.

### 3) Overall Objectives of the Project

The project has set up three overall objectives which aim to establish a practical framework for locally based coastal fisheries management by encouraging fishers, fisher groups and local organization to participate in and to be supported by the creation of alternative job opportunities and local business in the coastal communities. It is expected that by the end of the project they can steer a direction of LBCFM and increase their own role in coastal resource management.

It is a known fact that the problems of marine fisheries especially in coastal areas arise from degradation of fishery resources and environment, use of destructive fishing gears, over-fishing capacity, and conflicts among small-scale and commercial fishermen or even among small-scale fishermen themselves. The practical framework for locally-based coastal fisheries management should be based on the concept of community-based fisheries management (CBFM) and co-management (CM). This project will encourage the local organization, fishers and any stakeholders who are the beneficiaries to participate in the decision-making process of coastal resource management of the demarcated coastal zone that has been defined by all stakeholders concerned, but more specific in the methodologies of network establishment from sub-district level.

In order to establish sustainable fisheries management units with a participatory approach, conservation measures and rehabilitation of coastal resources should be adopted and it will be feasible through the enhancement of awareness building.

The widespread phenomena of over-exploitation and over-capitalization have led to the policy on reduction of over-dependence on coastal resources and reduction of fishing effort, especially the destructive fishing gears. But the existing problem is the inadequacy of law enforcement in the open-access regimes, declining economies, and poverty. The solutions to the problem become the most basic strategy towards the sustainable use of coastal resource for this pilot project.

It is noted that two of the three overall objectives of the project as mentioned earlier may be insufficient if the second objective concerning the rehabilitation of coastal resources is not included. Installation of artificial reef can be used as a management tool to reduce destructive fishing practices in the project area and it can also be used as a tool for resource enhancement and a fishing ground for poor small-scale fishermen. Hence, the overall objectives of the project should be realistic about achieving the expected outcome for sustainable development of coastal fishing communities.

The community-based management is not a new concept in fisheries sector of many countries, however, it is a relatively new concept in Thailand. It thus has to be introduced through awareness building, development of methodologies and training, and pilot project efforts. It is recommended that the project includes the



strengthening of capacities of national fisheries of both central and provincial offices and their staff, to enable and facilitate locally based coastal fisheries management in the overall objectives. Then the methodologies of, and approaches to locally-based coastal fisheries management is expected to be the output and results and it will be a prospect for sustainability after the termination of the project.

#### 4) Quality, Clarity and Adequacy of the Project Design

The project has started with the establishment of the demarcated zone and prohibited the so-called three main destructive fishing gears. It is observed that some parts of the demarcated zone is extended beyond 3 km from the shore where former fishing grounds of those fishing gears used to be operated legally. Hence, the information dissemination of the project concept to the people in the local and other areas who are considered as stakeholders is very necessary to obtaining their cooperation and facilitating the implementation of the project.

Another problem to the output of the utilization of coastal fishery resources in sustainable ways is the conflict among fishermen. It is recognized that the coastal fishery resources has been degraded throughout the coastal areas of the countries. The fishermen from both small-scale and commercial fisheries compete with one another to exploit the same resources in the same areas. It creates the conflict among them and the problem is difficult to be solved because both parties operate their fishing gear against the laws and regulations. Therefore, the meeting between the two groups has to be organized to let them negotiate to achieve a mutual cooperation on a voluntary basis.

An example of such conflicts that occur in the demarcated zone are disagreement among squid trap fishermen with commercial trawlers and purse seiners, crab trap fishermen and crab gillnetter, coastal aquaculturist and fishermen, and so on. To support the participation in the decision-making process and the share of responsibilities for coastal resource management, the project staff has provided them with sufficient data and information obtained from the base line survey in details which is the way to restore the results of data analyses to the people. This indicates very clearly the input activities of the project. The results of this implementation come with the local consensus regarding the zoning of the areas allocated for coastal aquaculture of green mussel and fin fish cage culture as well as anchoring areas for fishing boat during the monsoon season. Another local agreement on a voluntary basis concerns the enlargement of fishing net of crab trap and the zoning of fishing ground between crab trap and crab gillnet.

It seems that the project has been implemented on the right track with an outstanding progress due to the consistency of input and output activities. It may show the prospects of successful implementation of the project.

As the expected outcome of the project are diverse in many aspects such as sustainable coastal resource development and management, community development, living condition improvement and policy development, many organizations have to be involved in this integrated project. In order to avoid the overlapping of work which may confuse the people, institutional relationships among organizations concerned will be very important and necessary. The establishment of



the Implementing Committee (IC) and Steering Committee (SC) is the right direction and framework in implementing the work plan. However, the periodical meeting of the committee member is also very significant and necessary. The meeting will be more frequent than the planned schedule when the project implementation encountered problems and constraints and it needs to solve such problems through the policy-making.

Since October 2002, when the government organization structure reform has taken place, it leads to the establishment of the Ministry of Natural Resources and Environment and the Department of Marine and Coastal Resources (DMCR). The DMCR has the mandate to develop relevant regulations in order to attain an updated and effective managerial action with the objective to maintain the marine and coastal fragile and vulnerable resources, as well as resources preservation and conservation for sustainable use and rehabilitation. The reform has a negative impact on the project due to the transfer of responsibilities for some research activities especially on coastal ecosystem and environment to the new organization, and the movement of the former project staff to station at other organizations. Nevertheless, this has obstructed the progress of project implementation for a certain period. The consultation and institutional relationship with the new organization are also essential. This means that the member of SC and IC should include the representatives of the new organization and some activities under the work plan need to be discussed with the responsible organization. Nevertheless, these problems have been solved with the updated information of the SC and IC ordinance by the DOF covering all representatives form organizations concerned and prior obligation on the baseline survey have also been implemented with an excellent cooperation among organizations involved.

#### 5) The Efficiency and Adequacy of the Project Implementation

##### Availability of Funds

Before implementing the project, the DOF has prepared the five-year plan proposed to the Budget Bureau under the Royal Project, and it has already been approved. The total budget is estimated at 15.20 million baht. The amount of budget is excluded from the annual budget provided to the CMFRDC for implementing the routine works of the Center. This source of budget can also support the project if the shortage of budget occurs. Apart from the aforementioned source of budget, the Thai Sea Rehabilitation Project under the Marine Fisheries Research and Development Bureau also supports the activity on rehabilitation and enhancement of coastal resources and encourages local business activities.

The SEAFDEC/TD also provides technical and financial assistance to the project under the channel of "Japanese Trust Funds" donated by the Government of Japan. The yearly plan of budget allocated by the Japanese Trust Funds will be discussed before the beginning of the fiscal year and it may depend on the actual activities.

Besides, the project was also previously given the assistance from NGO—Thai Environmental Institute, which was terminated in August 2003,



to implement two activities, namely, “Fish Apartment” and “Crab Bank” projects, offered to the fishers’ group in some villages in the project site.

It can be concluded that there is no problems regarding the budget limitation to fulfill the project. Moreover, some extra budget had been provided to the project, i.e. the amount of budget approximately 1.8 million baht from the Royal Project for local office construction at Pakklong Sub-district.

Concerning the Ao.Bo.To. Pakklong, it may be considered to be one of the richest local organizations of the country. The Ao.Bo.To. is willing to support the project by allocating a large amount of budget to construct office and pier as a sub-station of the Marine Fisheries Resource Conservation Center for their MCS activities.

Some problems also occur with the budget provision to the project. It is the delay of the seed money transferred to the project that may interrupt some activities previously planned. When the budget was transferred to the project site, sometimes it was too late to utilize the budget. This problem can be solved if the project was given the cooperation from TD where the budget system is more flexible. This may help implement the planned activities on schedule.

#### 6) Adequacy of Technical Expertise

LBCFM-PD is a new concept for coastal fisheries and resource management with the participation of the local people and organization for Thailand. It needs many strategic actions to achieve the three aspects of the project—CBFM and CM, resource enhancement and job creation approaches. Each approach may require substantial data and information about various aspects particularly from the base line surveys. The collection and analyses of the data and information of those aspects including socio-economic, oceanographic and environmental, carrying capacity, landing and mapping aspects in the project site where there is no existing information to be used as a base year, are very complicated. They should have a well-designed work plan. As members of project staff at CMFRDC are all junior scientists, they have insufficient knowledge and experience in the sense of extension workers to work with the communities. In order to enhance their capabilities and capacities, technical assistance from the SEAFDEC/TD expertise has to be urgently provided to them.

Regarding the local communities, the people need not only a financial assistance but also a technical expertise to support their initiation and requirement should be recognized. An example of their initiatives is the establishment of crab banks. At present, they have stocked the alive gravid female blue swimming crabs caught by their fishing gears for a certain period until they spawn, then those crabs will be sold to the middlemen and deposit the money in the account that will be used as revolving funds for them in the future. They have their plan at the next step to keep those crabs in the ponds and nurse them for a certain period of time before releasing them. This is a step for the farming fisheries or sea farming approach to increase their production. They also like to do this process of implementation with the Babylonia. They thus need technical expertise from the project staff. Another example of their expertise requirement is the knowledge of the carrying capacity of



coastal waters, e.g. what kind of aquatic resources, how to rear, for how long and how many cages can be operated in the agreed culture zone. The technical expertise in this field from national or JICA experts will be welcome.

#### 7) The Managerial and Work Efficiency of the Project Team

There are many staff members from the DOF and the TD participating in the project activities in different fields. There is an agreement between the Director of CMFRDC and SEAFDEC/JICA expert to build a team-based structure and work together to gain a mutual understanding of the current situation at the project site. They are assigned particular tasks and responsibilities, and are divided into four teams—survey, extension, local business and training teams. The responsibilities of these teams do not include the rehabilitation and the enhancement of coastal resources which will be the duty of the DOF special team. A limited number of skilled staff of CMFRDC and also the problem of the project staff movement are the obstacles to the continuation of the project implementation. Another problem is the lack of mutual understanding of the sub-teams consonant with major components of the project activities. It seems that TD staff paid much attention to promote local business for the women groups while CMFRDC staff involved in many activities for the sustainable coastal resource management. This inconsistency should be officially discussed by the teams or brought up for solution and recommendation at the IC meeting, to enable each working team to coordinate with one another more closely and to share the responsibility in the same direction.

#### 8) Implementation Difficulties

Although the background and project proposal have been prepared and submitted to the two organizations—the DOF and TD, and the translation into Thai language have been completed, there is an insufficient dissemination of the idea and concept of the project in other areas. This may lead to illegal fishing prevailing in the demarcated zone of the project. Many people in the project site and also some project staff do not clearly comprehend the concept of the project. This problem should be addressed as soon as possible.

Another problem is that the local fishers at the project site do not fully understand the fisheries laws and regulations. This resulted in occupying and operating illegal fishing gears such as using the mesh size of anchovy purse seine, anchovy falling net and squid cast net much smaller than the controlled size. Many fishers engaged in fishing activities without licenses. Therefore, many of them have been arrested by the enforcement officers. The problem has to be addressed step-by-step, otherwise it will make the project implementation difficult.

Since the project has started and the name lists of the Steering Committee (SC) and Implementing Committee (IC) have been proposed, there is no official ordinance of the DOF until the revised one has been made and officially effective from March 2004 (Chart 1). The official meeting of the full team for both the IC and the SC has not taken place, due to the reform of the DOF structure, the movement of DOF staff, as well as frequent changes of responsible officers in many levels including the project staff. Now the situation becomes more stable; the steps of project implementation have to follow the agreed work plan. Any minor changes can



be done through the IC and SC forum. It should be noted that when the responsible officer was transferred to another position, the successor had to take some time to be acquainted with the project concept and approaches.

If we take into account the number of staff of each organization assigned to work for the project, many of them are responsible for many projects. In the case of Ao.Bo.To. which is expected to take over the management responsibility when the project phases out, there are only one secretary, two officers, two permanent employees and seven temporary employees. Sometimes they could not join the community and village meeting because they had to participate in the meeting at both the community and the district levels. At this stage, Ao.Bo.To. is still premature to take over the responsibility of this project until the next fiscal year, when they have planned to recruit a number of staff and assign some of them to work for the project. However, the community leaders and Ao.Bo.To. have not discussed who should take the role of the representative of the community to coordinate and communicate with the project staff. This is another problem to the implementation of the project.

#### 9) Adequacy of Monitoring

The project staff prepares quarterly reports compiling all implemented activities and outcomes of the project and presented them in tabulations (Annexes 1 and 2). The report of the focal point gives an overview of activities implemented in each period of the three-month project. It is observed from these reports that the base line survey in particular environmental and oceanographic data, landings, and biological information of some economical important resources have been regularly collected during the first phase of the project. The information is very useful and after the analysis it could be applied to coastal resource management. Although the TD staff will gradually phase out, the involvement of CMFRDC would be an inverse proportion.

The survey on monitoring of squid cast nets, anchovy falling nets and collapsible crab trap fisheries were initiated by the preparation of questionnaires. The data and information are very essential because those fishing gears are considered to have an impact on fishery resources. Thus appropriate management measures to be implemented would be necessary in the future.

The monitoring surveys are very significant to the evaluation of fisheries and aquaculture status, as well as the progress of other project activities. It is recommended that the project continues the monitoring of every activity throughout the period of the project.

#### 10) Reporting and Extent of National Support

The quarterly reports published regularly are very important because these reports explain the progress of implementation of all project activities, the outputs, as well as the problems occurred. Many aspects proposed in the reports have been tackled by the DOF especially by the Marine Fisheries Research and Development Bureau who takes care of the CMFRDC. The supports from other organizations under the DOF and outside organizations may be time-consuming. An



example for this case is the proposal to establish the demarcated aquaculture zone arisen from the consensus of all stakeholders. This matter is still awaiting the consideration from the Provincial Committee for approval. Therefore, it is recommended that any reports showing the progress of the project or seeking national support should be sent to all members of the SC and IC for their information and action.

As mentioned earlier, the LBCFM-PD is a project under the Integrated Royal Project on Coastal Resources Conservation and Rehabilitation, Pathew District, Chumporn Province. Therefore, the CMFRDC which is the organization responsible for this project has to report the progress of project implementation by filling the questionnaire made by the Implementing Committee of the Royal Project and submitting it to the secretary of the committee every month. Furthermore, the Implementing Committee of the Royal Project also organizes periodical meetings among organizations concerned for the information exchange and the hearing of problems incurred in implementation of each organization in order to achieve appropriate coordination to solve those problems.

#### 11) Harmonized Coordination Work Among National Component

The project framework was designed for the work with many governmental organizations of both central, provincial and district levels, including the Ao.Bo.To. Following the government administrative restructuring, the Department of Marine and Coastal Resources has been established. The new Department is responsible for the management of marine and coastal resources and ecosystems. Since the project is originally structured for cooperation between the DOF and SEAFDEC/TD. This matter should be brought up to the reconsideration of the project work plan and implementation. Tripartite meeting arrangement of collaborative participation in the project operation will be necessary and should be put into action as soon as possible.

#### 12) Project Results

During the past two years of the project, the implementation of six main activities which were included in the work plan has had a good progress in line. Base line surveys are considered as a very important activity especially during the first year. It will provide the fundamental information to the communities for the planning of management and development at the next step. The base line survey comprises socio-economic, oceanographic and environmental, carrying capacity, landings and mapping surveys. The socio-economic surveys have analytically illustrated the outline of fishing operation at the project site which gives valuable information for appropriate project direction in the future. Environmental and landing surveys have obtained useful data indicating scientific basic figures of coastal fisheries and aquaculture. Fish landing data has been entered to the database.

The data collected from the base line surveys have been analyzed and published as technical reports for dissemination and restore to the people. Taking into account the technical reports that have been published, many of them are preliminary reports showing general information of each aspect in the project site. This may be insufficient for the use in management planning. One of the most



important information is the carrying capacity or maximum sustainable yield of the fishery resources that can be exploited in the demarcated zone and what kind and amount of fishing gears or efforts in standard unit should be allowed to operate without any conflict among the fishers in the project site. Therefore, more detailed information on the catch (by species/groups, fishing gears, season, etc.), effort (number and size of fishing boats, gears, etc.), CPUE (by standard unit of both fishing boats and gears), species composition, size composition and some necessary information on biological aspects of the available resources in the project site have to be collected. If those data are available, more depth analysis should be undertaken and restore to the people for their management consideration.

One of outstanding outputs of the project activity on encouraging local coastal fisheries resource management is the consensus on decision-making process on aquaculture and fishing boats anchoring demarcated zone from the representatives of 6 villages in the project site. The next step after the provincial proclamation is issued and become effective will be the further step of discussion on how and how many cages/people can engage in coastal aquaculture for both green mussel farm and fish cage culture based on the carrying capacity of the area without any conflicts. These activities demonstrate a very good sequence plan for the area approach management.

Another excellent project result is the establishment of blue swimming crab bank and the enlargement of bottom part of collapsible crab trap from 1 inch to 2.5 inches on their voluntary basis. It means that enhancing capacity and participation of fishers for coastal resource management activity of the project has demonstrated a good progress. It made almost all fishers who engaged in collapsible crab trap fisheries change the mesh size of the net in order to make the so-called destructive gear to be a less-destructive one. Monitoring survey is also necessary and restore to them, and finally the enlargement of mesh size of the whole trap will be expected.

Regarding the crab bank program, the fishers also have plan to go further step for not depending only to keeping the gravid female in the cage and let them spawn, the small swimming crab that have been caught by collapsible trap will be selected and released, or put in the cage or in the pond for culture. It means that the fishers already have their awareness in resource conservation and this will be very promising if technical assistance from the project is provided for promoting crab culture or farming fisheries.

To encourage local business of the project activities, many training courses and study trip to observe the fish processing in many places had been organized. It resulted in the establishment of fish processing groups and the number of women who are involved in fish processing for their alternative income is increasing. The success of their project activity for processing business is widely acknowledged by the people in the project site. The Ao.Bo.To. also gives a subsidy and support fisheries processed product as a major success of "One Tambol, One Product". The project staff also provides the training course on accounting and book keeping in order to make their local business systematic and transparent. This is also an outstanding output of the project.



For the strengthening of extension and developing methodologies, the project staff has produced school notebooks, posters, film, video, brochures, newsletters, and T-shirts to promote the project. They also initiated the campaigning of coastal resource conservation and information dissemination to the people regarding the progress of the project. This also demonstrates the good outcome of the activities.

As regards the activities on rehabilitation and enhancement of coastal resources, these activities have been carried out by the DOF with the participation of the local people in the decision-making process of selecting the areas for artificial reef installation. The government policy on the restructuring of governmental organization including the DOF has delayed these activities for almost one year. The artificial reef had been constructed and finished the deployment in March 2004. The surveys on fisheries resources and environment had been conducted before the deployment by the SEAFDEC/TD and CMFRDC for the use as a baseline data for evaluation of the artificial reef. However, the resource enhancement activities through releasing the seeds of shrimp, fish, and crab into the coastal areas of the project site were much more than the targeted numbers. These activities contribute to the success of the project because they enable fishermen to catch more shrimp and crab. The project staff has preliminarily assumed that some quantities of the catch may be the result of these activities.

It is obvious that since the start of the project implementation following the work plan, a variety of outputs has been in progress to achieve the project objectives and those outputs have been expressed in terms of both quantities and quality. The important and useful output that can be applied to meet the project objectives are the overview of fisheries and resources at the project site, mapping by fishing grounds and fishing gears, demarcated zone management, campaign for enlarged mesh size of collapsible crab trap including crab bank, fish processing business promotion, carrying capacity of the area for aquaculture, training in various aspects as well as study trips to other areas, producing various media for awareness building and artificial reef deployment and seed releasing.

Considering the annual activities monitoring sheet of the project, some activities in the plan are put into action while some are not. It is also noted that the base line survey on environmental and oceanographic data collection and fish processing development have more active implementation than other activities.

### 13) Prospect for the Gradual Phasing Out of the Project Activity by SEAFDEC

According to the project design, there are several agencies and groups joining the LBCFM-PD. The SEAFDEC/TD will contribute to the project through a function focusing mainly on the research, training and advisory aspects. At the beginning of the project implementation, the TD will take the responsibilities for the first five activities. After the first phase of the project, the TD will gradually phase out some activities and leave them for the CMFRDC after transferring technology to the CMFRDC staff. It is also expected within the project framework of the community-based fisheries management that the Ao.Bo.To. will play a major role in taking over of LBCFM-PD.



Considering the implementation of base line survey activities, it is observed that all project staff of the CMFRDC and Chumporn Marine and Coastal Resource Research Center (CMCRRC) is junior scientists. The results from the restructuring of the DOF organization had made the movement of the project staff. They have to start learning to work in a new position and it will take some time to be acquainted with the new job. This may affect the data collection, analysis and interpretation. It may be the reason why the technical papers produced and presented to the Seminar or restored to the people are inadequate for offering management advices to the local community. To educate and to train them are very essential and are also a quick step to build up their capacity, therefore, SEAFDEC/TD may support these activities. The list of project staff from the CMFRDC and CMCRCC, their educational institutions, specialized fields, professional specialities and their training requirement are presented in Table 5.

Regarding the coastal resource management, the Ao.Bo.To. is the organization which is expected to assume such responsibility. It seems, however, that their capacity to be a responsible organization for LBCFM has hardly developed to date. It is obvious that they have no active motivation to participate in this task. As it is clearly observed from the monitoring sheet that the project are still awaiting the Ao.Bo.To. action plan on the establishment of locally monitoring unit. It may consider from their professional and administrative experience point of view that it may be difficult for them to handle such a role. As the Ao.Bo.To. council members come from the election, the majority of them embodies people from agricultural and other sectors. This may be the reason why the Ao.Bo.To. paid a little attention to this project so far. Nevertheless, some members of the Council understood the project concept and they are ready to implement the project to meet the objectives. Therefore, the structure and direction of the organization may be changed after the new election next year. On the other hand, the permanent staff of the Ao.Bo.To. at present consists of few people. They also have a major problem on shortage of man power and it seems that the Ao.Bo.To. is still premature. If we take into account the fishermen groups, the formation of the groups and their functions are also very weak. It is not certain that they can take over such responsibility as expected by the project. It may come to the compromise that the time to phase out such responsibility to local community or Ao.Bo.To. should be extended and the project staff should have given more attention and efforts to strengthen their organization through the intensive provision of capacity building to them.

## **XI. Conclusion**

The LBCRM-PD is established with a systematic implementation plan to achieve the clearly defined objectives. In Phase 1, the project staff has successfully implemented the plan and has demonstrated a good performance for each activity. Furthermore, some activities have made a considerable progress beyond the level indicated in the plan. These efforts have significantly contributed to the success of the program.

Nevertheless, it should be noted that there are some problems and limitations to the implementation. As a result of the civil service reform of the DOF, the



CMFRDC staff will be transferred and allocated to other organization. This may obstruct the progress of some activities in terms of the continuation of work, responsible persons, and coordination of the project.

As regards the local organizations—the Ao.Bo.To., and fisher groups, it is clearly seen that the fisher groups are loosely organized, with no systematic management and job allocation. The project will transfer the responsibilities of fishery resource management in local areas to the Ao.Bo.To., which is a new organization and still lacks the legal instruments to implement the plan. In addition, there are problems concerning human resources due to the lack of quantity and quality. It is expected that the problems are mitigated from next year, when the additional staff is assigned to the project. The increase of the staff will have a positive impact on the project implementation and the Ao.Bo.To. does not have problems with the budget allocation for hiring of the new staff.

Thus it can be concluded that the overall implementation of the LBCRM-PD is satisfactory and has attained the objectives. However, special attention should be given to the phasing out period of the project, when the transfer of responsibilities to the Ao.Bo.To. and fisher groups may affect the continuation of the activities. Since the local organizations may not be ready for such mission, it is recommended to extend the period of the project until the local organizations have sufficient capacity to take the full responsibilities, in order to alleviate the problems which may occur during the transfer of the responsibility to the Ao.Bo.To.





**Table 1 Five Year Plan Proposed by DOF(Budget)**

Activities	Budget (Million Baht)					
	Year 1 (2002)	Year 2 (2003)	Year 3 (2004)	Year 4 (2005)	Year 5 (2006)	Total
1. Investigation on qualities of sea water and environment	0.12	0.12	0.12	0.12	0.12	0.60
2. Investigation on fisheries resources	0.12	0.12	0.12	0.12	0.12	0.60
3. Investigation of socio-economics	0.12	0.12	0.12	0.12	0.12	0.60
4. Rehabilitation on fisheries resources	0.20	0.20	0.20	0.20	0.20	1.00
5. Installation of Artificial reefs	-	6.00	-	-	-	6.00
6. Formulation of fisheries communities	0.20	0.30	0.30	0.30	0.30	1.40
7. Management of destructive fishing gears	1.00	1.00	1.00	1.00	1.00	5.00
<b>Total</b>	1.76	7.86	1.86	1.86	1.86	15.20

Source: Department of Fisheries (DOF)

**Table 2 Five Year Plan for Target Activities**

Activities	Target					
	Year 1 (2002)	Year 2 (2003)	Year 3 (2004)	Year 4 (2005)	Year 5 (2006)	Total
1. Investigation on qualities of sea water and environment	12 (times)	12	12	12	12	60
2. Investigation on fisheries resources	12 (times)	12	12	12	12	60
3. Investigation of socio-economics	12 (times)	12	12	12	12	60
4. Rehabilitation on fisheries resources	100,000 (Fishes)	100,000	100,000	100,000	100,000	500,000
5. Installation of Artificial reefs	-	2	-	-	-	2
6. Formulation of fisheries communities	1 (group)	1	1	1	1	5
7. Management of destructive fishing gears by introduction of responsible fishing gears, aquaculture and processing	60 gears	60	60	60	60	300

Source: Department of Fisheries (DOF)

**Table 3 Participation and Responsibility**

Activities	DOF	DOF Provincial Office	DOF District Office	CMFRDEC	Ao.Bo.To.	Fishers & Groups	Other Local Institutions*	SEAFDEC	District Office
<b>1. Base Line Survey</b> 1) Data collection on regular basis in coastal zones 2) Survey of particular topics and subjects 3) Result of analysis restored to people and the community, and adapted to a proposal and recommendation		I	I	I		S		I	
		I	I	I		S		I	
		I	I	I	S	S		I	
<b>2. Encourage and Extend Locally Based Coastal Resource Management</b> 1) Encourage fishers' self-regulating activities, and reduce conflicts between resource users 2) Establish community-based fisheries management group 3) Enhance local government's ability	I	I	I	I	I	T	S	I(S)	
		I	I			T	S	I(S)	
	I	I	I		T	I	S	I(S)	
<b>3. Encourage Local Business</b> 1) Improve post-harvest technology and introduce new value added products 2) Introduce alternative job opportunity and support "One Product, One Tambol"		S				T	I	S	S
		S			I	T	I	S	S
<b>4. Enhance Human Resource Capability and Participation</b> 1) Training and education for enhancing awareness on the sustainable use of coastal resources 2) Plan and prepare to organize group activities and encourage local business		I		I	S, T	T		I	
		I	S	I	S, T	T		I	S
<b>5. Develop Extension Methodologies and Strengthening Extension System for Sustainable Use of Coastal Resources</b> 1) Develop text, manual and visual methods 2) Explore approaches to enhance resource users motivation									
	S			I		S		I	
<b>6. Rehabilitation and Enhance Coastal Resources</b> 1) Deploy Artificial Reefs 2) Release fingerlings	I	I	I	I	S	S		S	
	I	I	I	I	S	S		S	

\*Other local institutions include government agencies and schools.

This table does not include the department responsible for joining the King's project.

I = Implementing Agencies  
F = Funding Agencies  
S = Supporting Agencies

(I) means leading agency  
T = Target Group  
I(S) = Implementing and Supporting Agencies



**Table 4 Main Activities: Five-year Plan**

Activities	Year1	Year2	Year3	Year4	Year5
			Mid-Plan 		Final Evaluation 
<b>1. Base Line Survey</b>					
1) Data Collection of regular basis in demarcated coastal zones					
2) Survey of particular topics and subjects					
3) Result of analysis restored to people and the community, and adapted to a proposal					
<b>2. Encourage and Extend Locally Based Coastal Resource Management</b>					
1) Encourage fishers' self-regulating activities, and reduce conflicts between resource users					
2) Establish community-based fisheries management group					
3) Enhance local government's ability					
<b>3. Encourage Local Business</b>					
1) Improve post-harvest technology and introduce new value added products					
2) Introduce alternative job opportunity and support "One Product, One Tambol"					
<b>4. Enhance Human Resource Capability and Participation</b>					
1) Training and education for enhancing awareness on the sustainable use of coastal resources					
2) Plan and prepare to organize group activities and encourage local business					
<b>5. Develop Extension Methodologies and Strengthening Extension System for Sustainable Use of Coastal Resources</b>					
1) Develop text, manual and visual methods					
2) Explore approaches to enhance resource users motivation					
<b>6. Rehabilitate and Enhance Coastal Resources</b>					
1) Deploy Artificial Reefs					
2) Release fingerings					

**Table 5 Status of staff of CMFRDC and CMCRRC engaged in LBCFM-PD**

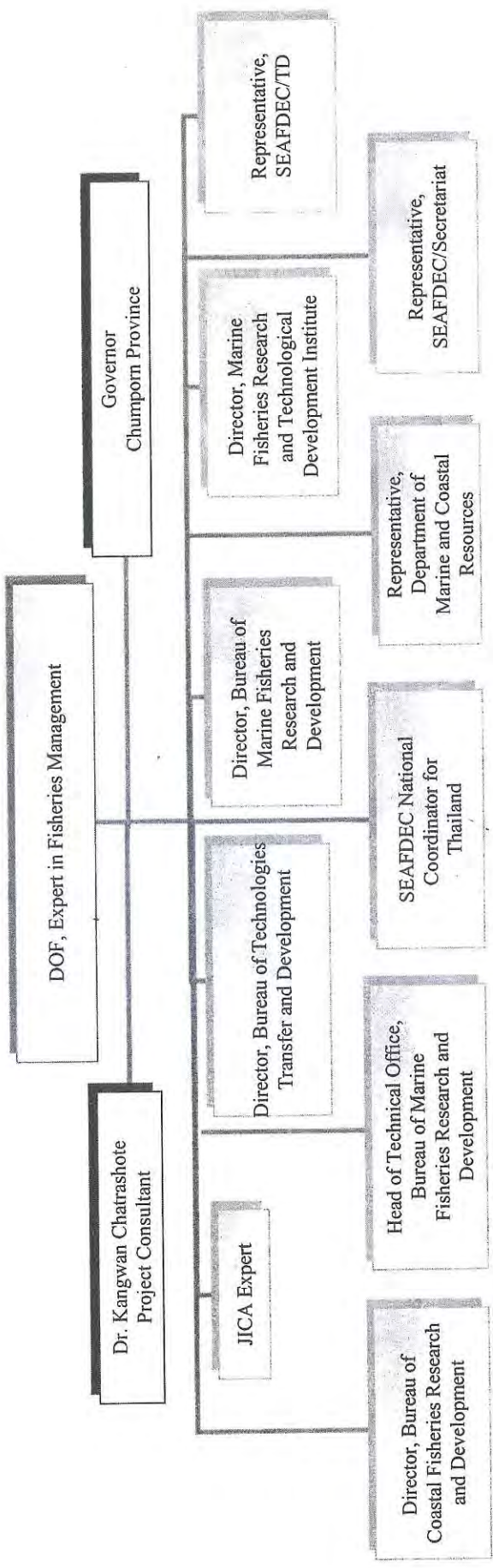
Name	Education	Professional Speciality and Assignment	Training Requirements
<u>CMCRRC</u>			
1. Mrs. Sumana Kachonvatanakul	MSc (Fisheries)	Marine Environmental Research	<ol style="list-style-type: none"> <li>1. Marine Environmental data analysis</li> <li>2. GIS marine environmental data management</li> </ol>
2. Mrs. Unchalee Chankhong	BSc (Fisheries)	Coral Reef Survey & Research	<ol style="list-style-type: none"> <li>1. Coral reef rehabilitation techniques</li> <li>2. GIS coral reef data management</li> </ol>
3. Mr. Praderm Oottayanmanee	BSc (Fisheries)	Coral Reef Survey & Research	<ol style="list-style-type: none"> <li>1. Coral reef rehabilitation techniques</li> <li>2. GIS coral reef data management</li> </ol>
<u>CMFRDC</u>			
1. Mrs. Noparat Nasuchon	BSc (Fisheries)	Biological studies Training organizer and speaker Project evaluation	<ol style="list-style-type: none"> <li>1. Public speaking techniques</li> <li>2. Community extension techniques</li> <li>3. Training analysis and evaluation</li> <li>4. On the job training abroad/study trips</li> </ol>
2. Mrs. Jinda Petchkamerd	BSc (Fisheries)	Fishing ground development Socio-economic and resource survey Planning and evaluation	<ol style="list-style-type: none"> <li>1. Survey techniques</li> <li>2. Statistics and data analysis</li> </ol>
3. Miss Sansanee Srichan-ngarm	BSc (Fisheries)	Fishing ground development Resource survey Student education and training	<ol style="list-style-type: none"> <li>1. Statistics and data analysis</li> <li>2. Coastal resource management</li> <li>3. Training on taxonomy</li> </ol>
4. Miss Thitiporn Supanirand	BSc (Fisheries)	Fishing ground development Resource survey	<ol style="list-style-type: none"> <li>1. Statistics and data analysis</li> <li>2. Public speaking</li> <li>3. Training abroad</li> </ol>
5. Mr. Rochanarut Rungruang	BSc (Fisheries)	Resource survey Artificial reef installation and evaluation	<ol style="list-style-type: none"> <li>1. Data analysis</li> <li>2. Training on taxonomy</li> <li>3. Artificial reef observation in Japan</li> </ol>

Notes: CMCRRC = Chumporn Marine and Coastal Resource Research Center  
CMFRDC = Chumporn Marine Fisheries Research Development Center



**Chart 1. Outline of Steering Committee and Implementing Committee**

**Steering Committee**



**Implementing Committee**

