



QUARTERLY REPORT NO.9
OCT. - DEC. 2003
OF
LOCALLY BASED COASTAL FISHERIES MANAGEMENT IN
PATHEW DISTRICT, CHUMPHON PROVINCE
(LBCFM-PD)

Compiled by

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PREFACE

This is a quarterly report of the activities implementation of the LBCFM-PD (Locally Based Coastal Fisheries Management in Pathew District, Chumphon Province) during the period from October to December 2003.

In this period, Encouraging local business have many activities, Ban Bang Wan (Moo 4) has entered group activities and has expanded its products thanks to subsidies of 29,000 Baht and 300,000 Baht from the Provincial Office and Ao.Bo.To. respectively. The group has agreed to collaborate work in standardization of the products' quality with the DOF Fish Technology Institute.

A new duck rearing initiative is underway in Moo1 thanks to the joint assistance from an NGO, DOF and the Department of Community Development.

1,000 copies of project newsletter were published and circulated. A manual of fisheries regulation and proclamation of demarcated zones were translated into a simple version of local language.

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CONTENTS

	page
1. GENERAL ACCOUNT.....	1
2. ACTIVITIES.....	1
3. OUTCOMES.....	5
4. MAJOR CONSTRAINTS.....	6
5. WORK PLAN FOR THE NEXT REPORTING PERIOD.....	6
6. REPORTS PREPARED.....	7

ANNEX

		page
Annex 1	Travel Report - Chumphon (1)	8
Annex 2	Travel Report - Chumporn (2).....	10
Annex 3-1	Report on Technical Coordination Meeting.....	12
Annex 3-2	Outline of Steering Committee and Implementation CommitteeCharts.....	19
Annex 4	Report on Meeting on Action Plan of LBCFM-PD in 2004.....	20
Annex 5	Report on Environmental Survey on Artificial Reefs in Chumphon Province....	24
Annex 6	Annual Activity Monitoring Sheet LBCFM-PD.....	30

Quarterly Project Progress Report

Project title: Locally Based Coastal Fisheries Management in Pathew District
(LBCFM - PD)

Duration of Project: 5 years (Oct. 2001 - Sept. 2006)

Executing Agency: Fisheries Department, Ministry of Agriculture, Thailand

Cooperating Agency: SEAFDEC/TD

Funding Agency: Japanese Trust Fund (the FCG scheme)
DOF Thailand (Co-financing)

Budget: USD 59,980 (Japanese Trust Fund Input - 2003 only)
Baht 15,200,000 (DOF Input for 5 years)

Reporting period: October to December 2003

1. GENERAL ACCOUNT

The present framework of community-based fishery resources management hardly works with the Ao.Bo.To., so a major effort will be made to reorganize fishermen's groups to act as a core body in the CBFM.

The project technical coordination meeting was held in Bangkok on 20 - 21 November 2003 and the fifth Regular Meeting was held on 8 December 2003 in Chumporn.

The project phasing-out program has been making slow but steady progress.

In order to improve transparency in the women's groups' activities, a simple accounting and book keeping system has been introduced.

The Director of Chumporn Marine Fisheries Development Centre (CMDEC), the project counterpart organization, is resigning in March 2004 after 12 months.

The regular baseline surveys have continued.

Women's group activities in Moo 1 have got underway with a duck-raising program. Similar activities are starting up in Moo 4.

Discussions with the fishermen's and women's groups took place whenever needed.

The pre-installation survey of ARs was carried out under SDI-4 in December 2003.

Collaboration between the sister projects has been promoted.

From the next reporting period on the project progress report will be compiled bi-annually to reflect changing workloads and needs.

2. ACTIVITIES

2.1 Baseline surveys

Routine data collection continues as follows:

1. interviewing local fishermen in the target groups to observe fishing areas and the composition of fish catches;
2. collecting fishing logbooks given to 10 fishermen in each of the eight fishing methods;
3. analyzing data gained and preparing a database.

These activities have been shifted gradually to the hands of researchers in the Chumporn Marine Fisheries Development Centre (CMDEC) with technical backup by the TD staff since April 2003. Only one assistant researcher attended to the regular monthly survey from the SEAFDEC side during this reporting

period.

Data collected as above was used by SEAFDEC/TD to prepare information on fishing ground maps, seasonal fishing gear, changes of CPUE and varieties of fishing gear. SEAFDEC/TD staff participate in the regular three monthly surveys to monitor data collection practice by CMDEC. The analyses of fish grounds and seasonal fishing gear are made only in the first and final years of project operations while the latter analyses - of CPUE and fishing gear varieties - are made every year.

The regular bi-monthly survey of the marine environment was carried out at all nine stations by the CMDEC staff. The water samples were analyzed at the Marine Fisheries Centre in Songkhla as the CMDEC is not properly equipped. The SEAFDEC/TD provided technical assistance in compiling the data.

2.2 Encouraging local coastal resources management

The testing of larger mesh crab traps (2.5" instead of 1") has been going on since August 2003 to encourage sustainable fishing practices. Eighteen fishermen from Village No. 7 (Ban Koteab) are taking part. Their village has the highest proportion of fishermen engaged in collapsible crab trapping in Pakklong sub-district.

The DOF set up a revolving fund to buy the new traps and distributed 100 to a first group of 12 fishermen. Then the CMDEC recommended that the scheme be expanded and more funding was provided by revolving itself to enable six more fishermen to join in November 2003. An assessment of the enlarged mesh traps is expected to take place in February 2004.

2.3 Encouraging local business

Some structural and managerial problems cropped up in the women's groups and the project intervened to coordinate and find solutions through dialogue with each group.

Three women's groups were established in the project area: Ban Thungmaha (Moo 1)/Ban Bonrai (Moo 6), Ban Thunthong (Moo 3) and Ban Koteab (Moo 7). The first group, Moo 1 and Moo 6, was the most active. But in mid-2003 a women's group of Moo 6 wanted to leave the group and take over most of the equipment belonging to Moo 7 (which was hardly used). Moo 7 members objected but have since asked the CMDEC to help them focus on batik making.

In June 2003 another group, Ban Bang Wan (Moo 4), began to process agricultural products like pun-seb (a local snack). They applied to the provincial and the Ao.Bo.To offices for start-up assistance and the Ao.Bo.To. provided office space and 300,000 Baht to renovate it to a processing yard. The provincial office provided 29,000 Baht to procure equipment. Work on the office space will begin in January 2004.

Moo 4 is one of oldest women's groups, having been set up in January 2001 - prior to the project's starting up - with a focus on micro-credit and artificial flower making. The group has savings of 270,000 Baht.

The Moo 3 group was once active and produced seasoned and dried anchovy. But participation in activities has decreased, possibly because of a domineering chairwoman.

A recent and encouraging development has been Moo 1's duck raising venture, which began in May 2003 with financial and technical support from the project, the DOF, the Department of Community Development (CDC) and a local NGO, Zip. The group has about 1,100 ducks and is selling fresh and processed eggs.

Moo 1 has initiated to register with the CDC and will be therefore recognized as a legitimate organization. The group also wants to apply for the Good Manufacturing Practice (GMP) certificate for processing quality products. This is issued by the Ministry of Health and guarantees the quality of goods produced and the reputation of the group.

Discussions were held with the DOF Fish Technology Institute on collaborating to improve the quality and diversity of products in the project area. An official request made to the DOF by SEAFDEC/TD in the previous reporting period and they agreed to collaborate, especially in quality control. A joint team will visit the project site to inspect current processing methods and identify needs.

It was discovered that the accounting and bookkeeping in the women's groups was unsystematic and, in order to avoid distrust developing among members, it was decided as a matter of urgency to introduce appropriate systems. Contact was made with the Fisheries Economic Division, DOF Thailand, and they agreed to collaborate to introduce basic accounting procedures to all women's groups in the project area.

2.4 Enhancing capacity and participation

The project has been operational for over two years. Initially it was envisaged that the Ao.Bo.To. would undertake the core responsibility of coastal resources management and the project has invested substantial resources in training and education for Ao.Bo.To. members. However, it is clear that the institution is both unable and inappropriate to take on this responsibility and the project has decided to coordinate the organization of well-structured fishermen's cooperatives to initiate and implement a coastal resources management plan. The Ao.Bo.To. will continue to play a coordinating role. The Director of the Chumporn Marine Fisheries Research and Development Centre (CMDEC) has agreed in principle to this idea and it will be the focus of action during the next reporting period.

2.5 Strengthening extension and developing methodologies

The first project newsletter was published in December with a print run of 1,000.

The Technical Coordination Committee meeting on 20 - 21 November discussed the need for a manual of basic and simply written fisheries law and enforcement. A draft leaflet was prepared by the staff of Chumporn DOF office.

2.6 Rehabilitating coastal resources

An NGO called the Thai Environmental Institute (TEI) has been working since 2001 in Chumporn Province on the mangrove tree plantation and conservation program. They have organized village groups with about 10 members and also a sub-district level group to coordinate regional activities. Their program terminated in Chumporn Province at the end of this year but the mangrove forestation program will continue and follow-up activity by the project is vital.

The DOF plans to install 1,750 artificial reefs (ARs) at a cost of three million Baht in Pathew District in March 2004. In order to monitor the impact of ARs, the SEAFDEC/TD team carried out a pre-installation survey in November 2003. Several environmental parameters were studied as follows:

- Fishing operation survey
- Fish-trapping
- Squid-trapping
- Bottom set gillnet (trammel net) fishing
- Collapsible crab-trapping
- Benthose survey
- Fish larvae survey
- Phyto-plankton survey
- Zoo plankton survey
- Water current measurement

A detailed preliminary report is seen in Annex 5. The monitoring survey will commence in March 2004.

2.7 Meetings

The regular technical coordination (TC) meeting was held on 20 - 21 November at SEAFDEC/TD, Bangkok. This is the second TC meeting in 2003. The main items on the agenda were:

- Project progress since the last TC meeting
- Project action plan for 2004
- Project administration and management
 - Steering Committee and Implementing Committee (IT) establishment
 - Relations with the Royal Project
 - Project communication

Details of the meeting are found in Annex 3.

The fifth project regular meeting was held on 8 December in Chumporn and discussed technical and managerial issues including the action plan of 2004. Details of the meeting are found in Annex 4.

2.8 Collaborative project arrangements

In parallel with the project in Chumporn, a new collaborative project began in Langkawi in August 2003 under the symbol LBCRM-PL. The project details are covered in a separate biannual report covering August to December 2003.

Representatives from fishing communities and Ao.Bo.To. Chumporn participated in the Fishermen's Workshop jointly organized by DOF Malaysia and SEAFDEC/TD on 21 December in Langkawi. This was aimed at a public announcement and an explanation of the project. Four representatives from the Chumporn fishing community participated and outlined their experience of the project over the previous two years. Stakeholders in Langkawi were very impressed, especially women's groups.

3. OUTCOMES

3.1 Baseline surveys

Fish landing and environmental survey data have been inserted into the database. Two particular topic surveys were conducted awaiting comprehensive reports to be issued.

3.2 Encouraging local coastal resources management

Pilot introduction of enlarged mesh collapsible crab traps was conducted with 18 fishermen

3.3 Encouraging local business

Ban Bang Wan (Moo 4) has entered group activities and has expanded its products thanks to subsidies of 29,000 Baht and 300,000 Baht from the Provincial Office and Ao.Bo.To. respectively.

The group has agreed to collaborate work in standardization of the products' quality with the DOF Fish Technology Institute

A new duck rearing initiative is underway in Moo 1 thanks to the joint assistance from an NGO, DOF and the Department of Community Development.

The DOF Fisheries Economic Division has agreed to help introduce bookkeeping systems to the women's groups.

Training in cottage industry finances was held for Moo 1 members.

3.4 Enhancing capacity and participation

The researchers at Chumporn Marine Fisheries Development Centre (CMDEC) can now collect fish landing data, but they need on-the-job-training for its analysis.

It was decided to re-organize fishermen's groups into well-functioning cooperatives to be responsible for coastal resources management.

3.5 Strengthening extension and developing methodologies

1,000 copies of project newsletter were published and circulated.

A manual of fisheries regulation and proclamation of demarcated zones were translated into a simple version of local language.

3.6 Rehabilitating coastal resources

Popular participation in mangrove plantation management has been established through a local NGO and the project will take over its work when it withdraws from Chumporn Province at the end of 2003.

A pre-installation survey of ARs was carried out.

3.7 Meetings

The technical coordination meeting was held in November in Bangkok and the fifth project regular meeting was held in December in Chumporn..

3.8 Collaborative project arrangements

Another project has been initiated in parallel with the one in Chumporn.

Four representatives from the Chumporn fishing communities participated in a workshop in Langkawi and presented their experience of two years of project operations.

4. MAJOR CONSTRAINTS

The present director of the counterpart organization in implementation of the project; i.e. Chumporn Marine Fisheries Research and Development Centre (CMDEC), will be resigned in March 2004. He was just replaced with the predecessor in March 2003. It took for quite some time to get him acquainted with the project concept and approach. The Technical Coordination meeting and Project Regular meeting were just held in November and December respectively, and thereby the project strategy has been reoriented. Further, it is critical in such a time when the project has been in the stage of phasing out.

Following the government administrative restructuring, the new Department of Marine and Coastal Resources was established within Ministry of National Resources and Environment. This Department is now responsible for management of various coastal natural resources including coral reefs management and mangrove afforestation which had been under jurisdiction of the Department of Fisheries, Ministry of Agriculture. The project was originally so designed as its management and operation is pursued in a collaborative manner between SEAFDEC/TD and the Department of Fisheries. However, the Department of Marine Coastal Resources, Ministry of National Resources and Environment, is now bound to be involved in the scope of operation especially in the field of mangrove afforestation program. This matter should be clarified and a tripartite arrangement in collaborative participation in the project operation will be necessary.

The project framework of community-based fishery resources management was so designed to work with Ao.Bo.To. as a core group. However, after passing two years' endeavor it was found that the system hardly worked. Therefore, the project has to now reorganize the fishermen groups to be a core for the CBFM. This should have been done from the outset of the project initiation.

5. WORKPLAN FOR THE NEXT REPORTING PERIOD

The feature issue in the next reporting period covering six month from January to June 2004 is to reorganize fishermen's group which should be imminently tackled.

Base line survey

- The regular environmental and oceanography data collection will be continued.

Encourage and extend LBCRM

- Campaign for enlarged mesh-size collapsible crab traps will be continued.
- Advisory discussions will take place on an ad-hoc basis.

Encourage local business

- Coordination on restructuring women's groups will be continued.
- Improvement of quality of products in collaboration with the DOF Fish Technology Institute

Enhance human resources capacity and participation

- Reorganization of fishermen's group in accordance with the Bye-law will be commenced.
- Advisory discussions will be continued on an ad-hoc basis.

Development of extension methodologies and strengthening the extension system

- A printed project T-shirt will be produced.
- Three technical reports will be published in line with the publication plan.

6. REPORTS PREPARED

Reports prepared on the project during this reporting period are listed below.

No.	Title of the report	Name of author	Date of issue
01.	Travel report - Chumporn (1)	Sumitra R.	Nov. 2003
02.	Travel report - Chumporn (2)	Phattareeya S	Nov. 2003
03.	Report on Technical Coordination Meeting	Phattareeya S.	Nov. 2003
04.	Report on the Fifth Project Regular Meeting	Phattareeya S.	Dec. 2003
05.	Environmental Survey on Artificial Reefs in Chumporn Province	Yuttana T.	Dec. 2003

**Travel report - Chumporn (1)
(5th - 7th November 2003)**

**Following-up on women's group activities
by
Sumitra Ruangsivakul**

I. Objectives of this official trip: To follow up the women's group activities and to clarify how it has progressed, also what problems were faced between September and October 2003.

II. Targeted Group: Women's group Moo 1, Moo 4 and Moo 7

Women's group of Moo 1 and Moo 6 (Women's group for Production of Tambol Pakklong)

Production and Marketing:

The group sold the products four times at Chumphon City and once in Bangkok, the main products are anchovy products and dry squid.

A new product of group is duck eggs, the group have about 1,000 ducks and now all the ducks produce eggs at about 500-600 eggs per day, the market for duck eggs are the school and people in Tambol, and some eggs are processed into preserved eggs.

Planning:

The chairwoman would like to produce more preserved egg and also other diversified egg products.

Problem:

After a group meeting on the 6th of September, members re-arranged into 4 sub-groups, each composed of 5-6 members. One sub-group will carry out the processing once per month, and the sub-group will decide the type of processing. Now they have problems of little available time, but they can come join together when the group wanted process the product.

Women's group of Moo 7 (Women's group for fish processing of Village No. 7)

Production and Marketing:

The chairwoman's group have produced and sold the products to middle men at village No.3, there are four orders per month, the main products are fish crackers (made from anchovy), because the price of anchovy is low this year. Now the chairwoman's group carries out fish processing by itself, because the orders are still small.

Planning:

The chairwoman now produces the fish crackers for stock and next time she will call the members to

help in frying and packing for sale in the area and because tourists will come to Ko Teap in the new year.

Problems:

The participation of this group is still weak, members are still preparing crab-meat and the trammel net and crab gill nets for operation during the monsoon season.

Farmer's group of Moo 4 (Women's group for development of Village No. 4)

Production and Marketing:

The group must produce products 2-3 times each month, and the market is in the vicinity. The main products are Pun-sep (snacks).

Planning:

This group has received 29,000 Baht in funding from the Province, which was given for the procurement of equipment for processing. When the new equipment arrives in the group, the chairwoman will call on the meeting for the management and regulation of processing.

Problem:

The products are not enough to be sent to market, because the members have been working in the rubber plantations, because the price of rubber is higher now.

III. Conclusions from the trip

The women's group of Moo 1 and Moo 7 have similar group management with active chairwomen who try to develop products, but they are still lacking the arrangement of a rotating operational calendar for working at the processing house and also lack knowledge of investment account management and reporting

Women in agriculture of Moo 4 also showed their interest in other products, which are available to them.

Travel Report - Chumporn (2)
(5 - 7 November 2003)

Following-up Progress Work of the LBCFM-PD Project Activities

Phattareeya Suanrattanachai
Socio-economic Section, Research Division, SEAFDEC/TD

1. Objectives of the official trip:

- Follow up the progress work of the project activities such fish processing product undertaken by the women's group, collapsible crab trap-enlarging mesh sized bottom net activities and the group network of the mangrove forest and forests conservation.
- Make comprehension of the preparation of official trip to Langkawi Island to representatives of the community.
- Visit and consult the director of the Chumporn Marine Fisheries Research and Development Center to prepare the meeting of the LBCFM-PD project and action plan for the year 2004.
- Consult an Ao.Bo.To member how to dispatch the position of the local extension staff to the Pakklong Sub-district Administrative Organization including budget arrangement for salary.

2. Visited women's group chairman

The project staff, who take responsibility to follow up progress work of the group, was informed that the group members took the products to outlet at the Muengthong Impact Arena on 29 November 2003. The food fair festival was arranged by the Bank of Agriculture and Agricultural Cooperative (BAAC). Besides, the BAAC also subsidized the women's group to pay 3,000 baht for rental boost.

The chairman also gave information of the group activities that currently vended the duck egg harvested from duck husbandary to local people in the community. Duck egg was divided to make the salted eggs which have been almost two weeks passed. The chairman said that most of members spend their time particular in October and November to process dried squid products after their husband came back to shore. The group's activities were very low progressive work.

3. Visited committee of the collapsible crab trap-enlarging mesh sized bottom net at Ban Koteab (Moo 7)

The committee cited that fishers engage in collapsible crab trap were 12 fishers gathered in a group to get the DOF's collapsible crab trap subsidy. Each member of this group got 100 traps. The trap was launched to the members since 30 August 2003. the Chumporn provincial fisheries office is taking responsibility to allocate the collapsible crab trap to target fishers particular in Ban Koteab (Moo 7) where it has highest number of fishers engaged in collapsible crab trap in Pakklong sub-district.

The official of the provincial fisheries office incorporate with staff of the CMFRDEC to implement the collapsible crab trap-enlarging mesh sized bottom net activities. These staff and official also recommended

to the group committee that the group should manage amounts of subsidy to expand numbers of members as revolving loan/credit within the group. Now, numbers of members is increasing from 12 to be 18 members in November 2003. New six members is allocated collapsible crab trap 100 traps by using accumulated funds paid by 12 members.

4. Visited chairman of the group network of the mangrove forests and forests conservation

The chairman of the group network explained that members of the network composed of members of fishers and members of group network. Now, they agreed that both members should be under the same name of the group network of the mangrove forests and forests conservation. This is to strengthen numbers of the members and reduce a duplicated work between them.

The mangrove forests conservative areas is main target areas to contribute coastal resource management project in the community. The forest conservative and management is main area to reserve initial source of natural water of the community.

5. Made comprehension of the official trip to Langkawi Island

SEAFDEC/TD staff talked with head of Pakklong sub-district, Kamnan Sommai Ubolkarn, Chairman of the women's group for fish processn product, Ms. Tabtim Satisanond and Chairman of the group network of the mangrove forest and forests conservation, Mr. Payao Srichan related to objectives of official trip to Langkawi Island, Malaysia.

Mr. Payao gave impressive explanation of the LBCFM-PD project particularly on the coastal resource management. He cited that numbers of trawlers encroached into 3 km coastal areas was reduced after the demarcation of 3 km coastal areas in Pathew Bay. He affirmed that demarcation led to increase number of patrol boat's monitoring along the demarcated areas.

Chairman of the women's group for fish processing products said that she welcomed to participate in travelling to official trip to Langkawi Island. However, she was selected to be representatives of the community to get award from the government agency, then the staff just said to her that the staff had to reschedule for her travelling which is under discussion of the staff. Kamnan also welcomed to join and request what staff need him to present in Langkawi Island.

6. Consult the director of the CMFRDEC

SEAFDEC/TD staff missed chance to meet the director of the CMFRDEC, just consulted him by telephone. The staff informed him that the meeting should be held on 20-21 November 2003 or before. This is because some SEAFDEC/TD project staff have to leave SEAFDEC/TD office for M.V. SEAFDEC shipboard research and training. The director cited that he would like his staff schedule and the center schedule and then he would inform TD when should be held the meeting.

7. Consulted the Ao.Bo.To. member to dispatch the position of local extension staff.

An Ao.Bo.To. member recommended that the feasibility of dispatch the position of local extension staff is possible, but this position must be established after all Ao.Bo.To. members have agreement and provide budget for the new staff. This may start in next fiscal year of the Ao.Bo.To. community development and management plan.

**Report
on
Technical Coordination Meeting
20-21 November 2003**

Opening Ceremony:

1. The Training Department Chief/SEAFDEC/TD addressed warm welcome to all participants from the Department of Fisheries as appeared in the list of participants.

Session 1: Progress report of the LBCFM-PD Project during June-September 2003

2. Ms. Pamornpan C. was representative of the CMFDEC project staff to report progress work of the project activities through six main activities. Dr. Phattareeya S. proposed that clear direction and objectives of training course for target group should be formulated to reach tangible outcome of the training course.
3. Socio-economic team staff reported that they conducted Participatory resource assessment (PRA) by using household surveying data and formulate follow-up activity of PRA which was tree planting activity. They attend the regular meeting of Pakklong AoBoTo (Sub-district administrative organization). They visited women's group of village Nos. 1, 6 and 7 to follow up their group's management and administration and discussed what problems they were facing. They also visited crab gill net and collapsible crab trap fishers to collect information before implemented the enlarging mesh size bottom net of collapsible crab trap.
4. Oceanographic team staff regularly conducted sampling collection, but they were facing problems of inaccessible equipment such as Spectrophotometer and staff who took major responsibility to regularly conduct sampling experimental laboratory. Mr. Weera B. said that he would assign his staff to take in charge. Ms. Penchan added more information whether it had collaborative work with Department of Marine and Coastal Resource might request for its staff to help.
5. Mapping survey team reported that data survey and collection has been done continually. The data collected in the annual year would be used to report change of the community by comparing data of last year and this annual year.
6. Extension program arranged for women's group should consider capacity building of the group. Women's group of village No.1 and its capacity build was give more clear picture what they could do and how far. Even this group actively progressed producing seasoning anchovy product, but it had not unique characteristic of the products. Capacity building of women's group at village No. 7 was not still active members' participation in group's activity, but chairman of the group kept producing the group's products. This meant these two groups are still active.
7. Women's group at village No.3 ceased producing products. Women in village No. 4 expressed their intention on producing village product, but they needed budget contribution. Women in village No. 6 also placed their interesting to establish women's group.

8. Dilemma of producing product was taste of the product was not stable and reached standardization. Besides, the group products were not self-unique products. Dr. Phattateeya S. commented that training course on fish processing for women's group should assign clear objective and/ or topic of training course arrangement. This was to increase an attraction of women's participation in attending the training course. The implementation of women's group activity should be step-by-step design to keep developing women's group.

9. Mr. Weera B. recommended that the project staff should identify factors that impact to success/ non-success of the group's activity implementation. Besides, the staff should assess a readiness of target group, training course and its curriculum whether it was appropriate with considering available raw material in community.

10. Extension program activity, a manual of basic law and enforcement and proclamation which empower to control the demarcation of the project site and would be provided with simple language that local people in community site and adjacent could easily understand. Mr. Suwat. W. would help in translating from legal language to be simple and disseminate through a series of printed matters.

Session 2: Discussion on the LBCFM-PD Project action plan for the year 2004

Project phases out

11. Final goal of the five year LBCFM-PD project was local people themselves could take action to progress community development coastal resources management. The DOF would take action as consultant to periodically assist local people developing community and managing resources.

12. SEAFDEC/TD had to gradually phase out its responsibility in the project implementation by reducing number of activities in the action plan for the year 2004. This was to achieve the final goal of the project and gradually practice local community to learn on how to implement the activities of community development on their own experiences. It was almost two years that the project implemented. Success of the project implemented at the initial stage in social criteria was local people's participation and acceptance to practice in crab stocking cage bank management and women's group establishment. However, the project's success did not indicate by figure of local people's income level whether it increase or not in economic criteria.

13. The phasing out program would start in the year 2004. SEAFDEC/TD began to transfer knowledge, experience and technology to CMFDEC, AoBoTo which would gradually execute step-by-step and year-by-year. This program would base on flexibility and adjustment to reduce problems of the program might face an out of date stage.

14. DOF also had plan of phasing out project to push community to implement community development and resource management after the project terminated in the fifth year project implementation. However, DOF still kept monitoring the community in community development. DOF would arrange minor activity to assist community.

Objectives and goals of the project action plan for the year 2004

15. Main objective of the project action year 2004 placed an emphasis on strong local people's participation in the project implementation. Strengthen of local people group and its participation in

coastal resource management and rehabilitation was highlighted. Target group was member of exited local people's group that had readiness to work in-group. These target people were ready to participate in formulate or design action plan of the group. The project took in charge to assist the group to design the plan by providing training course.

Plan of activities and adjustment of collaborative action plan of activities between SEAFDEC/TD and CFMDEC

16. Action plan of activities year 2004 categorized by main component as followed:

CMFDEC

- 1) Coastal resource management and rehabilitation activity
- 2) Improvement of income of community activity
- 3) Following-up and evaluation activity

SEAFDEC/TD

- 1) Base line survey
- 2) Encourage LBCFM
- 3) Encourage local business
- 4) Human capacity building development
- 5) Extension program and development
- 6) Special activities

Both counterparts had to discuss to re-formulate the action plan of activities. This was to reduce a duplicated work of both. Then, the project staff should face together to re-arrange all activities. The below table showed name list of staff attaching with responsibility.

Activity	SEAFDEC/TD staff	CMDEC staff
Training course on fish processing	Ms. Sumitra R.	Ms. Nopparat
Training course on group's administration and marketing	Mr. Kongpathai S.	Mr. Virote K.
Training course on rehabilitation of coastal resources	Mr. Kongpathai S.	Ms. Nopparat
Marine environmental survey	Ms. Penchan L.	Mr. Chumchoke S.
Marine resource and landing survey	Ms. Pattarajit K.	Ms. Pamornpan C.

Action plan for seminar arrangement for the year 2004

Two seminars were planned to arrange in year 2004 as followed:

- 1) Technical seminar for project researcha and evaluation in July.
- 2) Seminar on outcome of project implementation and evaluation by local community in August.

Session 3: Administrator and manage the LBCFM-PD

Progress of steering committee (SC) and implementing committee (IC) establishment

17. Mr. Somsak P. recommended that the project implementation should conclude outcome and output of the project to make systematic project report to assist in evaluation of project termination. He

also emphasized that coordination with Aoboto was very important to support future budget plan for community development.

18. Regarded to chart of steering committee members was changed, CMFDEC proposed new chart of steering committee members which was discussed at the meeting.

19. SC member came from Chumphon provincial office should be the provincial governor or representative which specified position to easily make administrative order and to progress the project implementation.

20. Mr. Somsak P. requested that the staff should check source of fund for the project implementation whether it was funded by the Royal project Bureau. Mr. Rangson took responsibility to make confirmation where source of fund came. Whether fund came from the Royal Project, the Ministry of Agriculture would give top priority to the project, then the progress work had to be reported directly to the ministry.

21. DOF provided lumpsum budget to contribute the project implementation in order to continue and strengthen the Royal project and activities in year 2004. the Royal project provided budget to DOF only one year, after the budget plan terminated, DOF had to provide budget to contribute the project.

22. Mr. Veera moved up the Session 4 to discuss. He mentioned that CMFDEC welcomes to make collaborative work with the Department of Marine and Coastal resources particular mangrove forest, seagrass and coral reef. He also stated that the collaborative work should avoid a duplicated work between them. Then, the representative of the Department of Marine and Coastal resource should be a member of SC chart.

23. SC chart(see in Annex 3-2), Dr. Kangwan J. should be project consultant and add representative of Department of Marine and Coastal resources, SEAFDEC national coordinator for Thailand, Director or representative of technology transfer bureau were assigned to be members of SC. But the chart might be changed whether this project was assumed to be the Royal Project.

24. IC committee chart should add representative of the Department of Marine and Coastal resources, Director or representative of Upper Gulf of Thailand Marine fisheries protection center, educational agencies and Sub-district community development officer to be member of IC (see Annex 3-2).

Project communication: coordinating project staff from CMFDEC and TD

25. The communication and coordination between CMFDEC and TD can contact by calling, this does not need official letter to Director General of DOF and director of CMFDEC.

The Project report

26. All staff took responsibility to prepare the summary report of the project activities implementation. Then, CMFDEC would bring the compilation of summary report to present to DOF.

Staff assignment for taking charge in each activity

27. Staff of CMFDEC was assigned to be contact person as below:
- | | |
|------------------|---|
| Ms. Jinda P. | contact person for socio-economic team |
| Ms. Nopparat | contact person for training team |
| Mr. Chumchoke S. | contact person for oceanographic and environment team |
| Ms. Pamornpan | contact person for landing survey team |
28. Contact person also took in charge as field coordinator of each activity. This person reported to the Director of CMFDEC when staff faced problems in the project site and consulted for a solution.

Requirement of extension worker position(should dispatch to AoBoTo office)

29. A chart of AoBoTo office and structure dispatched an agricultural extension officer. Training course on intensive extension program should provide for the agricultural extension officer to be local coordinator to keep contact between government officers and local people.
30. Mr. Wira proposed that the project staff should arrange meeting between staff and AoBoTo to make comprehension on AoBoTo's involvement in the project implementation.
31. CMFDEC planned to send a staff to work at project site for 3 days and then report the working result of each time to the Director.

Session 4: Others

32. All participants agreed that the spelling of Pathew was not changed from "Pathew" to "Pathio", but they agreed to change "Chumporn" to be "Chumphon".
33. TD raised question to CMFDEC whether it had papers for publication in the end of December 2003. Mr. Wira said the meeting he would inform TD when TD participate the meeting in CMFDEC on 8-9 December 2003. He proposed that the format of publication should be formulated.
34. Mr. Wira proposed that the collaborative work with Department of Marine and Coastal Resources should emphasize on specific natural resources such mangrove forest, seagrass, and coral reef. This was to avoid duplication of work to the project activity implementation.
35. Mr. Wannakait, representative of Department of Marine and Coastal Resources, stated that the department welcomed to make collaboration with the project particular in topic of mangrove forests.
36. Mr. Wira questioned to Mr. Wannakait whether the project was the Royal Project. Mr. Wannakait answered that this project was the Royal project. The DOF provided budget in year 2004 for supporting the Royal Project.
37. Director of Marine and Coastal Resources Department Center, Central Gulf of Thailand/ Representative and head of mangrove forest resource development station No. 12/ Representative should be member of IC.

38. Collaborative work with the Fish Technology Institute of DOF, the project should make comprehension on the territories of work and direction. Thus, the details of this collaboration should have first discussion between TD and CMFDEC on 8-9 December 2003 and then arranged meeting among three parties concerned.

39. Dr. Phattareeya S. informed that TD would arrange fishers' workshop in Langkawi Island, Malaysia. This workshop needed representative of CMFDEC staff to present the LBCFM-PD project implementation on site. Mr. Wira said that he informed TD later who would be staff to participate the workshop in Langkawi Island.

40. The Fifth meeting will be held on 8-9 December 2003.

41. Mr. Wannakait proposed TD that the topic study of mutualism of mangrove forest and aquatic resources, TD should design action plan and budget plan for the study implementation. He recommended that the project evaluation should be done by the third party who may be academic instructor which would provide Terms of References of criteria evaluation, later.

42. TD took responsibility to circulate the record to the meeting

List of Participants

Department of Fisheries

- | | | |
|-----|----------------------------|---|
| 1. | Mr. Somsak Pamokechutima | Director of Head of Fisheries Expert Bureau |
| 2. | Mr. Rangsak Chayakula | Director of Marine Fisheries Research and Development Institute |
| 3. | Mr. Weera Boonrasa | Director of Marine Fisheries Research and Development Center, Central Gulf of Thailand |
| 4. | Ms. Jinda Petchkamnerd | Fisheries Biologist, Marine Fisheries Research and Development Center, Central Gulf of Thailand |
| 5. | Ms. Nopparat Nasuchol | Fisheries Biologist, Marine Fisheries Research and Development Center, Central Gulf of Thailand |
| 6. | Mr. Virote Kong-asa | Fisheries Biologist, Marine Fisheries Research and Development Center, Central Gulf of Thailand |
| 7. | Mr. Chumchoke Singharachai | Fisheries Biologist, Marine Fisheries Research and Development Center, Central Gulf of Thailand |
| 8. | Ms. Pamornpan Chatpum | Fisheries Biologist, Marine Fisheries Research and Development Center, Central Gulf of Thailand |
| 9. | Mr. Suwat Wongsawat | Chumphon Provincial Fisheries Office |
| 10. | Ms. Amporn Laowapong | |
| 11. | Ms. Sumontha Oonthong | Marine Fisheries Research and Development Institute |

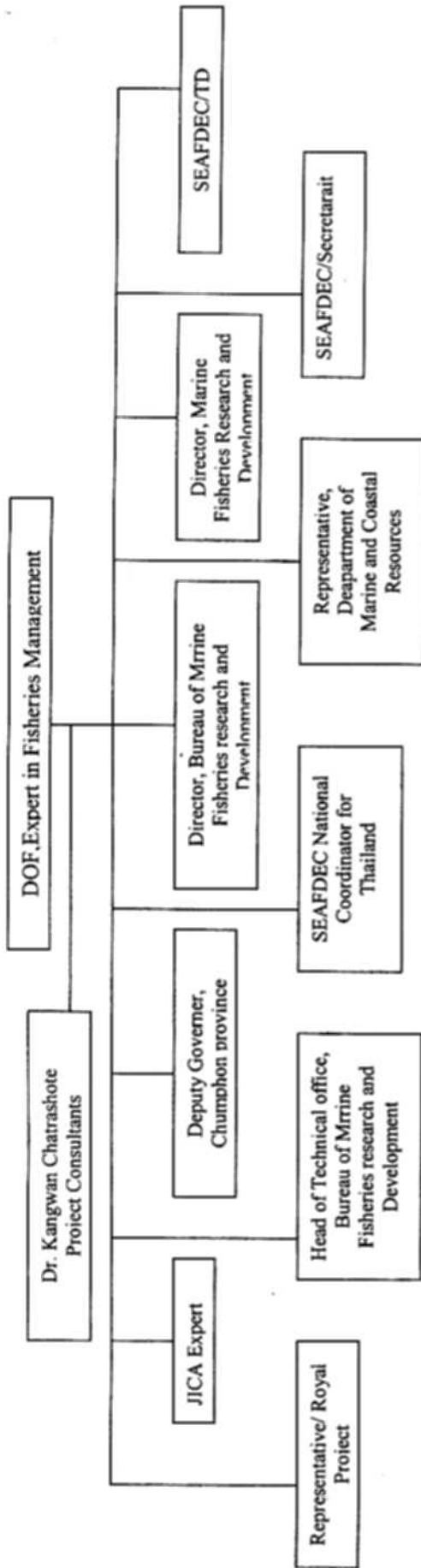
SEAFDEC/TD

- | | | |
|----|-----------------------------------|--|
| 1. | Mr. Niwes Ruangpanit | Secretary-General/ Training Department Chief |
| 2. | Dr. Somboon Siriraksophon | Research Division Head |
| 3. | Mr. Seiichi Etoh | JICA expert in socio-economic fisheries |
| 4. | Dr. Phattareeya Suanrattanachai | Fisheries Socio-economic Section Head |
| 5. | Ms. Penchan Laongmanee | Fishing Ground Section Head |
| 6. | Ms. Sumitra Ruangsivakul | Socio-economic researcher |
| 7. | Ms. Pattarajit Keawnuratchadasorn | Biologist, Research Division |
| 8. | Mr. Sakchai Anuphapboon | Biologist, Research Division |
| 9. | Mr. Kongpathai Saraphaivanich | Socio-economic assistant researcher |

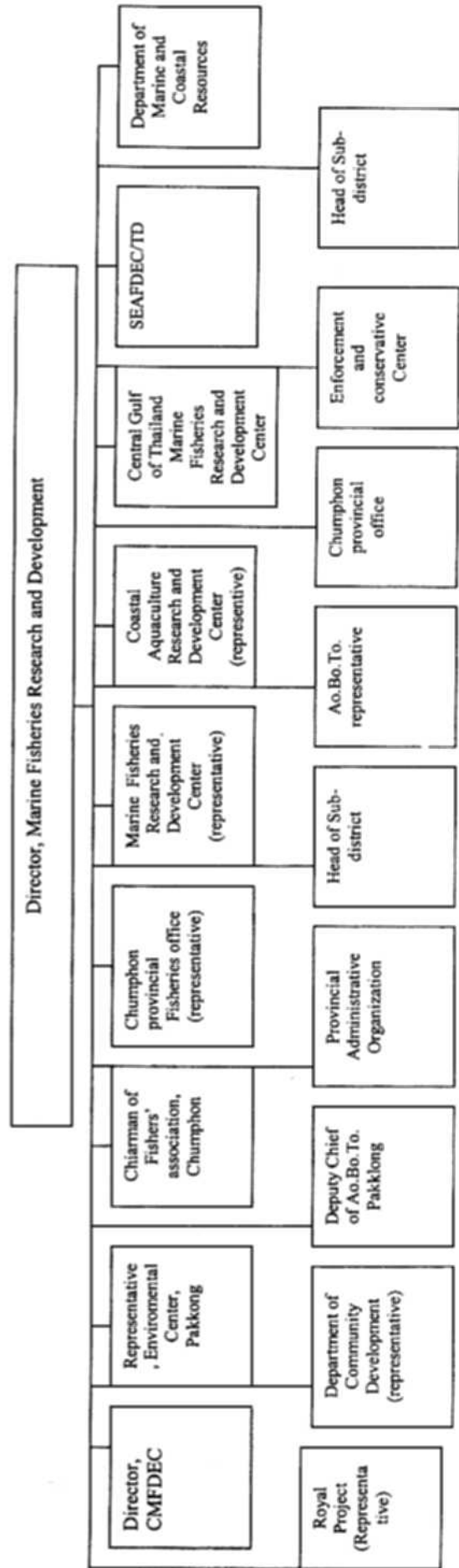
Department of Marine and Coastal Resources

- | | | |
|----|------------------------------|-------------------------------|
| 1. | Mr. Wannakait Tubtimsang | Director of Planning Division |
| 2. | Ms. Summana Kajornwattanakul | Biologist |

Steering Committee



Implementing Committee



**Report
on
Meeting on Action plan of LBCFM-PD in 2004
8 December 2003**

I. Venue - CMDEC, Chumporn

II. Lists of Participants:

Department of Fisheries:

1.	Mr. Rangsan Chayakul	Director of Marine Fisheries Institute
2.	Mr. Veera Boonraksa	Director of CMDEC
3.	Ms. Jinda Petchkamnerd	Biologist
4.	Ms. Nopparat Nasuchol	Biologist
5.	Ms. Pamornpan Chatpum	Biologist
6.	Mr. Wirote Kong-asa	Biologist
7.	Mr. Chumchoke Singharachai	Biologist
8.	Mr. Suwat Wongsuwat	Extension officer, Chumphon Provincial Office of Fisheries

SEAFDEC/TD

1.	Dr. Phattareeya Suanrattanachai	Socio-economic researcher
2.	Ms. Sumitra Ruangsivakul	Socio-economic researcher
3.	Mr. Kongpathai Saraphaivanich	Socio-economic assistance researcher
4.	Mr. Sukchai amuphapboon	Oceanographic assistance researcher

Department of Marine and Coastal Resources

1.	Mr. Wannakait Tubthimsang	Director of Planning Division
2.	Mr. Vudthichai Janekarn	Director of Marine and Coastal Resources Research Center/ Central Gulf of Thailand
3.	Mr. Vichai Somroop	Extension officer
4.	Ms. Summana Kajornwattanakul	Researcher
5.	Mr. Atichart Inthongkam	Researcher

III. Content of discussions

Agenda 1 Amendment of the report of the fourth regular meeting

All participants gave amendment on the draft report of the fourth regular meeting.

Agenda 2 Follow-up outcomes of the fourth regular meeting

- DOF concluded that the LBCFM-PD has been a project of the Royal project that continually allocated budget through the DOF to implement the project activities.
- 2 Local extension officer position proposed to be attached in the engineering structure of the Ao.Bo.To.

- The project staff and aoboto meeting planned to arrange again after the project staff had readiness of plan and discussing topics.
- The CMDEC informed that they did not ready to send technical paper for publish in year 2003, yet.
- Collaboration between the project with the Fishery Technological Development Division, the division very welcomed to join and give support, however, it should assign a coordinating officer to keep communication to progress the project.
- Mr. Suwat finished draft of fisheries laws, Mr. Rangsana recommended that the fisheries laws should be distributed to local people by animation. To do this, Mr. Kongpathai took responsibility to pick up a sample from him, later on.

Agenda 3 by sub-topics

1. Structure of Steering Committee (SC) and Implementing Committee (IC)

- At the SC level, the candidate member of SC comes from the Royal project was not deleted, because the DOF would take in charge to report to the Royal project Bureau.
- The SC committee should hold meeting at least once year.
- The CMDEC has taken responsibility to prepare any official letter to contact counterparts.
- The director of Pakklong primary school was candidated to be member of IC.
- The head of environmental study center was not candidated to be member of IC.
- The IC meeting should be arranged every three months.

2. Action Plan of the Year 2004 (see Annex I)

Activity I: Base Line Survey

Socio-economic field:

- Mr. Weera recommended the household survey should assess a change of fishing gear in the community both type and numbers.
- Mr. Wannakait added his recommendation that the survey should include a change of community and local resource base.
- Following-up the enlargement of collapsible crab trap mesh size, Mr. Weera recommended the comparison study between fishers engaged in enlarged mesh size of collapsible crab trap and fishers who are not.

- Following-up women's group work and activities, this would monitor progress work of the women's group, member's participation, income and economic status.
- Monitored fish-farmers engaged in fish cage culture focused on farm management and development.
- The CMDEC staff would bring the questionnaire to survey people's participation and economic status of the community. This questionnaire would be presented to SEAFDEC/TD staff to ask for more additional questions.

Oceanographic and environmental field:

- Mr. Wannakait recommended that training course on data collection should be arranged for local fishers to get their participation and also train them on how to use the data collection for self-resource management.
- Topics of oceanographic and environmental study was re-considered that should be more compact, simple and easy to understand.

Activity II: Encourage LBCFM

- all counterparts concerned, should participate in discussing how to build a syllabus of coastal resource rehabilitation and management for school children and demonstrate this syllabus in the class.

Activity III: Encourage Local Business

- Pakklong fair activity has been moved to implement under Activity V. Therefore, the study on fish processing has been moved to handle under Activity IV.

Activity IV: Enhance Human Resource Capacity Building and Participation

- Training course on group administrative management and marketing in year 2004 has target group are women's group in village no. 4 and village no. 6. This is to strengthen the groups' establishment.

Activity V: Develop extension methodologies and strengthen the extension system for sustainable use of coastal resources

- mangrove reforestation and beach cleaning activities have been moved to Activity VI.

3. Tentative plan for local seminar on the orientation of technical research and data analysis and the implementation and management of the LBCFM-PD project

- the CMDEC already provided a lump sum budget for the seminar arrangement and it informed that the excessive budget should be gotten assistance from SEAFDEC/TD.

- The local seminar on the orientation of technical research and data analysis would be held in June 2004, this is to disseminate results of the surveys and interpretation to public.
- The local seminar on the implementation and management of the LBCFM-PD project would be held in August, this is to report and disseminate outcomes of the project to public. Local fishers are main target group to participate in this seminar.

Format of the Project technical document publication

- Mr. Weera suggested that the technical document should collaborate between CMDEC and SEAFDEC/TD staffs to write a manuscript which should have both Thai and English versions. The CMDEC staff could use the paper for getting the promotion from the DOF.

Agenda IV others

- Mr. Kongpathai presented the draft of the project's leaflet which contents reported the outcomes of the two year project implementation. All participants amended the contents of the leaflets was reasonable to distribute to public.

**Report
on
Environmental Survey on Artificial Reefs in Chumporn Province
Dr. Yuttana Theparoonrat
Head, Training Division**

TD in collaboration with ASEAN and SEAFDEC member countries conducted Resources Enhancement project in Chumporn province, Thailand as a case study. This project is designed to integrated installation of artificial habitats in inshore waters with careful pre-assessment of environmental and socio-economic impact.

Department of Fisheries, Thailand proposed to install artificial reefs at Chumporn province on March 2004. Two group of cubic shape concrete type, 1.5x1.5x1.5m, total 1750 pieces, will be installed on the project area number 46-16-07 and 46-16-08. The artificial reefs will be settled at 12m depth with area cover was 2 km².

Fisheries Department of Thailand Artificial Reefs Project for 2003

Project Number: 46-16-07

Locaton: Moo 2, Banborsamrong, Pakklong Village, Pratew Districk, Chumporn Province,

Area: 1.0 x 1.0 kilometer

Water Depth: 11.0 - 16.0 meter

Bottom: Muddy sand

Dist. From Shore: 4.9 - 5.8 kilometer

Material: Concrete 1.5 x 1.5 x 1.5 meter, 875 pieces

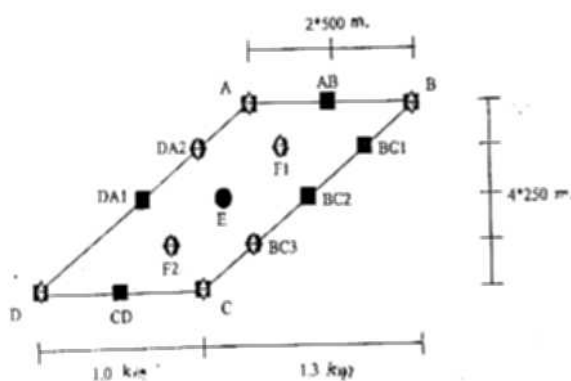
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C. Lat. 10 - 48.50 N, Long. 99 - 28.70 E

D. Lat. 10 - 48.50 N, Long. 99 - 28.20 E

Budget: 3,000,000.- Baht



- Group of 40 pieces, Total 360 pieces
- ◆ Group of 100 pieces, Total 400 pieces
- Group of 115 pieces, Total 115 pieces
- ◆ Mark Buoy, Total 8 pieces

Fig. 1. Layout of artificial reefs setting at area number 46-16-07

Project Number: 46-16-08

Location: Moo 6, Bonrai, Pakklong Village, Pratew District, Chumporn Province,
Area: 0.5 x 2.0 kilometer
Water Depth: 9.5 - 11.0 meter
Bottom: Muddy sand
Dist. From Shore: 3.0 - 4.5 kilometer
Material: Concrete 1.5 x 1.5 x 1.5 meter, 875 pieces
Position: A. Lat. 10 - 48.20 N, Long. 99 - 28.05 E
 B. Lat. 10 - 48.20 N, Long. 99 - 28.30 E
 C. Lat. 10 - 47.20 N, Long. 99 - 27.00 E
 D. Lat. 10 - 47.20 N, Long. 99 - 26.75 E

Budget: 3,000,000.- Baht

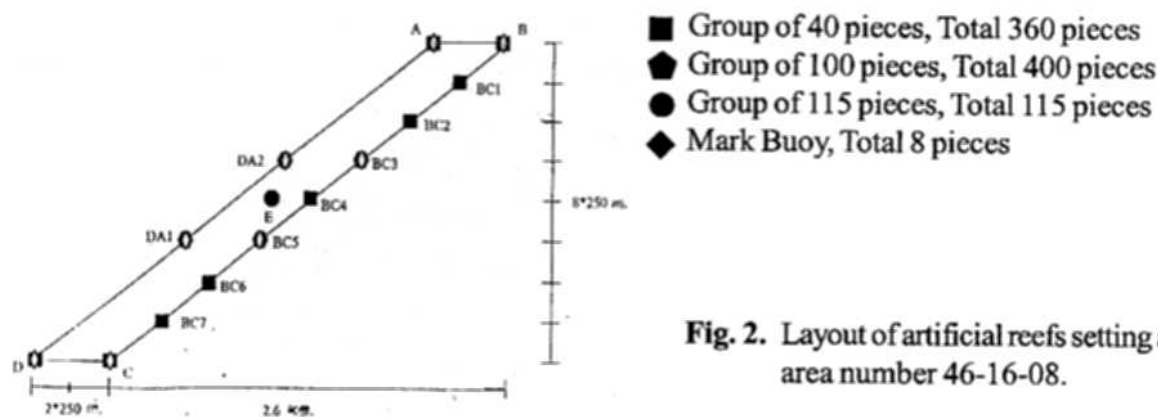


Fig. 2. Layout of artificial reefs setting at area number 46-16-08.

SEAFDEC Training Department conducted the environmental survey studies at the artificial reefs installation site at Pratew district, Chumporn province, Thailand during 16 - 24 November 2003. The survey was carried out by M.V.Plalung, 35 gross tons wooden boat. Several fisheries environmental parameters were studied as follows,

1. Fishing Operation Survey

1.1 Fish Trap Fishing Operation

Fish traps with dimension of 90Wx190Lx60H cm, PE net webbing mesh size 6.5 cm, wooden frame diameter 3.5 cm, entrance wire mesh #3.5 cm, were individual setting around the artificial reefs project site where water depth was 12 m. The 6 pieces of fish trap were fixed at bottom from 18 to 22 November 2003. The fish caught were collected for species identification after 5 days of fishing operation.

1.2 Squid Trap Fishing Operation

Squid traps with dimension of 85Wx110Lx70H cm, PE net webbing mesh size 5.5 cm, wooden frame diameter 2.5 cm, were individual setting around the artificial reefs project site where water depth was 12 m. The 12 pieces of squid trap were hung on the buoy line at 3 meter below water surface. The fishing operations were conducted from 18 to 21 November 2003. The squid caught were collected every day for species identification and size composition study.

1.3 Bottom Gill net (Trammel net) Fishing Operation

Bottom trammel net with inner webbing mesh size 4.5 cm, and 26 cm for outer net, were setting around the artificial reefs project site where water depth was 12 m. The height of net is 2.4m and 35 m long. The 15 pieces (total length 525 m) of joining continuous net were set fixing at bottom by anchor at both ends. The fishing operations were conducted from 18 to 21 November 2003. The net soaking period is 15 hours cover on the nigh time operation. The fish caught were collected, species identification, size and weight measurement were performed.

1.4 Collapsible Crap Trap Fishing Operation

Collapsible crap trap with dimension of 38Wx54Lx18H cm, PE net webbing mesh size 3 cm, iron frame diameter 4mm, were joining continuous setting around the artificial reefs project site where water depth is 12 m. The 80 pieces of crab trap were set by long-line fishing operation pattern fixed at bottom from 18 to 21 November 2003. The trap soaking period is 15 hours cover on the nigh time operation. The crab caught were collected, species identification, size and weight measurement were performed.

2. Benthose Survey

The survey stations for benthose were set at 0m, 250m, 500m, and 750m, in the direction of N,S,E, and W, away from the center position of each Artificial Reefs setting position. Total benthose samplings are 22 stations. At each station a random samplings of bottom sediment was collected using a Smith-McIntyre grab (area coverage 0.05 m²). The sediment was washed through a set of sieves, the smallest one with a mesh size of 0.5 mm. Benthic animal were collected and fixed in 10% formaldehyde solution in sea water on board. The preserved macrobenthic fauna were brought to laboratory for further identification.

3. Fish Larvae Survey

Sampling for fish larvae was carried out using M.V.PLALUNG on 19 November 2003. The bongo net, 60 cm. in diameter with mesh size 500 micron at the mouth part and 330 micron at the cod end, was employed for the horizontal haul. The net was towed at 1 meter below the surface with speed of 2 knots for 30 min. A flow meter was attached to the mouth of the net. Specimens were preserved in 10% formalin/sea water mixture immediately after a haul completed. Sorting and identification were done at the laboratory.

4. Phyto-Plankton Survey

The phyto-plankton samples were collected from water sampler at 1 m below the sea surface. Fifty liters of water samples were filtered through a phyto-plankton net (20 ?m mesh size) and preserved in a 10% formalin/sea water mixture. The samples were concentrated by sedimentation. Cell count and identification were conducted in laboratory.

5. Zoo Plankton survey

Sampling for zoo-plankton was carried out using M.V.PLALUNG on 19 November 2003. The bongo net, 60 cm. in diameter with mesh size 300 micron was employed for the horizontal haul. The net was towed at 1 meter below the surface with speed of 2 knots for 30 min. A flow meter was attached to the

mouth of the net. Specimens were preserved in 10% formalin/sea water mix immediately after a haul completed. Sorting and identification was done at the laboratory.

6. Water Current Measurement

The water current observation was conducted by using Acoustic Doppler Current Profilers (ADCP). The ADCP unit was face-up setting at the sea bottom. The measurement was carried out at the center position of artificial reefs No. 46-16-08 setting position. The water depth is 12 m. The current speed and direction were recorded at 10 minutes interval for 24 hours. The measurement was conducted from 1300 hours of 19 November to 1500 hours of 20 November 2003. The recorded data will be analyzed for water circulation pattern in the area.

**Work Plan for Environmental Survey Studies on Artificial Reefs at
Chumporn, Thailand, 16-22 November 2003**

16 November 2003, (Sun.)

1000 hrs. : Plalung leave SEAFDEC/TD for Chumporn

17 November 2003, (Mon.)

1500 hrs. : Plalung arrive Chumporn

18 November 2003, (Tue.)

0800 hrs. : Researchers embark Plalung
 0900 hrs. : Fish trap and Squid trap shooting
 1000 hrs. : Trammel net shooting, Station 1
 1100 hrs. : Collapsible crab trap shooting, Station 1
 1300 hrs. : Equipment setup and calibration
 1700 hrs. : Researchers dis-embark Plalung

19 November 2003, (Wed.)

0800 hrs. : Researchers embark Plalung
 0900 hrs. : Hauling squid trap
 1000 hrs. : Hauling Collapsible crab trap
 1100 hrs. : Hauling Trammel net
 1300 hrs. : Oceanographic survey, Station 1 - 5
 - Bongo net
 - Dropper current indicator
 - Phyto & Zooplankton
 1600 hrs. : Trammel net shooting, Station 2
 1630 hrs. : Collapsible crab trap shooting, Station 2
 1800 - 2400 hrs. : Hand line fishing operation

20 November 2003, (Thu.)

0900 hrs. : Hauling squid trap
 1000 hrs. : Hauling Collapsible crab trap
 110 hrs. : Hauling Trammel net
 1300 hrs. : Oceanographic survey Smit McIntype Grap
 1630 hrs. : Collapsible crab trap shooting, Station 3
 1700 hrs. : Researchers dis-embark Plalung

21 November 2003, (Fri.)

0800 hrs. : Researchers embark Plalung
 0900 hrs. : Hauling squid trap
 1000 hrs. : Hauling Collapsible crab trap
 1100 hrs. : Hauling Trammel net
 1300 - 1600 hrs. : Hand line fishing operation
 1700 hrs. : Researchers dis-embark Plalung

22 November 2003, (Sat.)

0800 hrs. : Researchers embark Plalung
0900 hrs. : Hydro acoustic survey
1500 hrs. : Hauling Fish trap
1700 hrs. : Researchers dis-embark Plalung

23 November 2003, (Sun.)

0800 hrs. : Plalung leave Chumporn for SEAFDEC/TD

24 November 2003, (Mon.)

1000 hrs. : Arrive SEAFDEC/TD

