

**Past, Present and Future of Project Activity of LBCRM-PD:
Summary of Quarterly Reports**

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ABSTRACT

The Locally Based Coastal Resource Management in Pathew District (LBCRM-PD) project is a collaborative project which implemented by Department of Fisheries, Thailand, SEAFDEC/Training Department and Royal Project Bureau. The conceptual framework of the LBCRM-PD project adopted effective application and concept from two former coastal resource management pilot projects that implemented in Bangsaphan noi District, Prachuab Kirikhan Province and Phangnga Bay, Phangnga Province. Gained experience and lesson learned from the two pilot projects pin-pointed that success of the pilot project implementation relied mainly on local people's participation, enactment of enforceable laws or regulations. Thus, the implementations of the LBCRM-PD project designs an action plan to approach local people to participate in the project implementation and all activities that often arranged by the local government unit. The participation between local people and local government officers are key strategy to handle the project to reach promoting applicable type of locally based coastal resource management.

Keywords: LBCRM-PD, pilot project, local government unit, local people's participation

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I. THE OBJECTIVES OF THIS PAPER

- 1) The main objectives of this paper is to describe briefly the on-going process of LBCRM-PD activities. Other technical papers will give analytical explanations on each component of this project. Referring to the experiences of the past and present activities, the last part of the paper will provide suggestions and recommendation on the future direction of the LBCRM-PD activities.
- 2) The project consists of six main activities, i.e. 1) A Base line survey (Activity I), 2) To encourage and extend locally based coastal resource management (Activity II), 3) To encourage local businesses (Activity III), 4) To enhance human resource capability and participation (Activity IV), 5) To develop extension methodologies and strengthen the extension system (Activity V), 6) To rehabilitate and enhance coastal resource (Activity 6) (refer to the Project Proposal for LBCRM-PD).
- 3) The duration of this project is five years, divided into two phases. The first phase focuses mainly on the activities of a base line survey and training matters with a campaign for enhancing awareness building. Activities I, IV and V are at the core of the activities. Rehabilitation activities will be started in the first phase. During the second phase, the project concentrates on the establishment and functioning of a management framework and the promotion of alternative job opportunities.
- 4) During the first year of Phase I, the LBCRM-PD has involved mainly the planning for LBCRM-PD, a series of base line surveys, education and training matters. The major focal points of each quarter period are as follows;

II. SUCCESSIVE PROCESSES OF THE ACTIVITIES

1. Quarter I: October to December 2001

1. Making a project proposal and describing the annual plan for 2002 was the most important work, with a budget allocation, for three months of this quarter. According to discussions so far, members of the TD working group and DOF staff agreement was reached on finalizing a proposal and submitting it officially to the DOF and TD, on October 5, 2001. The working group began to make an annual plan for 2002. The DOF approved the project proposal on November 9th, and then asked officially that SEAFDEC/TD should collaborate together with DOF. The Secretary General/Chief of Training Department gave his approval for the implementation of this project under the Fisheries Consultative Group (FCG) Mechanism on the same day. The Deputy Secretary- General (DSG), who is the financial controller of the "Japanese Trust Fund", also approved the budget allocation plan for coverage of the activities within 2001. After this, working members of the TD and DOF staff in charge continued to prepare to implement the project activities, while communicating with the people in Tambol Pakklong.
2. At this stage of preparation, the implementing group (IC) started preparations for the actual implementation of the project. At the internal meetings, three topics were discussed in depth. The first concerned how to extend the project goals and objectives to the people at the project site. This is because the procedures and methods to make a project proposal were not adequate enough to match the demands coming from the local people and their organizations in Tambol Pakklong. It was necessary to rapidly propose a tentative project proposal. The second topic was how to enhance public awareness of the importance of the sustainable use of fisheries resources. The third topic concerned capacity building of all personnel concerned with the project, including the staff of TD, the officers of DOF (CMDEC, Provincial Office and District Office), Pakklong Sub-District Administrative Organization (Ao.Bo.To)'s leaders, and community leaders. Through the discussions thus far, members of the IC have achieved a consensus on strategies to adopt the participatory approach.
3. Most of the project activities were involved in making the project proposal with a budget allocation,

and in preparing for the project activities during the following quarter.

1.1 Activity I

Preparation for the surveys: A series of preparations for regular surveys were undertaken by TD staff in collaboration with researchers of the Chumporn Marine Fisheries Research and Development Center (CMDEC). Planning and designs for the surveys were major concerns. Socio-economic indicators of regular surveys were set up. Oceanography and environmental surveys were designed and made with a budget allocation plan. Questions were arranged and examined for the pre-test survey that would be held in the next quarter. Basic information and data concerning geographical and Socio-economic conditions of the project site were collected.

1.2 Activity IV

Preparations for leader training: The Training Division of CMDEC was involved in the preparation of training and education activities that were supposed to be held during the next quarter, these included “Development of Community-Based Fisheries Management” and. “Development of Cooperative Businesses” (A seminar organized by ZENGYOREN and CLT).

A study trip to the Philippines: Between 2nd-7th December, 2001, four staff from TD and four DOF officially went to the Philippines to observe the coastal resource management projects on Panay Island and the framework of decentralized fisheries management. Participants in this trip enhanced their own awareness of the importance of public participation in coastal resource management and recognized that local government units have a vital role in coastal fisheries management.

Assistance to a school reforestation project: Thungmaha School had a plan to undertake a mangrove reforestation project in collaboration with local NGOs. TD provided financial assistance for the school’s activities so that more students could join the reforestation project. Through this assistance, members of the IC established close links with the school teachers and local mangrove reforestation groups that might become supporters of the project activities. The staff had a good opportunity to join environmental education programs.

1.3 Activity V

Advertising Campaigns: The planned advertising campaign had two objectives; 1) to extend the project goals and objectives while encouraging the public to join it, 2) to enhance awareness on the sustainable use of coastal resources. The first poster concerned mangrove reforestation with pictures of Thungmaha School’s reforestation activities. However, since the Proclamation of a Demarcated Zone was in process at the Ministry of Agriculture and Co-operative, The printing of another poster was delayed (This poster was printed and delivered in September 2002).

2. Quarter II: January to March, 2002

4. The project had begun with the planned activities on a full-scale basis since January 2002. The main objective of this quarter was to disseminate the concept and framework of Locally Based Coastal Resource Management (LBCRM) and to conduct a series of training programs targeting community leaders. Another objective was to test a regular survey plan and develop questionnaire methodologies as regards both the oceanographic and socio-economic aspects.

5. With reference to the management and administrative aspects, the project faced minor constraints, and had to solve them as soon as possible. The constraints came mainly from the lack of coordination



among implementing agencies. A number of implementing agencies joined the project, more than were expected; so, there should have been a well-defined sharing of responsibility not only between implementing agencies, but also between those staff members who were involved in the project's activities. In the earlier stages of the project planning and implementation, not much attention was paid to how to effectively implement the activities that were in process. In the process of preparing and starting the project, new members and agencies joined the project, thereby diversifying its activities. Accordingly, we came to recognize that it was necessary to propose a team-based structure plan for the project management.

6. Most of activities in this quarter were concerned with surveys, educational and training matters.

2.1 Activity I

1) The Socio-Economic Survey

Pre-survey: A pre-survey to get a true picture of coastal fisheries operations and illustrate the socio-economic conditions of fishers and their family members was conducted from 7th to 11th January 2002, at six target Moobaans. The socio-economic group set up four objectives, i.e., 1) to identify physical, socio-economic, environmental conditions, 2) to identify common problems, capacity building of the people and their participation into community development, 3) to identify opportunities for employment for the people, 4) to identify how fishers and the people utilize fisheries resources through fishing production and distribution. This information and data collection will be analyzed in depth, illustrating the overviews of fisheries and fisheries-related activities at the project site.

The Squid and anchovy fisheries survey: During the period from 25th February to 1st March, the socio-economic survey group tried to get information on squid and anchovy fisheries operations. These fisheries are very important in economic terms, as their ripple effects on the local economy are very large through having contributed to the improvement of production and living conditions. This survey focused mainly on the sites of investment and producing conditions.

Marketing survey: On 27th-29th March, a senior researcher from the DOF initiated this particular topic survey on the processing and marketing of fisheries products. The researcher and the project staff interviewed processors and fish traders, including fish agents called "Phe Pla". The food chain and system of anchovy and squid would be traced, through both production and marketing surveys.

People's group and community-based arrangement survey: The actual situation of people's groups was also an important survey topic. Some members of the socio-economic survey group started to investigate this, to propose how to develop "cooperation among the people".

2) The Oceanographic, Environmental and Landing Survey

Started regular surveys: The oceanographic and environmental surveys began in January using fishing vessels. Staff from both TD and CMDEC cooperated to conduct a series of regular investigations and data collections three times during this period. The data and samples collected were concerned with water quality, temperature, salinity, dissolved oxygen, nutrient and total bacteria count etc., water current and marine resource samples (zooplankton, fish larvae and benthos). Twelve fixed stations were selected within the demarcated fishing zones to collect data and samples on a regular basis.

Mapping: Mapping of fishing grounds, fishing gear employed, and utilization activity of coastal resources were conducted. From 26th February to 1st March, the survey team members mapped the positions and areas of fish cage cultures, shrimp farms, green mussel farms, and mangrove

areas. Illustrating coastal resource maps of various types and forms, the team would show the current environmental and resource conditions of the project sites to fishers and resource users.

The landing surveys: The landing survey group started a regular monthly sampling at the project site. Major small-scale types of fishing gear like crab gill nets, shrimp trammel nets, and fish gill nets, were targeted. Besides catch data and sampling, the group obtained useful information including fishing grounds, size and types of fishing gear through interviews with fishers.

2.2 Activity III

A demonstration of Fish Processing by A Women's Group: Encouragement of local business has developed since TD arranged a training program that leaders of women's groups would join. This program was to support them to participate in a seminar that was concerned with cooperative business. The women also observed an active fisher's group in Rayong Province, producing fisheries products and marketing them under favorable conditions. On 1st March, the women demonstrated fish processing to other members of the women's group, extending their experiences. They experimented with different kinds of value added products, and sent them to local markets. In various ways TD supported the women's fish processing, and the DOF provided technical advise.

2.3 Activity IV

The project planned three kinds of training course during these three months.

Staff Training: The "Project Cycle Management (PCM)" approach was a topic of a training course, to develop the capacity building of the project staff and the DOF officers taking charge of the project. On 13th-15th March, the CMDEC invited an instructor (who worked for the Department of Technical & Economic Cooperation, Office of the Prime Minister; DTEC). 9 TD staff, 10 CMDEC staff and another 7 DOF officers took this incentive course and learned about the planning and operation process of projects with a participatory approach.

Another topic of staff training was on "Community Development in Pathew District" (on 26th March). At the project site, there have been many different types of community development project so far, which have been planned and implemented by different government-based agencies. It was necessary to know exactly a policy framework for community development and understand the organization and activity of people's groups supported by various agencies.

Training Courses Targeting Leaders: A series of training courses targeted Moobaan leaders, group leaders, women's leaders, and council members of Tambol Pakklong Administrative Organization (Ao.Bo.To.). Consonant with the core components of the project's activities, the subjects of the training courses were related to Activities II and III.

Training on Coastal Resource Management

On 14th-18th January, the project organized a course with the title "Community-Based Fisheries Management" at the CMDEC. This course was divided into two parts. The first part consisted of lectures and discussions on the theoretical and practical frameworks of coastal resource management and encouraged participants to present their thoughts on the current situation of coastal fisheries. Then, On 16-18 January, TD, the CMDEC and the DOF staff and trainees left for Phuket Province, and visited the Andaman Sea Fisheries Development Center (DOF). The trainees observed 3 villages in Phannga Province, where they and local fishers exchanged experiences and opinions. In Krabi Province, the Head of Tambol Baan Khao-Thong explained their own system of managing traditional territorial waters and monitoring



their areas on a voluntary basis. Trainees were local leaders like Ao.Bo.To council members, a head of a Sub-district (Kamnan), and heads of Moobaan (Phuyai Baan).

Training Courses Related to III

A women's group was encouraged to develop fish processing activities by using abundant local resources including anchovy and squid. Giving incentives to the leaders through training courses has encouraged a start of fish processing activities in cooperative ways. On January 22nd, a staff member of TD guided an observation trip to Rayong Province, inviting 6 women at the project site and two DOF officials in Chumporn Province. They visited Baan Pala Fisheries Group whose members were involved in a value added production project. Trainees learned techniques of small-scale processing, and obtained information on cooperative marketing and managerial skills for group activities. Between 22nd-25th January, they also joined a seminar with the title "Business Development of Fisheries Cooperatives in Thailand". This was organized by the National Fisheries Cooperatives of Japan (Zengyoren) and the Cooperative League of Thailand (CLT). The main topics of the seminar were on fisheries cooperatives development in Thailand, fish markets and useful experiences in other countries.

2.4 Activity V

Posters and notebooks: TD planned a series of poster campaigns and printed a poster on mangrove reforestation. In collaboration with community leaders, NGOs, schoolteachers, and fishers, TD and CMDEC staff distributed more than 200 copies to every Moobaan. TD produced notebooks for the campaign of mangrove reforestation. When TD and CMDEC staff joined environmental educational programs at the primary schools of Tambol Pakklong, these notebooks were distributed to the school children (during February 28th to March 1st). In the classrooms, the staff simply explained the importance of coastal fisheries resources and the purpose of the project activities.

Videos on Fish Processing: TD audiovisual section recorded a video on fish processing activities conducted by a women group in Tambol Ban Pasae, Rayong Province. A TD staff member and a DOF officers put together a scenario, and delivered the videotapes to members of the women's groups in Tambol Pakklong. This tape has been used as a practical textbook for fish processing.

3. Quarter III: April to June, 2002

7. During this quarterly period, the project had two major focal points. The first was the implementation of on-site training courses. The second was the socio-economic survey adopting a simple census approach. Both activities were long and complex and took some time to prepare and carry out.

8. A series of on-site training courses were designed and planned passing through the following procedures. Prior to the design and planning for this training, the project had a special training program targeting its staff and local government officers in charge of local fisheries management. Participants were trained in, and practiced, how to undertake on-site training programs to encourage people's participation in the project activities. The primary purposes of the on-site training courses were to disseminate the basic concept and framework of the project activities and to find solutions to problems as regards coastal resource management and community development. Through the processes of preparation and implementation, the project staff learned many things, including the people's attitude toward resource utilization, and their demand for community development.

9. Another focal point of the project activities was a basic household survey in all Moobaans. The socio-economic survey group proposed to conduct this survey to gain an overview of the agro-based society in Tambol Pakklong. Such basic data on household, occupation and ownership of fishing devices

would outline the socio-economic surroundings of all Moobaans, and represent basic figures upon which any future research and monitoring activities could rely. It took much more time to plan and implement this survey than was expected, because of a lack of the basic information and data including maps in the Tambol.

10. The details of the activities are as follows:

3.1 Activity I

1) Socio-Economic Survey

Data input and analysis: While conducting additional interviews and obtaining supplemental figures, members of the survey were involved in data input and analysis that its members had accumulated. As regards the results of the pre-survey, some members have continued to analyze the figures and make an analytical description. The tables and figures were distributed to the project staff for reference. A marketing system survey of anchovy and squid went into a final stage of analysis and description.

Household survey: A household survey was planned for all Moobaans. This had the objective of obtaining the most basic data on households. The figures of the Marine Fisheries Census (1995) were too old to indicate the present situation of fishing households. To illustrate an accurate picture of fishing households, the necessity of a household survey was realized and it was planned to adopt simple questionnaires as a survey instrument. All households including agricultural, fisheries and other occupation households were interviewed. The simple questionnaire sheets included fishing and its related income sources, land property and so on. In collaboration with the local people the socio-economic survey group mapped all the households including the non-registered ones. The maps would be a valuable resource to identify changes in social and economic surroundings.

2) The Oceanographic, Environmental and Landing Surveys

Rearranged regular surveys: the oceanographic surveys were rearranged to regular sampling that would be conducted once every two months. On the advice of a senior researcher of the DOF, an estimate on the carrying capacity of fish cage culture in the front of Moobaan 7 started.

Data collection: Landing surveys were conducted on a monthly basis. The surveys collected information on fishing grounds and the size and types of fishing gear used. The landing survey team was also responsible for mapping the fishing groups, the fishing gear employed, and resource utilization at the project site. Both landing and mapping information provided basic information for all project staff, even if the final result of survey was not published.

3.2 Activity II

Strengthening the Ties with the Local People: In the process of preparing a series of on-site training courses, household surveys, and other project activities, members of the extension team supported other team members. Through discussions with fishers, resource users and the people, the team very well understood the current situation of coastal fisheries, and gained enhanced knowledge about the problems and conflicts that coastal fisheries face. The members of the extension team encouraged fishers and resource users to join the training programs.

The Plan for Management Activities: The Extension Team began to put together three types of management activities. The first was to formulate rules on the cage culture in front of the Moobaan. The people are increasingly interested in fish cage culture, but adequate areas for fish cage



cultures are scarce at the project site. There should be adjustments and coordination among aquaculturalists, and between them and the fishers who may use the preserved areas for fishing operations. On 25th-26th June, the CMDEC arranged a training course concerning fish cage culture. A second was on the management of shellfish culture. Those fishers living in Moobaan Nos.6 and 1 established a new group for shellfish culture and raised a demand for financial support from the Provincial Government to purchase bamboo stakes. There should be coordination between shellfish culture and fish cage culture, as their fishing grounds overlap. Thirdly, crab trap fishery was a target for discussion. They have exploited crab resources and now face a reduction in the resources. The Research Team provided basic information and background about the fisheries.

3.3 Activity III

Impact of training activities: On 23rd-24th May, a training course was set up by the CMDEC, inviting trainers from the DOF. This course was conducted twice, once each in Moobaans Nos.1 and 3. It successfully gave great incentive to the participants. The number of women who were interested in fish processing steadily increased. Immediately after the training course, more than 20 members established a new group for women with its membership being only from Moobaan No.7. The group attempts to exploit marketable products that use the local raw materials effectively.

Development of the Processing Business: In Moobaan No.1, the women's group successfully expanded the scale of production and strenuously marketed its products through provincial and nationwide networks. The group was often invited to join festivals and sell their products. Members tried to create new marketable products and test them during the festivals. They paid great attention to packing and the quality control of the products. The group opened a permanent store close to the pier. The operation of the store has become the core of women's activities, by advertising their cooperative activities to the local people.

3.4 Activity IV

Mobile Training Courses: Between 22nd – 26th April 2002, the project staff from the CMDEC and TD arranged a mobile training course at five sites. The purposes of this course were to disseminate the concept of the LBCRM-PD, and to discuss the current situation and problems of coastal fisheries and steer the direction of the project activities.

Selection of sites: The project staff had to select training sites through consultation with the leaders of fishers' groups and Moobaans, considering the geographic distance and people's intimacy. The project organized one training course for Moobaans Nos.1 and 6, although the number of participants reached 68 persons, which was more than those in other Moobaans. In Moobaan No.2, the number of participants was no more than 40 persons, as most of fishers were engaged both in agriculture and fisheries. In Moobaan No.5, the project staff targeted not only the fishers living there, but also other stakeholders who lived in neighboring Moobaans in Prachuab Khiri Kan Province and fished in the sea in the front of the project site. Considering the specific local surroundings, it was decided to set up a training course in a neighboring Moobaan. This was a correct decision, as 56 fishers joined the course and exchanged opinions. In Moobaan No.7, the number of participants was 35.

Training for cage culture: Between 25th -26th June 2002, the CMDEC arranged a training course for fish cage culture. The course had the objective to disseminate modern, production and environmentally friendly technology to fishers who are presently, and in the near future will be, engaged in cage culture. The main culture grounds will be in the sea in front of Moobaan No.7. The number of participants was 35, coming from the whole area of Tambol. At the end of the training course, the participants agreed to establish a group whose membership consists of aquaculturalists

only. The group would have the function of coordination and adjustment.

Training for fish processing (I): Between 27th – 29th May 2002, the CMDEC and TD conducted training courses on fish processing technology, targeting the women in fishing households. The project prepared two sites for training: Moobaans Nos.1 and 3. There were 37 and 30 participants, respectively. The course held on 29th May focused on the packaging and marketing aspects. The 35 participants were impressed with the cost-effective packing methods.

Training for fish processing (II): On 23rd-24th June 2002, the Fish Processing Training Course, Phase II, was undertaken, to accommodate the requests from the participants in Moobaans Nos.1, 3, 6 and 7. The DOF staff demonstrated many different kinds of product and the participants tried to make new ones. There were two sites for this course. The total number of participants was 49. By participating in this course, more than 20 women established a new group extending its membership over their Moobaan.

3.5 Activity VI

Brochures: TD made and printed a LBCRM-PD brochure for effective advertising. It included the introduction, objectives and activities of the project. The demarcated zones map was also included. The project staff distributed more than 500 copies to all Moobaans and those who were related to the project. This brochure was used as the text for the mobile training course held in April.

Textbook Outlines of the Project Proposal: a Thai version of the proposal for LBCRM-PD planning was published. It was distributed to Moobaan leaders, Ao.Bo.To leaders, and all the related government agencies. The book defines the background, objectives, target groups, designed activities, of the first year plan and the five-year plan.

TD staff drew up and opened an LBCRM-PD homepage. This homepage gives the outlines of the project purposes, designed activities, and implemented activities with many photographs and figures. It is on the SEAFDEC/TD website at <http://td.seafdec.org/Locally-based/index.html>

4. Quarter IV: July to September, 2002

11. During this quarter, the LBCRM-PD focused on the following four points. Firstly, the project encouraged fishers and resource users to discuss the establishment of zoning to be reserved for fish cages and shellfish culture. Secondly, the Survey Team undertook the analysis and description of the survey results. Some of the scientific figures and data must be disclosed as quickly as possible, for the reference of the zoning activities. The Local Business and the Training Teams also began to make progress reports on their activities.

12. Thirdly, a series of campaign programs were planned and implemented, including preparations for publishing the research, a newsletter and posters. Fourthly, the project staff arranged two types of meeting. One was an on-site workshop, and the other was a seminar targeting local government officers and leaders of sub-district administrative organizations (Ao.Bo.To.). In the next quarter, the project activities would place greater emphasis on submitting the survey results and the outcomes of the project activities. The preparations for this have started in this quarter.

13. The content of the project activities are as follows:

4.1 Activity I

1) Socio-Economic Survey



Household Survey in Tambol Pakklong: In the previous period, the household survey was conducted. During this quarter, the survey group conducted supplementary surveys from 30th June to 4th July, to get accurate data. In Tambol Pakklong, there are a number of households that are non-registered. Various forms of extended family exist, which is not amenable to correct grouping.

Preparations for surveys on crab trap and crab gill net fisheries: On 23rd -26th September, the socio-economic group conducted interviews on crab fisheries. According to the pre-survey, a large number of small-scale fishers engage in the operation of traps and gill nets for catching crab. Besides the shrimp trammel net fishery, crab fishery provides an important income source for the fishers. Collapsible crab traps are covered with fine mesh nets that catch smaller sized crabs. The mesh size has become smaller and smaller, which causes conflict with the fishers who employ crab gill nets. The marketing channels of fresh crab and crab meats were illustrated, by analyzing the economic incentives given to increase production capacity of the crab fisheries. Linked to the landing and fishing ground survey, the socio-economic group plans to interview fishers and propose an applicable management method.

2) Oceanographic, Environmental and Landing Surveys

Resource utilization map: Regular survey was continued. The highlight of the survey, during the period of this quarter, was the preparation of resource utilization maps for aquaculture zoning. Advised by the Extension Team and the socio-economic survey group, the oceanographic and landing survey group concentrated its efforts on drawing maps showing the locations of fish cage and shellfish cultures. Using these maps, fishers and resource users have started a discussion on aquaculture zoning. Before reaching a consensus about the zoning in the Moobaans, the simply illustrated maps were distributed to fish farmers, fishers and leaders of the Moobaans. Prior to setting up a meeting at Tambol level, they exchanged opinions on aquaculture zoning at Moobaan level by referring to the maps.

3) Publishing reports and passing the survey results to the people

The Survey Team began preparations for publishing a number of survey reports. All fields and subjects of regular and topic survey activities should be given to the people and local communities. The members made a plan for publishing reports. As of the end of September, six reports were published were in the process of being published. The contents of all scientific reports contain the fullest amount of scientific data and information. To pass and disseminate them to the people and local communities at the project site, members of the Survey Team must simplify the reports and describe the essentials and summaries in Thai. All project staff were making the plans like leaflets, mobile exhibition boards, and on-site workshops.

4.2 Activity II

1) Zoning Plans for Fish Cage Culture and Shellfish Culture

Urgent need: The number of fish culture cages has increased since last year. The fish farmers who have already constructed cage frameworks occupy a wider sea area than they actually need. Several fishers just reserve areas for future cage culture using wooden stakes. The possible areas for fish cage and shellfish cage cultures are limited to the area in front of Iang Island. There is no adjustment and coordination between resource users (including fish farmers and fishers). None register at the Pathew District Office of Fisheries. The first-come-first-served principle works even in aquaculture, too.

Achieved consensus: The Provincial Office of Fisheries (members of the Extension Team) arranged

meetings for the making of rules on managing aquaculture. The people in Moobaans Nos. 1 and 6 gathered together on 19th August. They decided to propose to alter the present regulation for shellfish culture into that for aquaculture, to expand areas reserved for both cultures, and so on. They intimated that they would need 600 rais for shellfish culture and 300 rais for fish cage culture. They stressed that the demarcated zones for shellfish culture and fish cage cultures should be separated. On 29th August, participants from Moobaans Nos.2, 3, 5 and 7 also agreed to amend the present regulations issued in 1984. A provincial officer gave a detailed explanation of the 400 rais for shellfish culture. No fish cage culture is allowed in this demarcated zone. They should first obtain agreement to change the title of the regulation and request the DOF local offices to announce a new regulation for aquaculture. At both meetings, all participants agreed to select five representatives from each Moobaan to be in charge of putting together a plan of demarcation and have a Tambol-level meeting at the next stage.

Preparations for the next meetings: All project staff recognize that the demarcation of the aquaculture zone is good experience, not only for local resource users, but also for themselves. While exchanging opinions about appropriate decision-making processes with the people and leaders of the Tambol, the Extension Team proposed a step-by-step procedure for obtaining a consensus. The project staff and the DOF local officers provided the necessary information, for them to make an accurate decision. Moobaan administrative organizations have a decisive role in arranging meetings.

Final agreement: Through several stages of discussion at Moobaan and Tambol levels, more than 60 persons joined a Tambol-level meeting on 26th September. The representatives of the Moobaans first explained the results of the discussions and gave comments on what problems they would face arising from aquaculture zoning. They agreed to demarcate zones for fish cage and shellfish cultures. However, many of them claimed that some fish farmers constructed cage frameworks in the areas where a number of fishing boats would anchor during the monsoon season. They would resolve that three fish farmers should remove their obstructive frames. A decision on that resolution was deferred to the next meeting. On September 27th, representatives of Moobaans (excluding Moobaan No.5) went to sea with a few members of the Survey Team who would measure accurate locations using mobile GPS equipment. The representatives agreed that they would propose a zoning plan at a Moobaan meeting, which may be the final step toward making a regulation at Tambol level.

Making a plan and drawing lessons from the first experience: Several important management issues on aquaculture still remain unsolved, like preserving aquaculture grounds, limiting the numbers of fish cages according to the estimated carrying capacity, adopting appropriate feeding and so on. These would be discussed at later stages.

2) Another Important Management Issue: Anchovy and Crab Traps

Increasing fishers' awareness: Deeper discussions on anchovy fisheries and crab trap fisheries have not yet started, but fishers and resource users now pay more attention to these issues. The "Sathaban Sing Wetrom Thai" (Thailand Environmental Institute) plays an important role in enhancing fishers' awareness. Supported by this NGO, fishers and resource users deployed a number of tyre-based artificial reefs. They started with a "crab bank". At present, staff of the CMDEC and the Provincial Office of Fisheries keep a close linkage with the NGO's members. Both parties often join together at meetings held in Moobaans, while distinguishing each other's responsibility.

4.3 Activity III

1) Fish Processing Activity and Women's Groups

Expansion of fish processing in Moobaan No. 7: A remarkable development of fish processing



activity was seen in Moobaan No.7. A number of women in the Moobaan joined a training course for fish processing, which was held in the previous quarter. They began to produce on a commercial basis. They established a women's group and held share capital. They worked collectively. Members involved in the processing expect an additional income. The number of members gradually increased to 26. They were mostly young housewives of fishing households. Although they had some problems to be solved in group operations, they were enthusiastically involved in the new additional income sources. In addition, the project arranged a brief training course introducing a simple book keeping method. They regularly visited and talked with members about their business.

Continuous increase of production in Moobaan No.1: Tambol Pakklong decided to provide finance of 100,000 Baht to the group. The duration of the repayment was five years, without interest being levied. This amount would be divided into two parts: one part was for the processing business, while the other was for a source of loans. At present, a majority of members do not join in any processing activity, only utilizing the credit and deposit facilities. Women of the fishing households in Moobaan No. 1 are quite busy in drying and grading anchovy and squid. Leaders expect that some of them may join during the fishing off-season.

4.4 Activity IV

1) Study Trip to Malaysia

The DOF in Malaysia: Between 9th and 14th July, a study trip to Kedah State was conducted, guided and supported by the Department of Fisheries (DOF) in Malaysia. The purposes of this trip were as follows: 1) to observe how the government-centered regime of fisheries management works effectively at local level, focusing on the fisheries zoning system, 2) to observe how the government manages fish cage culture and shrimp pond culture at local levels, 3) to study the role of local fisheries associations on community development and coastal resource management, and sharing responsibility between the government and the associations, 4) to have discussions and an exchange of information on local resource management frameworks.

2) Training at Primary Schools

Between 20th and 27th September, the project staff from the Provincial Office of Fisheries and the CMDEC conducted an environmental education program. The target group of this program was primary school children (Grades 5 and 6) in Thungmaha, Bangwan, Thamtong, Nampoo, Bosamrong and Bonrai schools. A staff member of TD joined this activity. The topics and subject of this program concerned coastal environments, coral reefs eco systems, mangrove conservation, and fisheries resources. The introduction of LBCRM-PD was one important topic.

4.5 Activity V

TD printed an LBCRM-PD brochure for effective advertising in English. It included the introduction, objectives and activities of the project. A demarcated zones map was included. A second poster was designed and printed introducing the project activities, with a map of the demarcated zones. A newsletter was being prepared.

4.6 Activity VI

On August 7th, the DOF held a ceremony for the release of fingerling. The Chumporn Provincial Governor and other senior government officials were invited. School children also joined this release activity. The Chumporn Marine Culture Center provided the shrimps on that day. A number of fishers assisted in the release activity. The Royal Forestry Department prepared a mangrove

reforestation program in collaboration with local NGOs. In the mangrove area of Moobaan No.7, school children, the people and the project staff transplanted mangrove trees.

5. Quarter V: October to December, 2002

14. The LBCRM-PD continually emphasized Activity I (the regular base line survey), and gave great attention to the preparation of aquaculture area demarcation. The socio-economic survey group conducted a 'crab fisheries survey', to compile fundamental data to alleviate conflict between crab gill net fishers and collapsible crab trap fishers. The result of the survey would be used for formulating action plans and activities to solve this conflict in Tambol Pakklong.

15. The preparation of aquaculture area demarcation was a progressing part of the zoning plan for fish cage and shellfish culture in September and October. The project staff joined the committee and the representative from each Moobaans to mark feasible areas to contribute to the zoning of fish cage and shellfish culture demarcation. The staff used GPS to scientifically define the areas and then used GIS software to decorate the marked areas as a firm and complete picture to present to all stakeholders to achieve community consensus on area demarcation.

16. The Training Team arranged two kinds of training course. One was for the project staff skill improvement. The other was for members of the women's group at Moo 7 to increase the awareness of the variety of women's group establishment and management through study trips to adjacent communities. It was expected that the experience gained from the study trips was solid information to develop and manage the Moobaan No. 7 women's group to become a more effective and active group.

17. The contents of project activities are as follows:

5.1 Activity I

1) Socio-economic Survey

Crab fisheries survey: A questionnaire sheet for the crab fisheries survey was designed. By referring to basic information from the household survey held in July, this survey was planned and conducted. The total number of respondents was 80 from 7 Moobaans including Ban Bangbird (Moobaan No.5, in Prachuab Khiri Kan Province) who kindly participated in completing the questionnaire. Moobaans Nos.7, 2 and 1 had large numbers of respondents being 36, 17 and 12, respectively. The Ban Bangbird respondents were included to respond to the questionnaire, because they also utilized and exploited crab resources in the fishing ground as well as the other 6 Moobaans of Tambol Pakklong.

Damage to resources: Conflicts of interest between crab gill net and collapsible crab trap fishers led to severe competition in crab resource utilization. Crab gill net fishers vehemently complained the collapsible crab trap fishers were fishing irresponsibly. They caught all sizes of crab. They did not select only the marketable size and throw away the non-marketable or immature sizes back into the sea. This has caused crab resources to become rapidly depleted and smaller and smaller in size.

Formulated action plan: The result of the survey is fundamental information to contribute to formulating the action plan for responsible and selective fishing gear expansion. The parameters of the number of collapsible crab traps, crab gill nets and the number of fishers was helpful to Chumporn provincial fisheries officers and policy makers to arrange appropriate subsidies and encouragement to target fishers. The expectation of the policy was to alleviate conflict among users and other stakeholders.

2) Oceanographic, Environmental and Landing Surveys



Descriptive reports: Scientific analysis was conducted. Members of the survey prepared both scientific reports and leaflets with simplified content. Visual graphs and figures were illustrated that would be presented at Participatory Resource Assessment meetings at the project site. The scientific reports would be published in the next quarter.

Provisions of all necessary information for zoning: Together with the process of achieving consensus on aquaculture zoning, the people requested more and more information and data on fishing and aquaculture grounds.

5.2 Activity II

1) Preparations for fish cage and shellfish culture area demarcation

Map preparation for culture area demarcation: In regard to the agreement of the community meeting on 29th August, 2002, five representatives of each village took the responsibility to join provincial fisheries officers and CMDEC staff to mark feasible areas for community aquaculture engagement. TD staff was in charge of arranging the map of coastal areas based upon marked point data. As a result, the people made a plan that the Bay area would be categorized into six utilization areas. Areas 1 and 2 were defined for shellfish culturing. Areas 3 and 4 were reserved for public use as an anchorage for fishing boats during the monsoon season. Areas 5 and 6 were utilized for fish cage culture engagement.

Provincial fisheries officer' recommendations on area demarcation: The provincial fisheries officer recommended that the number of demarcated areas was too great and separated, this might cause difficulty in management control. He proposed that areas 5 and 6 should be combined together as Area 5. This was to easily control and manage fish cage culture management. The provincial fisheries officers and the project staff attended the Tambol Pakklong fishers' group network meeting at Moobaan No.7 (Ban Ko Teab) on 16th November 2002. They showed the map of fish cage culture and shellfish culture to the group's members to illustrate the progress of the work on area demarcation.

Discussion continues: Some fishers proposed that shellfish culture areas should be expanded. The expanded areas included Areas 1 and 2. However, the final decision was not made yet. The provincial fisheries officer and the project staff were asked to display these maps to all users and stakeholders to obtain community consensus on area demarcation. The CMDEC staff attended the monthly village meeting to inform all stakeholders of the progress in area demarcation preparation and ask them for an appropriate time and venue to arrange a second meeting for considering the subject.

2) Effectiveness of Provincial Announcements

The provincial announcement, to enforce against illegal fishing operations in Areas I and II, is effective from 4th November 2002. The provincial fisheries officer informed the Tambol Pakklong fishers group network and also explained the effectiveness of this provincial announcement to easily define an offender encroaching into the two areas.

5.3 Activity III

1) Development of Women's Groups for Processing

Quality improvement: Members of the women's group at Moobaan No.1 usually improve recipes

and develop the quality of production. The group members often brought the group's production to sell at local and urban markets both inside and outside Chumporn province. The group members have tried to create new production and new recipes to increase the variety of production. The group's outlet is a stable channel to distribute the production to local people and outside visitors.

Observation on other successful projects: Members of the women's group at Moobaan No.7 were more actively proceeding and developing production and quality control. The village fish trader is a member of the group and takes the group's products out to urban markets. The members requested to the project staff to take them to visit successful women's groups to gain knowledge on group business and management. A study trip was arranged to educate members to better understand the methodologies of group management and development. Six representatives of the group joined the study trip to a successful women's group in Paknam Langsuan District. The representatives recognized that member's participation was an important factor contributing to the group's development and management.

5.4 Activity IV

1) Training course arrangements for the project staff

The TD's oceanographic team set up a short on-site training course. The title of this training course was 'training on geographic information systems (GIS) and databases for the locally based coastal resources management project staff'. There were two objectives being, 1) to educate the project staff to understand the GIS system and database; 2) to increase and develop the project staff skills to be able use the GIS system and database as a tool to analyze collected database and information compiled from research activities and surveys, under the LBCRM-PD project.

2) Training course on boat engines for local fishers

Course Planning: The staff of the TD's marine engineering section joined the project staff to assess powered engines in fishing boats to arrange a training course. This course would be arranged for local fishers who were interested in powered engine maintenance and repair. The marine engineering section staff also took the opportunity to discuss with local fishers what problems frequently occurred with their engines.

Simple questionnaire: The project staff and marine engineering section staff agreed to distribute a questionnaire on the training course on engines to survey how many local fishers needed this training and to understand what type of engines they were using. The result of this questionnaire would be useful to the marine engineering staff to set up a short course curriculum for this training program.

5.5 Activity V

Preparation for publications, text and manuals: Besides publishing a number of scientific papers, the Training Team began to prepare visual figures, graphs, and tables that would make people better understand the project purposes, objectives of coastal resource management, procedures of achieving consensus, improvement of quality of life, possibility of alternative livelihood programs, and the results of discussions on any topics. These materials would be used at on-site seminar, workshop, and any other occasion.

III. OUTCOMES, PROBLEMS, AND SOLUTIONS FOR FURTHER DEVELOPMENT



1. Starting with Awareness Building

18. At the earlier stages of the first year of the Phase I, the LBCRM-PD concentrated its activities on a series of base line surveys, training and educational matters with diffusion of vital information. Not much incentive was given to the people and local communities to increase their participation in the process of making a project proposal for the establishment of a sustainable coastal resource management and the promotion of local business. This was chiefly because the DOF had already allocated budget for 2002 with official approval from the Cabinet, and SEAFDEC/ TD had rushed to compile an activity plan to get financial support from the “Trust Funds from the Government of Japan”. As a result, the project proposal would not comprise practical action plans and concrete objectives for each component. Local people, stakeholders, DOF officials and TD staff should have joined forces to put forward a more concrete plan. Thus the LBCRM-PD started with enormous efforts in awareness building activities.

2. Outcomes of Activity I (the Base Line Survey)

2.1 Regular surveys bring valuable information

19. The regular surveys provide the most basic figures and data on many aspects, including oceanographic data, fishing grounds, techniques and socio-economic fields. To get these data, the project staff always communicates with the local fishers and residents. They often explain the background and factors to determine and influence the figures. Based upon the scientific data and information, the project staff can provide precise information at the later stages. At the outset of the survey activities, some fishers and residents complained about the frequent interviews and complicated questionnaires. However, before and after fish-farmers and fishers started with discussions on aquaculture zoning activities, their cooperative attitude towards the base line surveys changed favorably.

20. Comprehensive surveys including socio-economic, oceanographic and fishing grounds aspects get the true picture of fishing business in Tambol Pakklong. The results of the comprehensive surveys give profound suggestions in management activities, especially the demarcation of aquaculture areas.

2.2 Restore the results of survey

21. Researchers make much effort to analyze the data and information they collect on both a regular and occasional basis. 10 topics are already printed, and a few papers are in press. At the latest Moobaan and Tambol-level meetings, these scientific reports are opened to the public. At the same time, provincial and district government officers in charge of fisheries management always rely on the results of the survey. They often request the survey team to collect data and illustrate the charts they need for extension work.

3. Outcomes of Activity II (Extend and establish the LBCRM framework)

3.1 People attempt to set up aquaculture zoning

22. Through joining the training courses on aquaculture technology and fishing ground management, fish farmers, fishers and stakeholders have come to realize that they should set up certain rules that regulate their investment in construction of fish cages and in shellfish culture. Supported by the project staff, they have attempted to achieve consensus on the allocation of fishing grounds for aquaculture business. Their discussion has almost come to a conclusion.

3.2 Crab fisheries will adopt resource-friendly devices

23. In collaboration with NGOs, fishers built a system of “crab banks”. The DOF advice was to reduce

the number of collapsible crab traps and employ gill nets by introducing a subsidy scheme for responsible fishing operation. Fishers often have a deeper discussion on this project. There are still many arguments and disagreements between them, but they do not cease such discussion.

3.3 Trials-and-errors of arranging Moobaan and Tambol-level meetings suggest a step-by-step approach and alternative procedures.

24. In the process of achieving consensus on aquaculture zoning, the people and the project staff have learned that there are several alternative procedures to achieve consensus and make rules at Tambol-level. At earlier stages of discussion, they tended to rush to attain a conclusion. However, now, they realize that management aspects have to pass several informal and formal steps of discussion and consultation at Moobaan level. Democracy is a crucial tool in the decision making process. At one and the same time, there may be alternative procedures to be adopted in different fields. The people themselves will soon develop effective ways to achieve consensus and make rules.

3.4 Ao.Bo.To increases its role in making and announcing rules

25. Principally, fishers and stakeholders stand at the center of the decision-making process. They come to realize that the Ao.Bo.To (or its council members) will act in formulating rules and demanding any kind of legal permissions to district and/or provincial government on an official basis. They expect that the Ao.Bo.To will empower the results of discussions and their decisions. At present, we do not yet know what functions the Ao.Bo.To has: however, this will be a lead experiment in coastal resource management.

4. Outcomes of Activity III (Local Business)

4.1 Fish processing is widespread

26. The expansion of fish processing is a remarkable success in the first year. At the beginning, the women's group at Moobaan No.1 began to process anchovy and squid products, and then produced a greater number of products. Members joining the group's processing are not many in number, but they explore new marketing channels both at local and urban markets. Supported by the project staff, the group has continued to increase production, and opened a store. A women's fish trader leads this group activity with great success. This group applied to the "One Tambol, One Product" scheme to get financial assistance from the government. Another two groups appeared in Moobaans Nos. 3 and 7. Though members still lack the knowledge and experience, they enthusiastically expand fish processing businesses. Besides traditional products, they challenge with new marketable products.

4.2 People realize fish processing is an additional income source

27. Since fish processing began to develop, the people recognize that it is a lucrative business. Those housewives who are interested in it increase in number. Fish processing is labor-intensive in nature, so that many housewives of the fishing households cannot enter this business. Drying and salting of squid are their main work

5. Outcomes of Activity IV and V (Training and Education Activities)

5.1 Increased awareness on sustainable use of coastal resources

28. The project emphasizes the enhancement of people's awareness about sustainable use of coastal resources and their devotion to achieve consensus on self-regulatory rules in the fishing grounds in the front of Tambol Pakklong (the demarcated zone). It takes much time, not only for the people, but also for



the project staff to realize the actual situation of fisheries businesses and coastal resources. The people have a gradually, but steadily increased awareness on the importance of the sustainable use of coastal resources through joining training and education courses. Various types of leaders, including Moobaan heads, Tambol councils, fishers' groups, and women's groups, belong to the main target group of participants in the training courses. An increasing number of these leaders have become actively involved in aspects of fisheries management. They diffuse the ideal and thought of coastal resource management over the whole area of Tambol Pakklong.

5.2 Give incentives to attempt of aquaculture zoning

29. At the later stages of the first year, training programs gave more incentives to the introduction of demarcating aquaculture areas. A Moobaan-based consensus pushes forward a Tambol-based arrangement of setting up aquaculture areas. By referring to scientific data and information on fishing grounds that the project staff provides at training courses, the people themselves have tried to achieve consensus and generate rules. This is still the first step in a long process of sustainable management, but a small successful step.

5.3 Promote women's activities in fish processing

30. Training programs are arranged to support alternative job creation activities. Increasing additional income sources is a tool that may reduce pressure on the decrease of fisheries resources. Women's groups are given the first priority in training programs. As the summary of the project activities explains, an increasing number of women (mostly housewives of fishing households) involve in fish processing. At present, three groups exist to conduct cooperative processing, with diversified kinds of products and improving quality. The content of the training programs satisfies the participants. Leaders of women's groups share their technologies with other members.

5.4 Improved human capacity of the project staff

31. The LBCRM-PD occasionally arranges training courses, internal workshops and meetings at which the project staff absorb knowledge, technology, and information. Many staff have practiced at the project site, and have opportunities to exchange the lessons learned with others. Now they are becoming competent organizers at any project site. Such human capacity improvement will lead to a further development of the CMDEC training function.

5.5 Environmental education developed in collaboration with primary schools

32. The LBCRM-PD contributes to the development of environmental education at primary school, in collaboration with local NGOs.

6. Outcomes of the Activity VI

6.1 Released juvenile fish and enhanced stock

33. The DOF released juvenile fish and shrimp into Pathew Bay. In the mangrove area of Moobaan No.7, school children, the people and the project staff transplanted mangrove trees.

IV. PROBLEMS AND SOLUTIONS FOR FURTHER DEVELOPMENT

34. More than one year has passed. The LBCRM-PD has developed especially in the base line surveys and in education and training matters. People's participation has steadily increased. Women's groups successfully expand the lucrative fish processing, with increasing household incomes. One year's

experiences have given many hints to the project staff and local government officers on how to encourage self-regulatory activities among the people. Also they may be able to propose new adoptions of legal procedures in accordance with the local reality of fisheries management. For further development, the following problems should be solved.

1. Delay of the provincial announcement of the demarcated zones

35. This project started with agreement on setting up the demarcated zone. However, the people and the LBCRM-PD staff had to wait for official approval of the provincial announcement for the demarcated zone, for more than one year. Therefore, some project activities designed were postponed or even conducted with much deliberation, without demarcated zone legitimacy.

2. Different understanding on the functions of the demarcated zone

36. At the beginning, there was a large gap in understanding of the functions of the demarcated zone between the DOF (including the project staff) and the people. Some fishers strongly requested the DOF to undertake quick action against commercial boats operating within the zone and using destructive devices. Some were greatly afraid that their legal operation would be hampered and excluded immediately from the zone. The project staff had disagreements over the direction of the demarcated zone management. These problems were finally solved, but in the process they had a negative effect on the people's participation.

3. Relationship with local leaders and local government administration (Ao.Bo.To.)

37. Since the project should cover a very wide area of Tambol, the project staff often found difficulty in communicating with local leaders. It took some time to establish a close tie with them. At a transitional stage of restructuring local government organization, there existed plural systems of Moobaan and Tambol administration. Roles and functions that old types of leadership are responsible for are duplicated with the Ao.Bo.To. The project staff often mismanaged a local communication line. At present, of course, they understand the present political and bureaucratic system. In the process of aquaculture zoning, the people have developed their own legitimate framework of obtaining consensus and decision-making, so that a good partnership is being established with local leaders and Ao.Bo.To.

4. Lack of coordination with other government agencies and NGOs

38. The LBCRM-PD consists of the King's Royal Project with other counterpart sub-projects. Many government agencies and NGOs are involved in community development. As a result, many programs and activities have been implemented in similar ways within Tambol Pakklong. With coordination with other agencies, the LBCRM-PD should have effectively operated its activities. In the fisheries management aspect, the NGO staff and the DOF officers have increasingly cooperated together.

5. Establishment of a project management body at the site

39. Many agencies are involved in the LBCRM-PD activities. At the project site, leaders, representatives and stakeholders flexibly work together with the project staff in accordance with their own topics. Moobaan administrative organizations often stand in the middle between the people and the project. There might be a voluntary network covering the whole aspects of project activities at the project site, besides the Ao.Bo.To and old types of leaders. In the second year, this will be given a higher priority among the project activities.

40. There are still some problems to be solved in the project operation and management, but the people will increase their roles in the operation of the projects and solve these problems. In the second year, the



project staff and government will decrease their involvement. It is obvious that the legal matters of fisheries management should be explicit; otherwise, participatory fisheries management for the demarcated zone will get into a chaotic state of confusion. Strict control over illegal operations within the demarcated zone is the most urgent need, too. The project evolves into a new stage of development.