



Bi-annual Project Progress Report
of
Integrated Coastal Resources Management in Pathew District
(ICRM-PD)

Compiled by

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Bi-annual Project Progress Report

- Project title** : Integrated Coastal Resources Management in Pathew District (ICRM – PD)
- Program Categories** : Programs under the ASEAN-SEAFDEC FCG Mechanism
- Program Title** : - Capacity Building of Human Resources and Participation in Integrated Coastal Resources Management
- Duration of Project** : 5 years and 3 months
- 1st Phase: October 2001 – December 2004 (under TF-1)
- 2nd Phase: January 2005 – December 2006 (under TF- 2)
- Executing Agency** : Department of Fisheries, Ministry of Agriculture and Cooperatives, Thailand
- Cooperating Agency** : SEAFDEC/TD
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DOF Thailand (Co-financing)
- Proposed Budget** : USD 23,260 (Under Japanese Trust Fund input – year 2006 only)
Baht 15,200,000 (DOF Thailand Input – for 5 years)
- Reporting period** : **January to June 2006**

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1. GENERAL ACCOUNT

As a whole, the project has progressed on the right track compatible with the project design, and the process for project phasing out has been advanced as expected. The activities have been carried out are listed as follow:

- The registration of the Pakklong Fishermen's Group (PFG) with the Chumphon Provincial Cooperative Promotion Office (PCPO) was under the name of Phakklong Aquaculturists' Group (PAG). The new committee members of PAG were elected at the 1st PAG meeting. So far, 67 members of PFG have joined the PAG.
- The study tour to Japan was jointly organized by the NPO group in Japan and SEAFDEC/TD to observe mainly the CBFMR approach to various activities undertaken by the Japanese fishermen's cooperatives.
- Regular monitoring surveys have been conducted as planned.
- Three experiments conducted were babylonia shell culture, swimming crab culture and comparative fish culture with different types of feeding.
- The women's group activity is progressing well.
- The training in local enforcement activities was held in Pakklong, but the planned establishment of the Local Enforcement Unit (LEU) is still far from reality.
- The 10 sets of FEDs were installed to test its durability.
- A total of 1.5 million tiger-prawn postlarvae were released.
- The 3rd SC meeting was held.
- The 9th IC meeting was held.
- The study tour team from the sister project in Cambodia visited the project site to observe the activity and exchange views with the PFG members.
- The project staff and leading PFG members participated in various seminars and workshops organized both in the country and abroad.

2. ACTIVITIES

In general the project activities have progressed in line with the Action Plan as shown in in Annex 1 on the Annual Activity Monitoring Sheets in 2006.

2.1. Monitoring survey

The Pakklong Fishermen's Group / Pakklong Aquaculturists Group (PFG/PAG) initiated an activity to collect the basic socio-economic data and information by themselves on the number of

fishermen, the number of fishing boats and fishing gear, etc. This is one of the essential functions for any institutional organization.

The regular marine biological survey has been carried out by CMDEC once a month and the SEAFDEC/TD extension worker conducts in-between supplemental surveys once a month.

The regular marine environmental survey has been jointly carried out every two months by CMDEC and MCR.

The survey on mapping of fishing ground and gear was initiated in January 2006 with one year's survey duration. The SEAFDEC/TD researcher or the extension worker visited the site to collect the data once a month. The final analysis of the data will be made in 2007.

2.2. Encourage and extend the CBRM concept

Zoning arrangement

The newly organized Pakklong Fishermen's Group (PFG) held general meetings repeatedly during the reporting period and the present zoning arrangement was reviewed and discussed. Although there were many views and arguments on extension of the current zoning area among members of PFG, the opinion on cautious approach for expansion was still overwhelming.

Aquaculture zoning

There was a certain conflict on space allocation for mussel culture among 20 culturists in 2005. The request for demarcation of aquaculture area was submitted to the Provincial Fisheries Office in 2003, but it was suspended until the Sea Food Bank scheme of DOF to be finalized. This issue was further raised at the 7th IC meeting held in August 2005 to expedite the matter. The Provincial Fisheries Officer explained that the implementation of the scheme was just started in 2005 with 3-year period, i.e. training in 2005, allocation of the space in 2006 and fund disbursement in 2007; thus the aquaculture zoning proposal should be incorporated in the government scheme of Sea Food Bank. In doing so, the provincial office promised to take some intermediate action at the meantime. However, nothing has been done.

Crab bank

The leader of Crab Bank scheme reported the impact of crab conservation measures carried out by the project in the project area at the national technical seminar on "Aquaculture Development for Crab Culturing" on 18 – 20 January. This seminar was organized by the Network for Research and Development of Aquatic Flora and Fauna Industry under the Thailand Research Fund. It was highlighted as an on-going exercise on swimming crab resources management at the community level.

The study on improvement of the Crab Bank system was carried out in comparison with the similar approach in Bang Saphan and Japan. It was concluded that the system employed in Chumphon had room for improvement and the Japanese approach was recommended as the most effective in technical and scientific aspects, but it might be too hasty to adopt this system as the local system was developed by the fishermen themselves with voluntary participation. It requires a step-by-step approach, which is described in details in the report "Optional approaches for the Crab Bank" in Annex 2.

The study tour team from the sister project in Sihanoukville, Cambodia, visited the Crab Bank (C/B) project in Thailand. They inspected the activity in the cage after being briefed by the Chairman of the detailed approach. They were very impressed especially by the tangible impact given by the practice.

The leader of the Crab Bank project was invited to Japan during June 19 - 25 as a study tour program, which combined two aspects: "the observation and learning fishermen cooperative management skills" and "a community based fishery resources management approach". He witnessed the successful practice of Crab Bank by the Hyogo Kengyoren (Prefectural Fishermen's Cooperative Federation) established 20 years ago. As aforementioned, there is a different approach depending on the background and the fishermen's behaviour; the Japanese model is not necessarily applicable to Thailand. However, the visit was very conducive to the leader for rethinking on improvement of the current crab bank system in Thailand. The detailed description of the study tour is seen in Annex 3 "Report on Study Tour in Japan".

CBRM approach

As described in the above report, the Chairman of PFG observed the Japanese CBFMR models in Hyogo Prefecture and the Shizuoka Prefecture during the above study tour in Japan. He learnt a great deal of information on history and background of the fishermen's cooperatives and initiation of CBFMR in Japan. He is expected to disseminate those information and knowledge gained from the study tour to other PFG members in the fishermen's workshop in August.

Local enforcement unit (LEU)

In a bid to improve communication network among fishers at the sea and also to facilitate reporting illegal encroachment of fishing boats to the LEU, the Provincial Fisheries Office provided about 100 walkie-talkies and a base station set in January 2006. However, the system has not been put in place yet as no base LEU has been established. The new office of LEU was expected to be built by Ao.Bo.To. (district administrative office) in 2006, but the budget was diverted to construct a new jetty at a cost of 13 million Baht to replace the old one in front of the village No.1 as requested by PFG. Thus, the establishment of LEU was further delayed.

The training course on the local enforcement patrol was organized by CMDEC during 12-15 June, 2006 in Pakklong. In this training course, two senior officers from the Chumphon Fisheries Enforcement Unit (CFEU) were invited as instructors and 30 selected fishermen from the PFG were trained.

3. Encouragement of local businesses

Village No. 1

A part-time accountant was employed in January 2006 in order to improve the bookkeeping and accounting system. The new accountant prepared a simple accounting sheet showing transactions in sales and purchases from December 2005 onwards, which would help to improve the transparency to a great extent in accounting of the group activity.

To follow up the training course on good manufacturing practices for women's groups in the southern part of Thailand organized by the Fish Technology Development Division (FTDD) of DOF in November 2005, the experts from FTDD visited the women's group No. 1 on 22 March, 2006. They made a thorough investigation on all production processes involved in the cottage-scale fish processing yard; they also made a number of suggestions to improve quality of

the products. One of relevant points for improvement was to change the packaging material from presently used single layer PE to aluminum laminated PE. In doing so, a loan application was made to Ao.Bo.To. for replacement of the current ordinary sealer with a Teflon impulse sealer. The FTDD is ready to monitor the quality improvement by sensory and chemical evaluation of the products from now-on.

Village No. 4

The main products of this women's group are dry flowers and some patties called *pankhlip* and *thongmoun*. Also, they prepare flower and colour fabric decoration on the occasions of banquets, weddings and funerals by request. The scale of transaction was meager with 9 active members as seen in the following Table 1 & 2 which show the transaction of the village No.4 during 6 months from January to June 2006. The average incomes per participant varied from Baht 60 to some 1,500 per month. This village is predominantly engaged in the rubber plantations and can hardly afford to spare their time for the group work.

Table 1: Transaction sheet in production of snack for the Group No.4. (2006)

No.	Month	Sales (Baht)	Expenditure (Baht)	Gross income (Baht)	Saving (Baht)	Balance (Baht)	Member's attendance to work (day)	Share divided to a participant (Baht)
1	January	0	0	0	0	0	0	0.00
2	February	800	400	400	100	300	5	60.00
3	March	0	0	0	0	0	0	0.00
4	April	0	0	0	0	0	0	0.00
5	May	1,600	730	870	100	770	9	85.56
6	June	0	0	0	0	0	0	0.00
Sub-total		2,400	1,130	1,270	200	1,070	14	145.56

Table 2 : Transaction sheet in making dry flowers for the Group No.4. (2006)

No.	Month	Sales (Baht)	Expenditure (Baht)	Gross income (Baht)	Saving (Baht)	Balance (Baht)	Members' attendance to work (Baht)	Share divided to a participant (Baht)
1	January	10,000	2,000	8,000	1,500	6,500	8	812.50
2	February	0	0	0	0	0	0	0.00
3	March	9,000	500	8,500	700	7,800	7	1,114.29
4	April	0	0	0	0	0	0	0.00
5	May	12,500	600	11,900	1,200	10,700	7	1,528.57
6	June	7,500	300	7,200	1,000	6,200	7	885.71
Sub-total		39,000	3,400	35,600	4,400	31,200	29	4,341.07

Village No. 6

The main business is batik printing which began in June 2004. They are producing various batik printed materials like clothes, shirts, T-shirts, bags and handkerchiefs. As seen in the following table 3, the average monthly share per a participating member reached as much as Baht 4,500 at the highest which is a considerable amount as they are normally working for 3 to 4 hours a day after finishing their own work (mainly rubber plantation). The number of members is 185 in total

but the active and regular members who are participating in this group work account for only a few during this period.

Table 3 : Transaction sheet for the Group No 6 (2006) : Producing batik

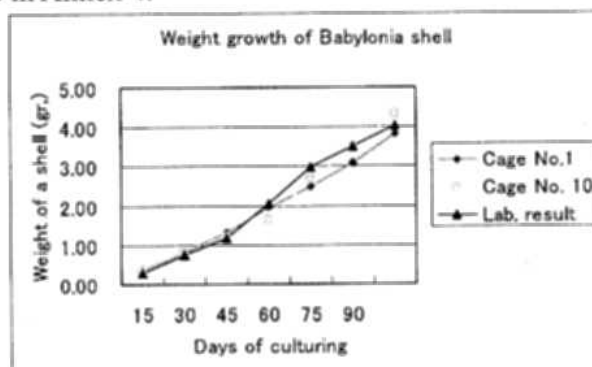
No.	Month	Sales	Expenditure (Baht)	Gross income (Baht)	Members attending to work (Baht)	Share divided to a participant (Baht)
1	January	5,400	4,800	600	2	300.00
2	February	4,758	4,098	660	2	330.00
3	March	5,400	3,600	1,800	2	900.00
4	April	9,900	6,600	3,300	2	1,650.00
5	May	13,500	9,000	4,500	2	2,250.00
6	June	27,000	18,000	9,000	2	4,500.00
	Sub-total	65,958	46,098	19,860	12	9,930.00

The project identified the eco-tourism business as a potentially promising one and initiated organization of an active group during the previous reporting period. The CMDEC is acting as the core institution to organize and promote such a business in collaboration with the NGO Thai Environmental Institute (TEI). The first training course in the eco-tourism was conducted on 28-31 March 2005 in a bid to stimulate the ambition among potential ventures. As a result, the group No. 6 was selected as a village which tried out the venture as a pilot case. Since then, meetings were repeated so as to start up the business. The committee members to lead the group were elected and the office center was sited at the Bang Wan pavilion. But, the activity is so far stagnant.

Babylonia shell culture

The experiment on Babylonia shell culture commenced on 25 August, 2005 expecting the the average size of shells would reach to 8 ~9g within 6 months of culture period in cages. The growth rate in the initial stage until 80 days showed a more or less satisfactory trend. Thereafter, however, it grew marginally at 0.22g for the next 80 days. The experiment was continued until the end of February 2006, but no significant improvement had been observed. In order to shed light on the suspected cause of this mal-growth, a joint investigation with the Chumphon Coastal Aquaculture Station (CCAS) was carried out on 27 February. As a result, it was suggested that a few shortcomings were suspected as the cause of mal-growth, e.g. unfavourable sea condition during the monsoon seasons, irregular feeding and overcrowded stocking. Taking these suggestions and experiences into account, it was decided to repeat an experiment with improved methods starting March 2006. The detailed description on this experiment is shown in the Report on Experimental Babylonia Shell Culture in Annex 4.

As mentioned above, the second experiment was initiated on 21 March, 2006 with improved method. According to the interim report up to the end of June, the growth rate has been promising as shown in the graph at the right hand; it's also comparable with the result of laboratory experiment conducted in 2002 by Dr. Ninard Charithavisut of the Chulalongkorn University.



Crab culture

The National Seminar on Aquaculture Development of Crab Farming was organized by the Thailand Research Fund on 18-20 January, 2006 in Trang Province, to which 5 SEAFDEC/TD project staff and two PFG members participated. This seminar included topics on culturing swimming crab, which had been attempted by the project at the site; it was technically opportune and conducive. The further detailed description is made in the column of 2.4.

In the wake of the failed experiment carried out during the previous reporting period, the CMDEC decided to repeat a similar experiment starting April 27 in an effort to test its practicability and profitability of crab culture. In this experiment, three cages with dimensions of 4x4x6m (LxWxH) were installed and each cage was stocked with three different groups, which are:

- a. Female blue swimming crab: 100 juveniles
- b. Male blue swimming crab: 100 juveniles
- c. Mixed sex with female and male blue swimming crab: 50 juveniles each

The experiment will be continued for 6 months until the monsoon season set in.

Fish culture experiment

In an attempt to compare the profitability and practicability in cage fish culture using different types of feed, e.g. fresh fish vs. artificial feed, a comparative experiment began on 22 April, 2006 by the CMDEC team. In this experiment, 12 cages with the dimensions of 3x3x6m (LxWxH) were installed at the project site and 1,000 fingerlings (3-cm long) of sea-bass were stocked in each cage. Fish were fed with either fresh fish (trash fish) or artificial pellets, and the respective growth rate and economic profitability will be examined. The experiment is to continue for 6 more months until the monsoon season sets in.

2.4. Enhance human resources capacity building and participation

PFG

The PFG was officially registered with the Provincial Cooperative Promotion Office (PCPO) in Chumphon on 23 December, 2005 under the name of Pakklong Aquaculturist Group (PAG) because a duplicated name was already registered with PCPO in 1993. Some of the PFG members are still reluctant to move to the reorganized PAG; in fact, there are two groups existing at this transitional stage. The number of the new members of PAG reaches to 67, while the members in the old PFG remain 175.

The 4th PFG (the 1st meeting as PAG) meeting was held on 23 January, 2006 at the project site. At this meeting, seven officers including various sections in the PCPO and two from the Small and Medium Enterprise Development in Thailand (SME)¹ participated, in addition to officers from SEAFDEC/TD and DOF. They explained the registration process and major advantages by being registered to the PCPO. The newly organized PAG elected and approved 11 new committee members and 3 inspectors (one outsider). The officers from SME explained the process of loan application and refund to their loan system. The detailed content of discussion is described in the attached Annex 5: Report on the 1st PAG meeting.

¹ The SME is the semi-governmental organization that provides a loan package including marketing research and training in production to the small to medium industry sector at the interest rate of 6% per year.

The 5th PFG meeting (the 2nd meeting as PAG) was held on 14 February 2006 to discuss various issues on finalization of registration. At this meeting, the members endorsed the internal by-laws in which the amounts of membership fee and a share was provided at Baht 20 and 50, respectively. This draft of internal by-laws was submitted to the Chumphon PCPO for consideration.

The PCPO assigned one officer from the provincial office to work exclusively for the newly organized PAG during the embryonic stage of its formation.

The booklet describing the provisions of the Thai Fisheries Law and the ordinance in the gazette concerning the demarcated zoning in the Pathew District was printed in 500 copies; they were distributed to PFG members and other relevant institutions and agencies. Those provisions are simply explained with illustrations for fishers to understand easily the fisheries rules and regulations.

The saving commenced in May 2005 aiming to partly stimulate members for cultivating saving custom and to strengthen financial capacity of the PFG/PAG. It was envisaged that the accumulated fund would be firstly used for the credit scheme from July 2006. The fund saved so far is at around 100,000 Baht.

The PFG/PAG has an ambitious plan to initiate a central fish marketing system with precautionary preparation and approach as it may cause a conflict between the existing middlemen. They estimated 3 years for the preparation term; meantime, they considered a bulk purchasing system for fishing equipment. It should be managed by the PFG/PAG to minimize the financial burden leaning upon middlemen. The well-contemplated preparation and approach are necessary for such attempt, which is commendable as the motivation was initiated by the fishermen. The chairman and the extension worker learnt quite a lot on this subject during their study tour to Japan.

Local seminar

The network for Research and Development of Aquaculture Flora and Fauna Industry under the Thailand Research Fund organized a national technical seminar entitled "Toward on Aquaculture Development for Crab Culture in Thailand" in Trang Province on 18 – 20 January, 2006. As the project is experimenting swimming crab culture at the project site, it was considered to be very opportune and conducive to participate. In this sense, 5 SEAFDEC/TD project staff plus two PFG staff attended this seminar. This seminar covered various aspects including harvesting, culturing, resources management, soft-shell crab production and marketing trends for both types of crab, i.e. mud-crab and swimming-crab. Each subject was lectured by the researchers in the universities and aquaculture research centers. In addition, a study tour was held to Baan Chang Siko District, where the fishermen's group was culturing young swimming crab caught in crab-traps. Also, the leader of the Crab Bank in the project area presented the background on establishment of the Crab Bank and its impact at the seminar.

Study tour in Japan

One of the renowned NPO groups called HunetASA originally invited the leader of Crab Bank of the project and the extension worker assigned to the project site by SEAFDEC/TD to visit Japan with the intension of showing the crab bank system practiced in Japan. One of the leading members of the NPO group who visited the project site in May 2005 was so impressed by the activity initiated by the fishermen's own motivation to conserve the natural resources that he

initiated an arrangement to invite them to Japan. Taking advantage of this opportunity, SEAFDEC/TD assigned the Chairman of PFG in a bid to learn the Japanese fishermen's cooperative structure and function and their activities in CBRM. Those aspects were also the main objectives of this project. And, the Head of the Socio-economic Section and the project leader also accompanied the study tour team. The study tour was conducted in a week from 19 to 25 June 2006 to Kobe, Hamamatsu and Tokyo. The former section head of TD who was currently studying in Japan also joined the team in discussion and inspection in Kobe. The activity and findings made during the study tour are described in detail in the attached Annex 3 "Report on Study Tour in Japan".

2.5. Rehabilitate and enhance coastal resources

Installation of FEDs

The project installed 10 units of FEDs (fish enhancement devices) in collaboration with the Special 5-year Program SDI-4 Resources Enhancement in August 2005. The local fishermen appreciated its effect on improvement of habitat for fish fingerlings and juveniles which were observed around the installed FEDs. Given the positive effect of FEDs, the AoBoTo in the Chumphon Province agreed to contribute the fund to fabricate 60 units of them for the Phakklong Fishermen's Group (PFG). However, the only problem was their short durability as only 1 out of 10 units installed in August 2005 remained as of April 2006. The cause of their disappearance is still unclear; either removed by illegal purse-seiners or trawlers, or lost by theft or structural defects. In an effort to detect the cause of disappearance, an inspection by diver was made on 25 April. However, the real reason could not be pinpointed except the fact that little corrosion was observed on the chain and shackle parts, which meant that the loss of 9 FEDs could not be suspected as a simple cause of structural defect. It needs a deeper insight. Meantime, to ensure their durability, the project decided to install 10 more units with the improved design, equipped with rope cutters and positioned to be protected by ARs to avoid access by trawlers. With those precautions the installation of 10 units was made from 26 to 30 June, their durability should be monitored more closely at monthly interval or so; depending on the result, a plan to install 60 more units with AoBoTo fund will be determined.

Releasing fish seeds

During this reporting period, 1.5 million post larvae of tiger prawn (size PL45) were released at the project site on 14 March on the request of PFG. The cost of PLs was covered by the CMDEC/DOF.

2.6. SC and IC meetings

Steering Committee Meeting

The 3rd SC meeting was held on 24th January, 2006 at the DOF meeting room. The main issue at this meeting was centered on the project final evaluation, the mode of wrapping up the project and the follow-up activity after completion of the project activity. The institutions participating in the meeting mostly viewed that the follow-up activity was necessary as the PFG was still in its embryonic stage after being organized just a year ago. The meeting agreed in principle to extend the project for the next two years from January 2007 to December 2008 using the Royal Project Fund with an expected amount of around 990,000 Baht per year. The detailed content of discussion is described in the attached Report of 3rd SC Meeting in Annex 6.

IC Meeting

The 9th project Implementing Committee(IC) meeting was held at the AoBoTo office in Pakklong sub-district on 10 May, 2006. Each participating institute and organization in this project operation reported their activity progress since the last IC meeting on 22 December 2005 and the near future action plan in line with the 2006 project work plan. The main issues in this meeting among others were:

- Introduction of the newly assigned Director of CMDEC and Director of MCR.
- Allocation of budget for installation of 60 units of FEDS by AoBoTo was approved with an estimated amount of 420,000 Baht.
- The PFG is under transitional period after being legitimately registered with the Provincial Cooperative Promotion Office (PCPO) in the name of PAG. Only one third of PFG members has joined the newly registered organization. Some members are still dubious about the involvement of government sector in the fishers group organization. More tenacious efforts are needed to enlighten them.

More detailed description is shown in the minutes of the meeting in Annex 7.

2.7. Others

The sister project in Cambodia has been operational in Shihanoukville since November 2005. The study tour team consisting of leading members of fishers group, project execution members, local government members and DOF staff (10 people in all) visited the project site on 21-22 March, 2006. They partly inspected the project activity and impacts of project operation over the last 4 years and partly to exchange views with the PFG members on CBFMR approaches and total community development. In their view, the progress of the project was very impressive and commendable and many lessons were learnt.

The participants of the International Training Course on Coastal Fisheries Management for Fishery Managers conducted by SEAFDEC/TD for the SEAFDEC member countries and others visited the project site on 25-26 May 2006 to inspect the project activity.

3. OUTCOMES

The major outcomes produced by the above activities during this reporting period are:

Monitoring survey

- Regular marine biological survey has been carried out fortnightly.
- Regular marine environmental survey has been carried out quarterly.
- Fish mapping survey has been continued monthly.

Encourage and extension of the CBFMR concept

- The consensus among members of PFG reached that the present zoning arrangement was appropriate and no expansion was necessary for the time being.
- The crab bank management has been highlighted in many other fishing communities in Thailand.
- The leader of the Crab Bank (the leader of Sub-Group of PFG) was invited to Japan to inspect the Crab Bank operation in Japan.
- The Chairman of PFG and the extension worker in the project inspected the CBFMR system and fishermen's cooperative management in Japan.

Encouragement of local business

- Bookkeeping and accounting practices in the Group No.1 have been improved with the recruitment of a part-time accountant.
- The standardization of products has been progressed in the Group No. 1 with the technical intervention of FTDD.
- An experiment on babyloia shell culturing commenced.
- A comparative feeding experiment on fish culture commenced.
- An experiment on swimming crab culture commenced.

Enhancing human resources capacity building and participation

- The registration process of PFG is underway.
- The study tour team consisting of 5 members visited Japan for a week.
- The institutional capacity of PFG has been reinforced with increased awareness among members for their due orientation; thanks to various workshops and activities and also the Chumphon Province CPO's active intervention.
- The booklets explaining the Thai Fisheries Law with simple illustrations were published and distributed.

Rehabilitating and enhancing coastal resources

- 10 sets of FED were installed by SEAFDEC/TD prior to investment of 60 units by AoBoTo.
- 1.5 million post larvae of Tiger prawn were released to the sea.

Committee meeting

- The 3rd SC meeting was held.
- The 9th IC meeting was held.

Others

- The study tour team from the Cambodian sister project visited the project site and learnt project impacts.
- The participants in the International Training Course on Coastal Fisheries Management for Fishery Managers visited the project site and observed the project management and operational mode.

4. MAJOR CONSTRAINT

The PFG was formally established on 22 March 2005 and legally registered with the Provincial Cooperative Promotion Office (PCPO) in Chumphon on 23 December 2005 under the name of the Phakklong Aquaculturists Group (PAG). The project has exerted every effort in explaining and enlightening the benefits of being registered with the PCPO through various training courses and fishermen's workshop in collaboration with PCPO. Also, an effort was made to proceed with the necessary steps for legalization of the PFG such as formulation of the internal by-law. Some members have already accepted to register their memberships with the new group of PAG, but others (about 65%) are still hesitating to do so. The best solution would be simply shifting all memberships from the old PFG to the new PAG with unanimous consensus among all members. Tenacious efforts should be continued in explaining the process of this transition to all members fully until each member realizes the benefit of obtaining the legal entity, but it should not be forced to do so. The worst scenario would be a split of the PFG into two groups; the old PFG against the new PAG. It is expected for the PFG leading members to demonstrate their strong leadership.

5. WORKPLAN FOR THE NEXT REPORTING PERIOD

The perspective workplan to be pursued for each activity in the next 6 months is as follows.

Monitoring survey

- Continue regular marine biological survey and complete in December 2006. Commence data analysis.
- Continue regular marine environmental survey and complete in December 2006. Commence data analysis.
- Continue mapping fishing ground and gear and complete in December 2006. Commence data analysis.
- Monitoring soci-economic survey is conducted and the data is analyzed.

Encourage and extend the CBRM concept

- Closely monitor the resources management of crab
- Encourage internal evaluation of the Crab Bank.
- Approve the internal by-law and put in practical application.
- Finalize the rearrangement of aquaculture zoning subject with the Sea Food Bank scheme.
- Establish the LEU in one way or another.
- Commence the services of LEU

Encouraging local business

- Monitor and follow up business improvement in eco- tourism
- Follow-up on standardization and improvement of the quality of products
- Complete aquaculture experiments on babylonia shell, swimming crab and artificial feeding and evaluate the result for their commercial applications.

Enhance human resources capacity and participation

- Organize a local seminar to demonstrate the impact of project activity.
- Organize a fishermen's workshop in CBFRM and fishers' group management.
- Initiate a training course in school students
- Introduce a work on voluntary participation in environmental development

Rehabilitate and enhance coastal resources

- Verify the 10 FEDs installed in June 2006 (every two months)
- Prepare further FED installations subject to the above outcome.
- Release fish seeds
- Promote voluntary participation in beach cleaning, tree planting and mangrove reforestation.

Project management meetings

- The 4th SC meeting
- The 10th and 11th IC meetings

6. REPORTS PREPARED

Reports and documents prepared by the project during to this reporting period are listed below.

<u>No.</u>	<u>Title of the report</u>	<u>Name of author(s)</u>	<u>Date of issue</u>
01.	Report on the 3 rd SC meeting	Jariya S.	Jan. 2006
02.	Report on technical seminar "Toward on Aquaculture Development for Crab Culturing"	Jariya S. & Saivason K.	Jan. 2006
03.	Travel report to Chumphon (14-16 February)	Jirapa K.	Feb. 2006
04.	Report on the 4 th PFG/PFA meeting	Saivason K.	Feb. 2006
05.	Travel report to Chumphon (27-28 February)	Sumitra R.	March 2006
06.	Travel report to Chumphon (18-21 March)	Jirapa K.	March 2006
07.	Optional approach on Crab Bank	Etoh S.	March 2006
08.	Travel report to Chumphon (24-25 April)	Saivason K.	April 2006
09.	Report on study tour to Japan on 19-25 June	Sumitra R.	June 2006
10.	Report on the 9 th IC Meeting (Thai) translated in English	Pirote S. Saivason K.	June 2006 June 2006

Activity	2006												Responsible organization							Remarks					
	1	2	3	4	5	6	7	8	9	10	11	12	SEA/DEC	CM/DEC	MCR	PD/OF	CFUE	FTDD	DAGO		SAO	RP	PCA	SCH	PFG
Encourage local business																									
1. Expansion of local business.																									
1.1. Identification of potential local business													S	I					S						I
1.2. Introduction and demonstration of local business													S	I					S						I
1.3. Monitoring and follow up business improvement													S	I					S						P
2. Standardization of products.																									
2.1. Monitoring processing practice													S	S					I						
3.2. Training and/or advices for improvement and follow up													S	S					I						
3. Promotion of engazement in aquaculture.																									
3.3.1. Continue experimental Babylonia shell culturing													I	S											
3.3.2. Evaluation of experimental Babylonia culturing result													I	S											
3.3.3. Continue experimental crab culturing													S	I											
3.3.4. Evaluation of experimental crab culturing result													S	I											
3.3.5. Experiment in use of artificial feed in place of natural one													S	I											
4. Enhance human resources capacity building & participation																									
4.1. Restoration of survey results.																									
4.1.1. Local seminar on research results													I	I					S						P
4.2. Awareness building on coastal resources conservation.																									
4.2.1. Fishermen's workshop on CBRM approach													S	I					S						P
4.2.2. Training for school students in CBRM													S	I					S						
4.3. Participation in environmental conservation & development work.																									
4.3.1. Identification of action plan for environmental development work													S	S					S						I
4.3.2. Implementation of environmental development work													S	S					S						I

Activity	2006												Responsible organization							Remarks					
	1	2	3	4	5	6	7	8	9	10	11	12	SEAFDEC	CMDEC	MCR	PDOF	CFUE	FTDD	DAGO		SAO	RP	PCA	SCH	PFG
	1. Rehabilitate and enhance coastal resources																								
1.1. Improvement of marine habitat																									
1.1.1. Monitoring marine biological survey on ARs / FEDs																									
1.1.2. Installation of FEDs																									
1.2. Fish restocking program																									
1.2.1. Releasing fish seeds																									
1.2.2. Monitoring marine biological survey on released fish																									
1.3. Improvement of coastal environment																									
1.3.1. Beach cleaning																									
1.3.2. Scenery development (e.g. tree planting)																									
1.3.3. Mangrove reforestation																									
5. Committee Meeting																									
5.1. Steering Committee meeting																									
5.2. Implementing committee meeting																									
7. Project evaluation																									
7.1. Final project evaluation																									
7.1.1. Evaluation survey																									
7.1.2. Publication of the report																									

- SEAFDEC: South East Asian Fisheries Development Centre / Training Department
- CMDEC: Chumphon Marine Fisheries Research and Development Centre / DOF
- MCR: Chumphon Marine and Coastal Resources Research Centre
- CFUE: Chumphon Fisheries Enforcement Unit / DOF
- RP: Royal Project
- SCH: School
- FTDD: Fisheries Technological Development Division / DOF
- PDOF: Provincial Fisheries Department Office / DOF
- SAC: Sub-district Administration Office(Ao.Bo.To)
- DAGO: District Agriculture Office
- PCA: Prachaupikaraj Coastal Aquaculture Research and Development Centre
- PFG: Pakklong Fishermen's Group
- I: Implementing agency
- S: Supporting agency
- P: Participating agency

Annex 2

Optional approaches for the Crab Bank Scheme

27 March 2006

Sei Etoh

1. Background

A swimming crab is served as delicacy in the Southeast Asian countries and consumed as one of favourite dishes. Naturally, this trend drives fishermen competitive overexploitation of the resource. The fisheries authorities and institutions in the region have been expressed this phase as a matter of deep concern, but no effective measures to control the impetus have been in fact put in place. Meantime, the phenomenon of reducing the size of crab and the volume of catches has been witnessed on end in fishing communities of the region and the fishermen themselves have become to realize the possible risk of the resources extinction in foreseeable future. Under these circumstances, some leading fishermen groups initiated the actions to alleviate the trend in a few fishing communities of Thailand. Their approaches are described in this report, and further the effectiveness of systems and possible improvement measures are studies.

2. Crab bank schemes

2.1. Approach in the ICRM-PD project operational area, Pakklong Sub-district, Chumphon Province

An attempt so-called "Crab Bank" to protect gravid swimming crab has been practiced by the Crab Trap Fishing Sub-group of the Pakklong Fishermen Group (PFG). The idea of the Crab Bank was originally introduced by the NGO Thai Environmental Institute under the project "Mangrove Conservation in Tungmaha Bay" in 2002 after conducting a study tour to the fishermen group in Trat Province. (In fact, this fishermen group has suspended the scheme due to the group management constraint.) Since then, it has been developed by crab trap fishermen in a way that all gravid crabs are deposited in cages until they have hatched. The crabs in the cages are normally checked once a month and those having spawned are removed from the cages and sold to the buyers. The leader of the group feeds the crab in the cages with trash fish every day.

Of the sales, 50% is saved as the credit scheme fund, 40% is used for installation and maintenance of cages and the rest 10% is for feed supply. The accumulated amount for the credit scheme accounts for as much as Baht 10,000 so far. This system has been successfully maintained with the 16 members of the crab trap fishermen by the very prominent leadership of the group. This is commendable as most other similar attempts in Thailand have been failed due to the poor group management skill.

It was found according to the monitoring study by the project that the survival rate of gravid crab was as low as 55~75% as seen in the following table 1. Also, the exercise has to be suspended during the monsoon seasons due to the unfavourable stocking condition.

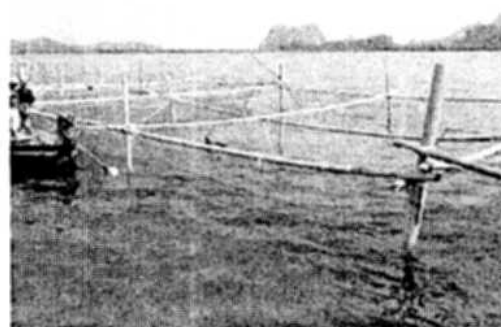
This system was further introduced to the fishermen group in Tran Province in January 2006 after the study tour to the project site was conducted.

Table 1 : Record of crab stock ¹

Month	No. of Crab (pc.) in cages			No. of crab sold (pc.)	No. of crab lost/dead (pc.)	Survival rate (%)
	Remained	Deposited	Total			
April	129	829	958	425	433	54.8
May	100	713	813	450	216	73.4
June	147	770	917	350	238	74.0
July	329	1,068	1,397	500	678	75.4
August	219	734	953	300	427	-



↑ Discharging gravid crab



↑ Crab hatching cages

2.2. Approach by the Bang Saphan Bay Pilot Project, located in Prachuap Khiri Khan Province

The Bang Saphan Bay Pilot Project (BSBPP) has been in operational in pursuing the community-based coastal fishery resources management concept since over 10 years by the DOF Thailand. They initiated the crab bank in a way of copying from the method employed by PFG in 2005. They constructed 2 cages for trial but an attempt to stock gravid crab as done in the PFG was discontinued soon after initiation due to its cumbersomeness of handling (daily feeding, repair and maintenance of cages etc.) as well as unfavourable sea condition. The coastal line of Bang Saphan is rather exposed to the open sea compared with the one in Phakklong.



↑ Hatching in plastic tanks

After experiencing the negative trial as such, they started to challenge the batch system with hatching tanks. In this system, gravid crab in the last stage of spawning (with black coloured eggs) are kept in plastic tanks with the capacity of around 100 lit until eggs are hatched. A tank is equipped with an air-stone. The eggs hatched are kept in the tank for a few days and then those zoea are released into the sea. The mother crab after hatching are sold to the buyers by the fishermen who caught the crab.

¹ Source of data: Saivason 2006

In this system, the project provides the fishermen with necessary facilities, equipment and electricity supply and each fisherman is responsible for transportation and looking after stocking and feeding. The transportation and discharging of zoea are carried out by the project. The main limitation factor in this system lies in that only gravid crab with matured eggs of black coloured can be protected but not all gravid crab.

2.3. Approach by the Settsu-Harima Fishermen Cooperative in Hyogo Prefecture, Japan

Aimed at enhancing the dwindling crab resource, a voluntary organization called "Gazami Fuyasou Kai (Swimming Crab Resource Enhancement Association – SCREA) was established in December 1986 in the Hyogo Prefecture, Japan with the following justification, approach and activity.

- The objective of this association lies in enhancing the crab resource in a way of protecting gravid crab.
- Under the normal environmental condition, a crab spawns 3 – 4 times from May to September a year. A gravid female crab hatches about 1.8 million (between 1 to 3 million) zoea each time.
- The SCREA purchases gravid crab from fishermen at the prices which differ depending on sizes and paints the red cross-marks on the carapaces and returns them back to the sea.
- When fishermen catch any crab with the red cross-marks on, they have to return them back to sea.
- Female crab are normally molted after hatching a few times. Then, the red cross-marks are disappeared. Then, those are allowed to be harvested.
- Crab under 12cm in carapace length and with soft-shells are not allowed to be harvested and to be returned back to the sea.
- The control season is limited for the spawning period of 5 months from 1st May to 30th September.
- The cost of purchasing gravid crab is borne by the fund contributed by the members of SCREA.
- Anyone can be a member of SCREA and half of them are not necessarily engaged in fisheries but ordinary people.
- Those who have become the member of SCREA are endowed the membership cards.
- The target number of members is 800 and the amount of annual contribution per a member is 1,000 yen equivalent 330 Baht.

The system of this SCREA is depicted in the chart of Fig.1. The major advantage in this system lies in high survival rate of gravid crab and zoea compared with the cage or the batch systems in Thailand.

3. Discussion

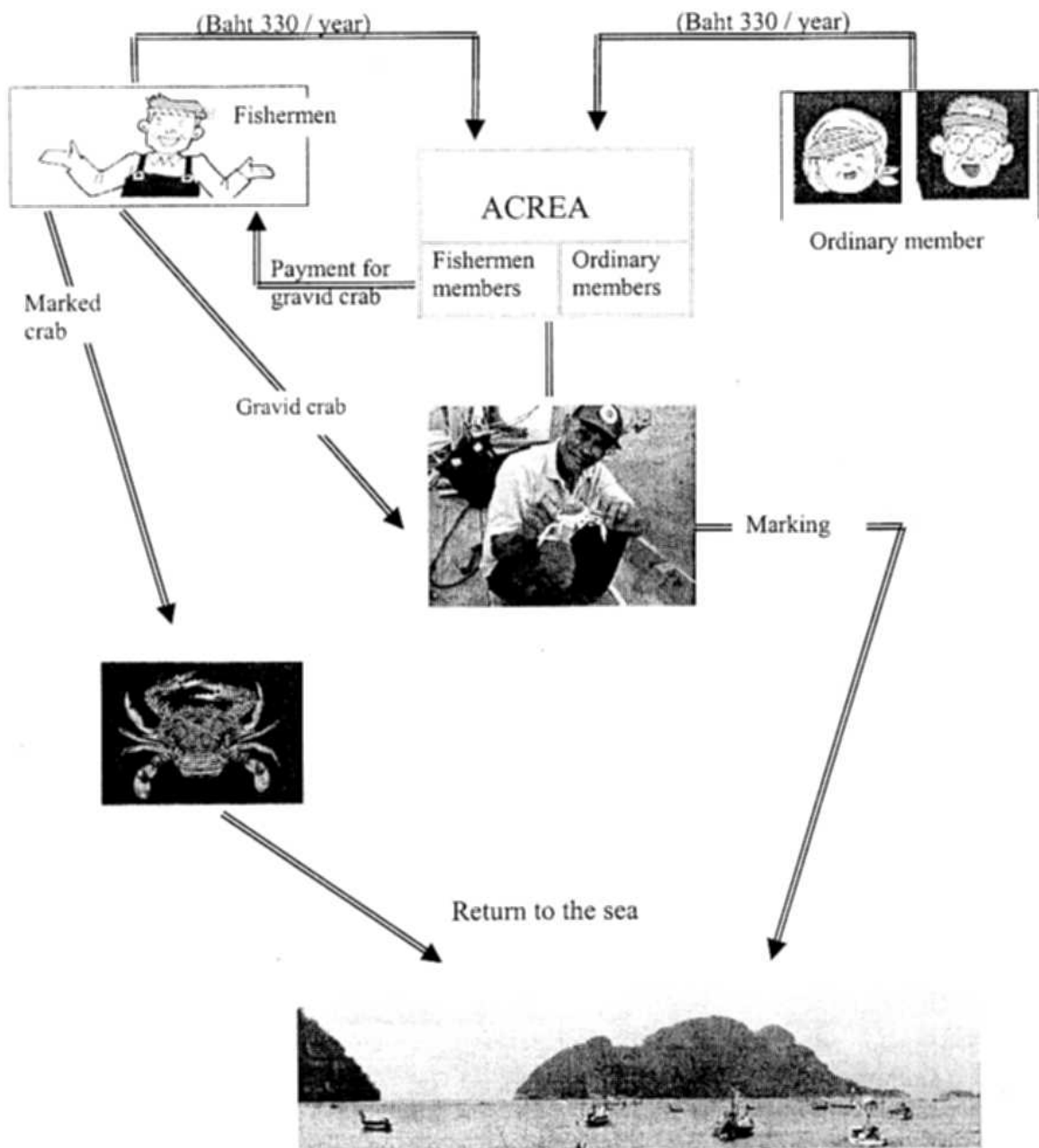
Among the above three systems, there are certainly advantages and disadvantages as discussed in detail in the following table 2.

As seen in the table, it is obvious the Japanese approach seems to be the most effective method thinking in terms of scientific recovery of the resources since gravid crab are returned to the natural environment where ensures the gravid crab and zoea higher survival rate and protected until the spawning seasons are over. Most gravid crab released are to spawn a few times more during a season. On the other hand, the gravid crab are protected only once in the

systems that are employed in Chumphon and Bang Saphan. Also, the cost of initial investment and operational expenses are considerably higher compared with the Japanese system.

However, implantation of the concept in resources management among fishermen is crucial factors in evolvement of the crab bank scheme, and taking this point into account the approaches in Thailand are more reasonable than the one in Japan demonstrating a visible impact to all beneficiaries concerned. This is a sizable advantage.

Fig. 1: Operational System of Fuyasou-kai (SCREA)



4. Conclusion and recommendations

The scheme initiated by the self-motivation of fishermen in Chumphon is admirable and encouraging. This has been operated with purely voluntary spirits by the members of CB under the self-regulated resources management framework as the members are not expecting any direct return from offering a part of their catches but just through possibly happening benefit of utilization of loan in future.

Thinking in terms of technical as well as scientific effectiveness, however, there seems to be some room to be further improved. In this senses, one can say that a model would be the one prevailing in Japan. However, it seems to be too haste to introduce such a system in Chumphon now. Certainly, the visible impact by the crab bank in Chumphon induces the fishermen to participate in the scheme. It may take time for them to realize the natural mechanize that multiply the crab resource in the natural environment. Also, an expansion of the awareness level to the public is essential for the fund raising purpose like having been practiced in Japan. The efforts should be continuously exerted toward application of such a system in future.

Table 2: Comparison sheet in the three crab bank systems

Assessment / System	Stocking in cages (Chumphon)	Stocking in tanks (Bang Saphan)	Releasing to the sea (Japan)
1. Survival rate of gravid crab	Low (about 50%)	High (only a few days stocking)	High (in the natural environment)
2. Survival rate of zoea	High (in the natural environment)	Relatively low (in air-agitating tanks)	High (in the natural environment)
3. Target gravid crab	All gravid crab	Only matured crabs before hatching (with black coloured eggs)	All gravid and potentially gravid crab (marked)
4. Operational season	During the calm seasons	All seasons	Spawning seasons
5. Cost of investment & operation <ul style="list-style-type: none"> - Initial investment - Labour - feed - fuel - Maintenance 	High (cages etc.) High (daily attendance at sea) High (one month at maximum) High (daily attendance at sea) High (repair of cages)	High (shed, plastic tanks, air pumps ect.) Medium (daily attendance on land) Negligible (a few days at maximum) Negligible (combined with fishing) Negligible (repair of air pumps ect.)	Nil Marginal (only marking) Nil Negligible (may rely on fishing trips) Nil
6. Income for the member fishermen	Nil (indirectly yes in the form of loan)	Sale of mother crabs after hatching	Sale of gravid crabs to the Crab Bank
7. Institutional support	Marginal	Need to some extent	Need to some extent (PR etc.)
8. Organization	Need a strong leadership and coordinator	Need a strong leadership and coordinator	Need a strong public awareness
9. Fund raising	Not necessary	Not necessary	Relying on fishermen as well as public contributions
10. Sustainability	Subject to the leadership	Subject to the leadership	Subject to the public awareness
11. Visibility of impacts	High	High	Low

Annex 3

Report on Study tour to Japan

June 19-25, 2006

Sumitra Ruangsivakul

27th June 2006

1. Background

Prof. Fushimi is a member of HunetASA, which is a renown NPO organized among fisheries related professors in Japan. He visited the project site of ICRM-PD in Chumphon, Thailand in May 2005, and was deeply impressed by the project activity, especially on self-regulated crab resources management organized by the fishermen themselves. He suggested to them to inspect a more advanced approach of so-called Crab Bank operating in Hyogo-prefecture in Japan. Further, he recommended that it would also be conducive for the newly established Pakklong Fishermen's Group (PFG) in Chumphon to study how Japanese fishermen cooperatives are engaged in community-based fishery resources management and development in multiple local business lines. After returning to Japan, he made an internal arrangement to invite two people, namely the chief of the Crab Fishing Sub-group of PFG and the SEAFDEC/TD extension worker assigned in Chumphon, to visit Japan. Taking advantage of this occasion, the SEAFDEC/TD decided to send the Chairman of PFG, Head of Soci-economic section/TD and Project Leader/TD at the expense of SEAFDEC/TD. Under such arrangement, the study tour to Japan was held from 19 to 25 June, 2006. The notable findings are reported below.

2. Objectives of the study tour

The objectives to be pursued during this study tour to Japan were;

- to learn a structural organization and management practices of fishermen's cooperatives
- to learn approaches in community based fishery resources management within the framework of fishermen's cooperatives
- to learn approaches in business and enterprise activities managed by fishermen's cooperatives
- to learn the fish distribution and marketing system established by fishermen's cooperatives
- to demonstrate the crab bank activity in Thailand to the members of Gazami-Fuyasoukai and mutually exchange views
- to inspect the detail activity of Gazami-Fuyasoukai in Japan and to learn advantages with them

3. Travelers

- | | |
|-----------------------------|---|
| 1. Mr. Seiichi Etoh | Project Leader |
| 2. Ms. Sumitra Ruangsivakul | Socio-economic Section Head, Research Division |
| 3. Mr. Wara Kateumpai | Chairman, the Pakklong Fishermen's Group (PFG), Chumphon Province |

- | | | |
|----|---------------------|--|
| 4. | Mr. Jang Fungflueng | Chairman, the Crab Trap Fishermen's Sub-Group
/the leader of Crab Bank, PFG |
| 5. | Ms. Napat Plongjit | Extension worker responsible for the ICRM-PD,
SEAFDEC/TD, Chumphon Province |

4. Itinerary

19 June (Monday)

- Leave BKK for Osaka (TG626 ETD 13.00 / ETA 20.30)
- Stay in Kobe

20 June (Tuesday) – Dr. Phattareeya also joined the meeting.

Hyogo-Gyoren

- Visit Hyogo-Gyoren for briefing the activity and history of a fishermen's cooperative
- Brief the activity and background of PFG
- Inspect facilities and activities of fishermen's cooperative
- Exchange views on cooperative management

21 June (Wednesday)

Gazami-Fuyasoukai (GF-Kai)

- Visit the office of GF-Kai for briefing their activity
- Brief the activity of Crag Bank in PFG (CB-PFG)
- Exchange views between GF-Kai and CB-PFG
- Move to Hamamatsu by train

22 June (Thursday)

Shizuoka Fisheries Research Institute Hamanako Station (SFRIHS)

- Visit the SFRIHS for briefing the activity and history of SFRIHA
- Briefing the activity and background of PFG
- Inspect facilities and activities, especially related to planning and deployment of CBRM concept, and culture of shrimp and swimming crab
- Exchange views

Hamana Fishermen's Cooperative (HF-Coop)

- Visit HF-Coop for briefing their activity and history of HF-Coop
- Brief the activity and background of PFG
- Study on approaches in resources management and enhancement for short-neck clam
- Exchange views in cooperative management and deployment of related business lines

23 June (Friday)

- Inspect facilities and activities including fish landing, distribution, marketing and processing operated by HF-Coop.
- Move to Tokyo

24 June (Saturday)

- Visit the Tokyo Central Fish Market

25 June (Sunday)

- Leave Tokyo for Narita
- Leave Narita for BKK (TG677 ETD: 16.55 ETA: 21.25)

5. Results

- 5.1 Visit Hyogo-Gyoren (the Federation of fishermen cooperatives in Hyogo-prefecture), Kobe -city

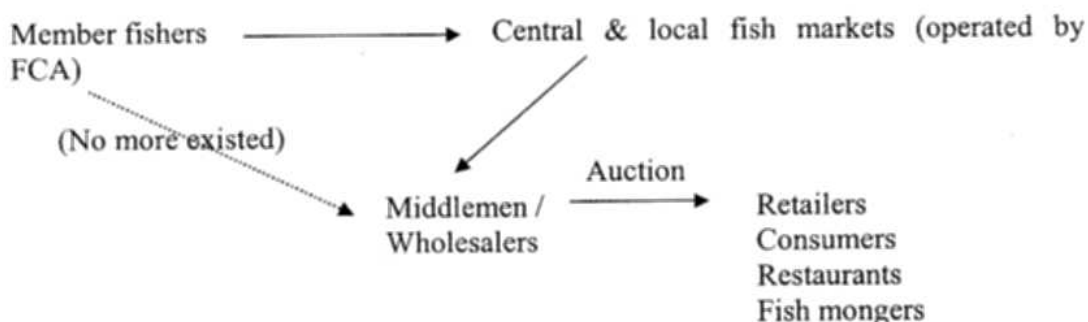
- Mr. Tanaka (the Chairman of Gyoren) and Mr. Koyama (the Manager) welcomed the SEAFDEC's delegates and Prof. Fushimi introduced SEAFDEC's mission, and objectives and background of this study tour; all participants from Thailand introduced themselves.
- Mr. Koyama explained the schedule for the day: the morning session was for discussion and exchanging views on fishermen's cooperative organization and management in general; followed by a visit to the fishing port for inspection for auction activities; and the afternoon session was discussion on fish marketing at the meeting room of Hyogo FC.
- Mr. Etoh explained the background and objectives of this trip as the SEAFDEC/TD was implementing ICRM project with the main objectives on establishing a resource management system at the community level in Thailand, Malaysia and Cambodia. A fishermen's cooperative association (FCA) in Japan generally prepares a workable fishery resource management plan by fishermen, which is considered useful to learn this approach and apply to the project in Thailand.
- Mr. Koyama explained the history of FCA in Japan as in 1868 (Meiji era) the government divided the fishing ground for fishing to fishermen and provided permissions to fishermen.
- Mr. Koyama informed that the FCA has four main activities, i.e. supplying fishing gear, fish marketing, banking and insurance. There are two auditors to inspect the FCA business. The main work of the bank was to provide loan to members for purchasing fishing gear. One of the general activities is to organize various meetings to discuss issues on cooperative management and activities.
- Prof. Fushimi gave more information that the fishing right was opened to everybody in Japan before the second World War, and it was entrusted to the FCA after the second World War, and fishermen are bound to be members of FCA. The main duty of fishermen was to catch fish and take care of their fishing ground.
- Mr. Etoh explained that fishery enforcement in Japan are divided into two levels: the national and the provincial levels. Fishermen must take care of fishing ground and inform the enforcement unit when he detects illegal fishing. Some FCAs own patrol boats by themselves to protect the high value species like abalone, clam and lobster.
- As to anchovy fishing in the area, the FCA purchases fish from its members and sell to middlemen through auction. Then, anchovy are processed in the factories owned by FCA.
- For the credit scheme, there are three types of lending, which differs in interest rate as:
 1. Full member can get loan with low interest rate.
 2. Members with savings can receive loans with low interest rate as well.
 3. Members without saving can receive loans with higher interest rates.

Questions and answers

- Q - What is the involvement by the government and/or other agencies in the fishery resources management? (Mr. Wara)
- A - In those days, then the government provided a fishing zone to fishermen and granted fishing licenses to fishermen. The government involved in resources enhancement with means in installation of ARs, fish releasing and monitoring fishery resource dynamics.
- Q - Are fishermen still selling their catch to middlemen, and if so, why? Fishermen have debt or not? (Mr. Jang)

- A - Fishermen nowadays do not sell fish directly to middlemen. This system was discontinued after the Second World War, but middlemen are incorporated in the marketing system which is operated by the FCA as buyers in the auction as shown in the following diagram. No more loan from middlemen has existed.

Diagram 1. The fish marketing channel of FCA



Fish harvested by member fishers are landed at the central or local fish markets managed by the FCA for auction. At the auction, middlemen or wholesalers who are licensed by the FCA can buy fish and distribute to retailers, large consumers, fish mongers and restaurants. (In Japan, the fish price is fixed in an auction; but in Thailand, middlemen set the prices of fish.) This process may cause problems if the number of bidders is limited. But, as a matter of fact, it has never happened because of the constantly strong demand of fish. The auction is held 6 days a week, and starts at 12.00 p.m. every day, it normally lasts for two hours or so.

Q - How to manage the FCA? (Mr. Etoh)

A- The FCA is basically managed by employed staff governed by a committee which consists of FCA members (fishermen). They are engaged in various businesses like selling fuel and lubrication oil, buying and selling fish, mini-banking, operating ice plants, fishers sales outlets, etc. As such, the FCA earns income, e.g. 5% commission for selling fuel, 2% commission for selling fish at an auction, 6% handling charge from fishermen for selling fish, etc. Those incomes enable the FCA to employ staff.

Q - What benefit can FCA members get from FCA? (Mr.Etoh)

A - The profits of FCA are shared with members and also used for future investment for establishment of new business for members.

Q - How to select middlemen and how many middleman in each FCA? (Mr. Wara)

A - Actually, there is no limit for the number of middlemen. But, certain conditions are imposed to participate in auctions, like minimum quantity of purchase a year, deposit of guarantee fund to the bank and immediate settlement of transaction, etc.

Q - Historical background on reforestation of mountains? (Mr. Etoh)

A - Because trees produce a lot of bio-chemical substances that provide nutrients to the sea. This was noticed by fishermen's experience a few decades ago.

Q - What activities are done by women's group? (Mr. Etoh)

A - Women's groups are mainly engaged in fish processing, assisting fishermen for fishing gear rigging and fish distribution.

Q - Do they use squid cast net in Japan? (Mr. Wara)

A - In Japan, the main method to catch squid is jigging and followed by gill netting. For squid jigging, light is used and the power for lighting depends on the capacity of fishing boats.

Q - What fishing gear do they use for catching swimming crab? (Mr. Chang)

A - Mainly by trawling, gill net and set net, and purse seine to lesser extent. Crab traps were used in old days, but discontinued now as they catch indiscriminately all sorts of fish.

Q - Is there any problem for payback the loan to FCA? (Mr. Wara)

A - Yes, it happens but very few. In case of failing to payback the loan, normally it can be recovered from a mortgage or guarantors. (Mr. Wara informed of the loan activity of PFG as in the next month the group will begin lending loans to members with 2% interest per month.)

Q - How to become a member of this FCA?

A - Fishermen must proceed in the career step by step as follows:

1. First step, he must be an employed fisherman for not less than 3 years
2. He must go fishing at least 90 days per year
3. He must sell products to FCA.
4. After that, he can be a temporary member of FCA.
5. He can buy a fishing boat and become an independent fisherman.
6. The Committee inspects his activity and behavior.
7. Subject to the Committee's approval, he can buy shares.
8. Then he is qualified to be a full member.

5.2. Discussion on Crab Bank

- Mr. Etoh explained the two systems of Crab Bank in Thailand, i.e. stocking gravid crab in cages in Chumphon and in plastic tanks in Bang Sapan. Now Malaysia and Cambodia are interested in this venture.
- Mr. Koyama explained the background of crab bank in Japan where the system was to release crab with eggs after marking the carapace of crab with numbers.
- Mr. Koyama explained the objective of crab bank. The Crab bank activity was established in 1986 by the young generation in a bid to protect crab resources in the natural environment.
- This activity starts from May to September every year as this period is the spawning season of swimming crab. (It differs in Thailand.)
- The methodology of releasing: gravid crab caught by fishermen are brought to the Crab Bank and the staff of FCA marks the carapace of each crab with symbols and record the location of harvesting and the date of releasing before discharged them to the sea.
- The size of crab must not be less than 12 cm in carapace width, but fishermen release smaller crabs and soft shell one as well.
- Now the number of released crab decreases because fishermen release the gravid crabs voluntarily without bring them to the crab bank center as fishermen realize the benefit of the crab bank and its effectiveness in protection This is an ideal approach for the Crab Bank, meaning that "the eternal goal for crab bank is to close the activity" when all fishermen return gravid crab to the sea voluntarily instead bringing them to the crab bank all the way.

- Currently, fishermen are compensated with the amount for the cost of released crabs every 15 days; the price of the crab depends on the total amount contributed by fishermen. The subsidies received from agency and contribution from ordinary members are used for publication, preparation of extension works and other miscellaneous supporting works.
- The second objective of this activity is to build up the awareness of fishermen.
- Each volunteer member is to contribute J. Yen 1,000 per year. At present, 512 fishermen and 337 ordinary members totaling 849 members are contributing. In addition, some subsidies are made every year from a few fishermen cooperative association.

5.3. Visit to Hamanoko Branch Fisheries Experiment Station

- Mr. Fumio Tsukui, Director, first welcomed the mission.
- Prof. Fushimi explained the background and objective of SEAFDEC's mission.
- Mr. Fumio Tsukui explained the duty of the station as this station is to take care and develop the fishing ground in Hamana Lake. The main species in this lake are clam, Kuruma prawn, swimming crab, mangrove crab and other fishes; and the main fishing gear are set net and gill net.
- Mr. Fumio Tsukui explained more on resource management plan for each species. As clam is the most valuable species harvested in the lake, there are 3 methods for resource management, i.e. destroying predators, releasing fingerlings and setting the allowable size for catch limitation.
- For prawn, swimming crab, mangrove crab and other fish, fingerlings are released to the sea. The FCA released clam and crab because they are not the species to migrate widely. The prefecture fisheries office released migratory species like prawn and some fishes.
- As crab catch had drastically dwindled during the period from 1972 to 2001 and the fishermen felt extinction of the resources. The major cause is the improved fishing technology and gear. In 1990, the government started to release fingerlings. But its impact has not been verified.

Questions and answers

Q - Why was the number of released fingerlings differed each year? (Ms. Sumitra)

A - The number of released fingerlings depends on survival rate of fingerling purchased from hatcheries. (This method is different from Thailand where the government procured fingerlings from various hatcheries so that they can collect the budgeted amount every year.)

Q - Is there any conflict between fishermen and the authorities on the issue of resources management approach? (Mr. Wara)

A - Yes, naturally. But it is the main function of extension workers who try to coordinate between them.

5.4. Visit to the Hamana Fisheries Cooperative

- Prof. Fushimi explained to the committee member of Hamana's FCA on the background and objectives of the study trip of SEAFDEC's delegation.
- Four committee members of Hamana FCA came to discuss with SEAFDEC's mission. One of members explained the history of FCA that in 1965 the Hamana's FCA was

established by merging 17 minor FCAs into one. This FCA was divided into 7 divisions covering two cities. There were two reasons to combine minor FCAs, i.e. financial benefit by merging the administrative work and collaborative resources management. Before merging, each FCA operated at a small financial scale, facing a difficulty to provide loan and to deploy business. The second reason was that each FCA must have a resources management plan, and the cost for pursuing this activity separately was relatively high and it needed more manpower.

- The main fishing gears used in this FCA are pair-trawling for anchovy and gill net. There are 132 pair trawlers in operation.
- There are two kinds of member, i.e. a full member (1,000 members) and part time member (800 members) including middlemen, active fishermen, and retired fishermen.
- The main activities of this FCA include marketing fish caught by members, selling fuel and lubrication oil, fishing gear and other related commodities, managing an ice factory, a dock yard for boat repair and maintenance and a mini-bank. (this banking activity was transferred to the public bank in December 2005 by the order of government)
- The Hamana's FCA is divided into 10 sub-groups according to different types of fishing gear. The most active one among them is the one for clam fishing. This sub-group has 576 full members, last year they had net income more than 1,186 million yen. Each member pays 10,000 yen for resource management activity and 6,000 yen for license every year. Only the clam sub-group is increasing the number of its members, while other sub-groups are decreasing their membership..
- The Clam sub-group has internal regulations as,
 1. The limit on size and quantity of harvested clam: there are two types of sieve for size separation, 2.8 and 3.0 cm. The harvestable size of clam must be bigger than 2.8 cm. Fishermen can catch small size not more than 44 kg or 2 buckets (22 kg/bucket) and the total allowable catch per day is 110 kg or 5 buckets per member
 2. The time of fishing was limited from sunrise until 1:00 pm, and no fishing on Saturdays and national holidays.
 3. The limit on fishing zone: the off fishing area in the lake is the ground used for nursery of clam; so that fishermen are not allowed to catch clam in these areas.
 4. This group has its own enforcement unit which carries out patrolling voluntarily in the lake for illegal fishermen in use of their own fishing boat with fuel paid by the FCA.

Questions and answers

Q - How to become the fully qualified member of this FCA? (Mr. Wara)

A - After fishing for one year under the apprenticeship, one is eligible to buy minimum shares at a value of 263,000 yen (500 yen/share). Also, other conditions to become a full member are selling certain amounts the catch to the FCA with 4 % commission to FCA and 90 days of minimum engagement in fishing per year, etc.

Q - The maximum tenure of the committee members? (Mr. Wara)

A - It is 3 years per one term, but no limit for repeated terms. The committee members are elected by members every three years The Committee is composed of 15 members.

Q - How far from the shore the pair trawlers can operate? (Mr. Wara)

A - Not fixed, depending on anchovy's school. Fishing time is limited from sunrise to 1.00 p.m..

5.5 Visit to Tsukiji market at Tokyo

Visiting to the central Tokyo Fish market was held in earlier morning on 25 June, 2006. The market supplies fish and fish products to residents in Tokyo and its neighboring prefectures. The market was too huge for the fishermen from Chumphon to comprehend. Nevertheless, they were very impressed by the hygienic standard in fish handling and the plentiful varieties of fish handled. Also, the auction system was new to them, which is certainly incorporated in their future plan.

6. **Conclusions**

Undoubtedly, this study tour was very useful and fruitful to members of the SEAFDEC team, especially for the fishermen and the extension workers. It is expected that the experience and knowledge gained through this study tour are to be reflected in their future development plan on group activities and coastal resources management approach. Their findings from this trip and the vision incorporating these findings in the future will be presented to other PFG members at a workshop to be organized in July 2006. The result of the study tour will be disseminate to all group members, who will be able to make the best use of it in coastal resources management practices in the future. Therefore, this report should be read together with the outcome of this workshop.

Lastly, but not least, We would like to extend the sincere appreciation to the NPO HunetASA for enabling us to visit Japan this time to inspect coastal fishery resources management activities, which is very fruitful and conducive for the future progress in coastal fishery resources management and integrated community development in Chumphon, Thailand. The special thanks are given to Prof. Fushimi who initiated this attempt and made all his endeavors to arrange this study tour. And also, we would like to thank for all efforts made by Hyogo-Groren, Gazami-Fuyasoukai, Shizuoka Fisheries Research Institute Hamana Station and Hamana Fishermen's Cooperative for sparing their busiest time to meet us.

Annex 4

Report on Experimental Babylonia Shell Culturing



Sei Etoh
Project Leader
SEAFDEC/TD
3rd March 2006

1. Background

The project "Integrated Coastal Resources Management in Pathew District (ICRM-PD) has been operational since October 2001 in Phakklon. This is the project in collaboration with the Royal Project, DOF Thailand and other organizations including the Marine and Coastal Resources Research Center (MCR). As one of project activities, it has attempted to promote prospective local business among fishers and women's groups in the project area since inception of the project. The implication in this attempt lies not only in increasing supplemental income sources among fishers' families but also in the search for alternative job opportunities to avert over-capitalization in fishing effort.

Babylonia shells are widely consumed in Thailand at relatively high price. Moreover, the demand for this shell has been boosted recently after the export market to Taiwan has been exploited. A substantial amount of this shell has probably been exported to some foreign markets although no precise statistical data is available. With such a marketing trend, the culturing of Babylonia shell has commenced in the central part of Thailand especially in the Chonburi Province to meet the expanding domestic demand. The project considers it worthwhile and promising to introduce this new venture among those who are interested and plans to commence a demonstration cum experiment with the technical collaboration of Chumphon Coastal Aquaculture Station (CCAS) during the off-monsoon season from March to October. The potential beneficiary should be the members of Phakklong Fishers Group (PFG) since this experiment is conducted jointly with SEAFDEC/TD, PFG. and CCAS.

2. Experiment and demonstration

2.1. Operational mode

In consultation with the PFG, the candidate who was expected to conduct an experiment was selected from the Aquaculture Sub-group. This is the scheme to be jointly conducted by SEAFDEC/TD, PFG and CCAS with the respective role in the experiment. The SEAFDEC/TD coordinates the whole scheme and provides with necessary expenses, while the CCAS provides technical supervision and the PFG is responsible for practical implementation. The mode of operation in experiment is dealt at length in the "Scheme for experimental babylonia shell culturing" of Annex 1 attached hereto.

2.2. Construction and installation of cages

The construction of cages commenced in the mechanical workshop of SEAFDEC/TD in July and completed August. The 9 cages were installed in the bay of the Village No. 7 on 23-24 August 2005 including the training course for the fishermen in construction and

installation of cages. Further, 3 more cages were constructed and installed on 29 November to 1 December 2005 meeting the requirement to increase the spaces for growing shells.

2.3. Experiment

The experiment was commenced on 25th August 2005 with transferring 10,600 shell seeds from the CCAS in Chumphon. The size of seed is 1.40cm in length and 0.48gr in average or 2,083pcs per Kg. The price is 0.60 Baht per pieces. The seeds were divided into 9 cages containing 1,200 seeds in 8 cages and 1,000 seeds in one cage.

Looking after the culturing facilities and feeding were entrusted to a fish farmer who was designated by the PFG. He went to the cages almost every day by a motorized boat to feed babylonia shell. The feeds he used were trash fish mainly caught by squid cast-netters as by-catch and sold at around Baht 15 per Kg. The feeding quantity were initiated 0.5Kg and increased to 2-3Kg depending on the growth stage of the shell. The amount of feed given every day was recorded by the contractor.



The growth in length and weight was measured and recorded by the SEAFDEC/TD extension officer and the assistant researcher periodically; it was planned every two weeks but could not be kept this measuring schedule due to the condition of the sea and other



2.4. Result

The results of periodical measurement in length and weigh and also the amount of feed given are tabulated in the table 1 of Annex 1.

As seen in the table, the growth rate has been increased until 79 days and thereafter it has been significantly reduced and continued to be the low level on end.

The change of conversion rate is also shown in the table 1. The rate in the initial stage until 16 days is recorded as high as 42%, thereafter it is remarkably reduced to 7 -14 % and further reduced to 1- 2 % until the end of the experiment. These trends are figured in Fig. 1.

2.5. Discussion

It is obvious that the shell grew satisfactorily in the initial stage until 80 days, but since then they showed little increase in weight, merely 0.22gr during the next 80 days. This demonstrates only 8% weight increase compared with the one on the day of 79. It is definitely beyond comprehension and there seems to be something wrong in somewhere. It does not seem to be because of the lack of feed according to the feed supply record. It is more striking when compared with the data of experiment conducted by Dr. Ninnard Chaithavisut, Chulalongkorn University in 2002 (Ref. Fig. 1). In this experiment, the shell could reach to the size of 6.5gr within 5 months and of 8.7gr which is a marketable size within 6 months.

Aimed at investigating the cause of mal-growth in the shells during the experiment, the joint inspection with the researcher of CCAS was conducted on 27 February 2006. As a result, it was suggested that the shells could not grow as expected for the reasons that;

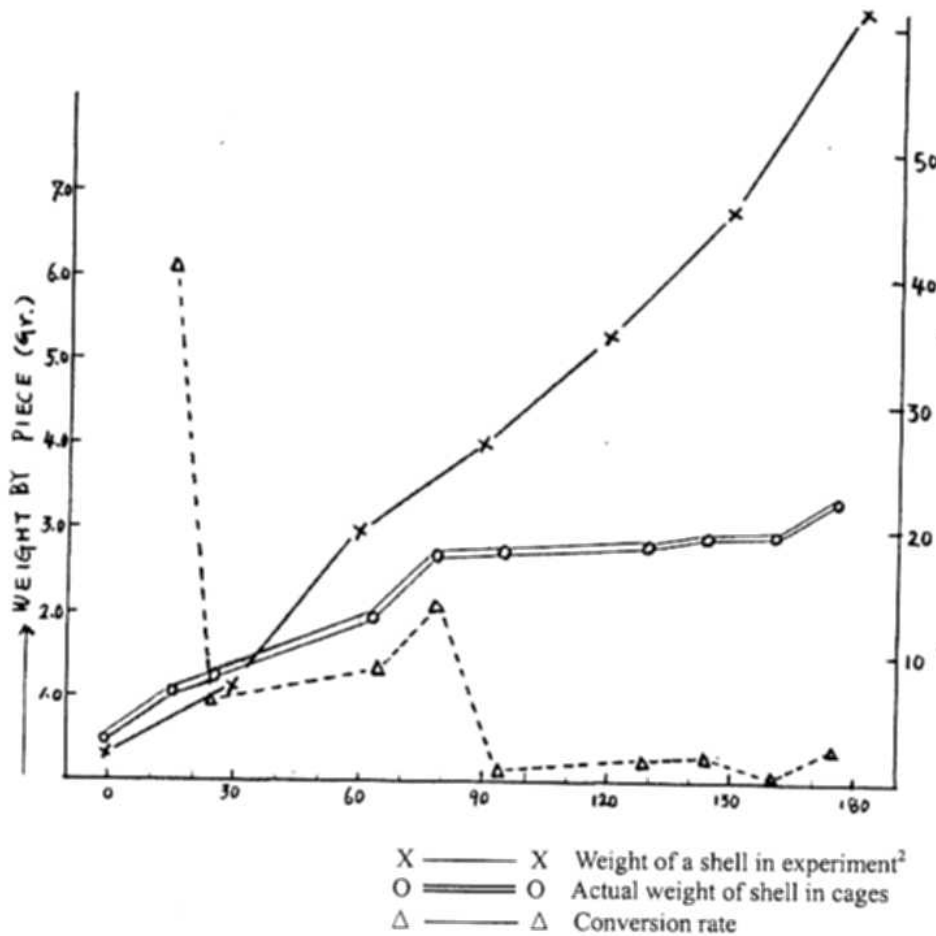
- The culturist responsible for feeding might not supply feed regularly,
- The shells did not eat enough feeds due to the unfavourable sea condition (monsoon)
- The density of stocking is too high (reasonable population is 500 shells per sq.mtr. against the actual number of 1,200 pcs.)
- The feed might not be suitable for babylonia shell growth.

3. Conclusion

The experiment is apparently failed. However, a good lesson remains for the project to be used in the future practical application. Based on the above outcome and experience, the second experiment should be conducted during the out-of-monsoon seasons.

With the data available at this stage, it is no use to make an economic return calculation. It should be fulfilled pending finalization of the second experiment.

Fig. 1: Changes in weight and conversion rate of babylonia shell during culturing



² Ref. to Manual of babylonia shell culture, 92p, Ninnard C. 2002

Table 1 Growth of Babylonia shell cultured

Measuring date	Accum'd culturing days	Length measurement			Weight measurement				Total feed given		Number of shells (Pcs)			Calculation of C.R.	
		Mean (cm)	Increase (cm)	G. rate (%)	Pcs. per Kg	Mean per pc. (gr)	Increase (gr)	G. rate (%)	(Kg)	(Baht)	Survived	Dead	Escaped	Feed taken per pc. (gr)	Rate (%)
25.08.2005	0	1.40	-	-	2,085	0.48	-	-	-	-	10,600	0	0	-	-
15.09.2005	16				944	1.06	0.58	121.0	14.8	222.0	10,600	0	0	1.40	41.6
25.09.2005	26	1.78	0.38	27.3	885	1.13	0.07	6.6	10.5	157.0	10,600	0	0	0.99	7.1
02.11.2005	64	2.03	0.25	14.2	518	1.93	0.80	70.8	75.0	1,125.0	8,550	0	2,050	8.77	9.1
17.11.2005	79				372	2.69	0.76	39.2	45.0	675.0	8,550	0	0	5.26	14.4
03.12.2005	95				370	2.70	0.01	0.5	40.5	607.5	8,420	0	130	4.81	0.3
07.01.2006	130				358	2.79	0.09	3.4	56.0	840.0	8,420	0	0	6.65	1.4
22.01.2006	145				343	2.92	0.12	4.4	28.0	420.0	5,000	0	3,420	5.60	2.2
07.02.2006	161				341	2.93	0.02	0.6	38.5	577.5	5,000	0	0	7.70	0.2
22.02.2006	176				300	3.33	0.40	13.7	46.0	690.0	5,000	0	0	9.20	4.4
Total									354.3	5,314.0			5,600	50.38	9.0

Note 1: The cause of lost shell can not be identified for either being dead or escaped

Note 2: The number of survived shell is based on assumption.

Annex 5

Report on The 4th Pakklong Aquaculturist Group Meeting 23rd January 2006

Saivason Klinsukhon
2nd February 2006

1. Background

Consistent with the work plan of Integrated Coastal Resources Management in Pathew, Chumphon Province (ICRM-PD), the project plans to organize a general fishermen's assembly with the PFG on 23rd January 2006 aimed at explaining the process of registration, rules and regulation of the new PFG to all members. This group was already approved on group registration with the Cooperative Promotion of Chumphon and the new group was named as the "Pakklong Aquaculturist Group (PAG)". This meeting was called for all members and interested fishermen to organize a new committee and call for agreement on internal regulation and rules and the work plan of group.

2. List of participants

SEAFDEC/TD

1. Mrs.Sumitra Ruangsivakul
2. Ms.Saivason Klinsukhon
3. Ms.Rattikarn Pongjit(staff at project site)

CMDEC/DOF

1. Ms.Thitipon Supaniran
2. Ms.Sunee Dateaumnat

PFG' group

1. Mr.Vichan Tithada
2. Mr.Wara Kateumpai
3. Mr.Niyom Daengkaew
4. Mr. Taewan Pornwiladsiri
5. Mr.Chaisit Chaitui
6. Mr. Cheaud Kaewmanee
7. Mrs.Ooy Yusuk
8. Mrs.Kwanjai kaewmanee
9. Mr.Somma Naktong
10. Mr.Pairin Suwanbut
11. Mrs.Samorn Kulhasuwan
12. Mr.Jerawat Suwanbut
13. Mr.Kijja Janpathew
14. Mr.Lead Sangploy
15. Mr.Winai Sakulnum
16. Mr.Adisak Saeheng
17. Mr.Chalaew Bunchu
18. Mr.Somchat Somsorn
19. Mr.Thippawan Noratod
20. Mr.Bunsong Peansanong
21. Mr.Songkarn Janpetch
22. Mrs.Umporn Sritongkul
23. Mr.Chumphol Semul
24. Mr.Vachira Rattanapakdee
25. Mr.Anu Sontorn
26. Mr.Jarae Kulabsri
27. Mr.Suchep Kullamat
28. Mrs.Downrung Noratod
29. Mrs.Sonjai Promkate
30. Mrs.Bunaon Somsorn
31. Mrs.Sureporm Phonlakul
32. Mr.Phonrat Petchdee
33. Mr.Mana Noratod
34. Mrs.Somsri Thawon
35. Mrs.Areeya Wichaidit
36. Mr.Winai Katekaew
37. Mr.Natee Yusok
38. Mrs.Pranom Bunchu
39. Mrs.Downrung Promnoi
40. Mr.Sman Rattanapakdee
41. Mr.Somchok Promkate
42. Mr.Supasak Saikate

Cooperative Promotion Office (CPO) of Chumphon Province

1. Ms.Supavadee Pattanakit
2. Mr.Wichean Chansattabut
3. Mrs.Samonsri Jaraprapad
4. Mr.Chalermphon sahachatmanop
5. Mr.Piyarat Yamakup
6. Ms.Nittaya Suttiwipat
7. Mr.Somchai Meesang

Small and Medium Enterprise Development of Thailand (SME Banks)

1. Mr.Kitti Pakdeepong
2. Mr.Chunnachok Nunaead

3. Content of Meeting

- Mr.Wara Kaj-umpai, Chairman of PFG's Group, explained the process of registration to the fishermen's group. This group have been approved, but the name of this group was changed from Pakklong Fishers' Group (PFG) to Pakklong Aquaculturist Group (PAG). The original Pakklong Fisheries Group was established 12 years ago and the name is still in registration with the Provincial office. This meeting had 8 agendas as;
 - 1) Function and roles of Cooperative Promotion office (CPO)
 - 2) Adoption the last meeting minutes
 - 3) Work plan in 2006
 - 4) Accounting
 - 5) Loan
 - 6) Establish Committee
 - 7) Establish Inspector
 - 8) Others
- Ms.Supavadee Pattanakit, Head of Group Forming, Chumphon Cooperative Promotion, explained that CPO has 3 sections; i.e. group forming, group establishment and group management.
- This group has now passed the group forming stage and the group registration process is under the way. The next step is onto the group management. An officer responsible for this function takes care of any activity of Pakklong Aquaculturist Group (PAG).
- Ms.Supavadee Pattanakit explained more on work plan in 2006 saying that the group activity should be prepared by the members of PAG. This group have 34 members now and all members can propose activities to the group.
- Mr. Chunnachok Nunaead, the SME Bank representative gave information on the system of loan and the channels to apply to it. The SME Bank approves the fund upon examination of proposed activity. The SME Bank can provide loans for various business if considered economically sound. Those would provide also loans with a package in marketing research and training for the business like value added products production.
- Mr. Wichean Chansattabut, the Head of the management group explained an accounting system as that PAG should fix the date of closing account on 30 September of each year for reconciliation. The CPO would assign their staff to assist in accounting to the group.
- Mr. Wichean Chansattabut explained on the loan pattern as that if PAG needs loans to expand group business, the fund should not exceed more than 3,000,000 bath/year.
- Mr. Wichean Chansattabut explained to establish a new committee which was elected 7members at the last meeting. This group should establish a new committee with the number of committee members with the odd figures like 7, 9, 11, 13 and 15 depending

on the size of the group, In case of the PAG, this group should be with either 9 or 11 members. Following to the suggestion, the 11 committee members were elected as follows.

- | | | |
|-----|-----------------------|---------------|
| 1) | Mr.Wara Kateaumpa | Chairman |
| 2) | Mr.Aumphon Sritongkul | Vice Chairman |
| 3) | Mrs.Aoumporn Bunnak | Secretary |
| 4) | Mrs.Bunaoun Somsorn | Treasurer |
| 5) | Mr.Winai Katekaew | Member |
| 6) | Mr.Sman Rattanapakdee | Member |
| 7) | Mr.Wichean Titada | Member |
| 8) | Mr.Adisak Saeheng | Member |
| 9) | Mr.Chumphol Saemo | Member |
| 10) | Mr.Pranom Bunchu | Member |
| 11) | Mr.Read Sangploy | Member |

- Mr. Wichean Chansattabut explained about establishing inspectors as that the group must have inspectors to check accounting of PAG's group. PAG can elect inspectors not more 3 persons but one them should be outsiders. In this line of instruction the following inspectors were elected.

- | | | |
|----|-----------------------|---------------|
| 1) | Ms.Thitipon Supaniran | CMDEC's staff |
| 2) | Mr.Anu Suntorn | Member |
| 3) | Mr.Winai Sakulnum | Member |

- The meeting was closed at 12.00 pm.

Annex 6

Report on The 3rd Steering Committee Meeting (SC)

Integrated Coastal Resources Management in Pathew District (ICRM-PD)

Venue : Tuna conference room, Floor No. 6, Chulaphon building, DOF, Bangkok

Date : 24th January 2006

Time : 09.00 -12.00 AM

Jariya Sornkliang

31 January 2006

1. List of Participant

DOF: Department of Fishery

- | | |
|----------------------------|--|
| 01.Dr. Poolsup Virunhakarn | Specialist of Fishery management, (Chairman) |
| 02.Mr.Taweep Boonvanich | Director of Research and Technology
Development Institute |
| 03.Dr.Mala Supongpan | Specialist of Marine Fishery |
| 04.Mr.Rungson Chayakul | Director, Beau of Marine Research and
Technology Development |
| 05.Mr.Somboon Lhoaprasert | Representative of Research and Coastal Fishery
Development Institute |
| 06.Ms.Arune Jindanont | Representative of Fishery Technology transfer and
Development Institute |
| 07.Mr.Prathas Sorrak | Representative of Fishery Management Institute |
| 08.Ms.Suchada Nunpakdee | Head of Academic group, Marine Research and
Development Institute |
| 09.Ms.Noparat Nasuchol | Representative of Chumphon Marine Fisheries
Development Center |
| 10.Ms.Chanthip Banluedach | Academic group, Marine Research and Development
Institute |

MCR: Marine and Coastal Resources Department

- 11.Mr.Vannakiet Thupthimsang Director of Research and Development Environment,
Phuket Province

SEAFDEC: Southeast Asian Fisheries Development Center

- | | |
|------------------------------|---|
| 12. Mr.Sei Etoh | Project Leader, SEAFDEC/TD |
| 13. Dr. Yutthana Thaparunrat | Head of Training Division, SEAFDEC/TD |
| 14. Dr. Vorawit Vanchana | SEAFDEC/SEC |
| 15. Ms.Sumitra Ruangsivakul | Socio-economic Section Head, SEAFDEC/TD |
| 16. Ms.Jirapa Komhongsa | Assistant Researcher, SEAFDEC/TD |
| 17. Mr.Saivasan Klinsukol | Assistant Researcher, SEAFDEC/TD |
| 18. Ms.Jariya Sornkliang | Assistant Researcher, SEAFDEC/TD |
| 19. Ms.Napach Pongjit | Extension Worker, Chumphon, SEAFDEC/TD |

2. Open address by chairman

- Dr. Poolsup Virunhakarn informed the meeting of the objectives of this meeting as discussion on project activities in 2005 and on the work plan for 2006 including the final project evaluation.

3. Content of discussion

Agenda I : General Information

- Mr. Taweep Boonvanich informed the name of project that, the name was changing from Locally Based Coastal Fisheries Management in Pathew District (LBCFM-PD) to Integrated Coastal Resources Management in Pathew District (ICRM-PD), because the project name was changed consonant with the new financial phase of Japanese Trust Fund , but DOF will use the old name for the sake of requesting their budget within DOF.

Agenda II: Background and Progress in 2005 by Mr. Taweep Boonvanich

- He explained the background, objectives, the period of project, project activities, progress of project and work plan in 2006.

Progress of Project in 2005:

Monitoring surveys

- Landing surveys operated 12 times/year, data collection from fishing gears, Crab gill net, Crab trap and Shrimp trammel net.
- Environmental survey operated 5 times/year, but the work plan was 6 times/year, because last year had strong monsoon.

Encourage and extend the CBRM concept

- Crab bank activity was supported by fishermen contributing increase of awareness among fishermen for resource conservation. The methodology of this activity is collection of crab with egg from the member of crab trap fishers' group, releasing them to the cages at the sea and selling crab after delivery of eggs every month. The profit is kept with the group for maintaining and providing loan to member.
- From study and data collection of number of crab on before release and after sell, only 50% of survival rate, the reason may be escaping from the cages or cannibalizing each other.
- Dr. Fushimi, the expert from Japan, explained on this as it may be released crab to nature, the survival rate will be more than 50%, but this data will be collected in the next year on the number of crab to release and number of crab to sell.
- The experimental of swimming crab culture, the survival rate was only 3%, the reason may be escaping from the cages due to breakage of the cage net or cannibalizing each other. The next year it will be continued again, but will be with the changed methodology.
- The FPG was established. This group composed 7 sub-groups, each sub-group divided by fishing gear and one aquaculture group. There are a lot of project activities done by this group, FED's installation, mangrove reforestation, fish releasing and babyloia culture experiment.

Encourage local business

- Project provided training course on bookkeeping and marketing to women's group.
- Follow up women's group No.1 on quality improvement by Fisheries Technology Development Department, DOF.

Enhance human resource capacity building and participation

- There is public relation activity on increase resources conservation in community.
- Community had participation to prohibit illegal fishing.

Rehabilitate and enhance coastal resources

- Project and PFG's group collaborated to train and installed 10 sets of FED, in August 2005.

- In 2006, Pakklong Fishermen Group (PFG) proposed 60 sets of FED to Ao.Bo.To, These FED will be installed on demarcated zone of project. The Project will collaborate with PFG to construction and installation, after Ao.Bo.To. have approved.

- Fish releasing, 1,350,00 aquatic seed such as Sea bas, Shrimp and Swimming crab.

More information on progress of project

- Ms.Sumitra Ruangsivakul gave information on PFG that, the highlight of this year was establishment of PFG. Now this group was approved and registered with Chumphon Cooperative Promotion, but the name of group will be change to Pakklong Aquaculturist group (PAG), because the name of Pakklong Fishermen Group had been used already in the registration in old days. If the old group would be deleted its name from the Province, the new PAG will be used by PFG. Fishermen group in Pakklong have two groups; i.e. PAG (registered group) and PFG (non-registered group).
- Dr. Poolsup Virunhakarn informed on crab bank at project, which presented at Technical Seminar in Trang province that, Mr. Jang Phungpheang was a resource person to present the crab bank activity in Pathew Project. Participants was interested in his activity, and this activity will become lesson to be learnt to other areas.
- Mr.Vannakiet Thupthimsang gave an opinion on crab bank that, the goal of this activity is encouraging awareness on resource conservation in the community.

Work Plan for 2006

- In 2006, CMDEC have budget 990,000 Bath for supporting this project, the work plan of this year are as follow as:
 1. Monitoring survey, every month
 2. Marine environment survey, 5 times/year
 3. Training
 - Student training on coastal conservation (30 persons)
 - Seminar on project evaluation (70 persons).
 - Enforcement training (30 persons)
 4. Product standard development
 5. Enforcement survey 11 times /year
 6. Fish releasing, 1,500,000 pieces of fingering
 7. Swimming crab experiment
 8. Sea bass experiment by comparison between artificial feed and fresh fish
 9. Implementing Committee meeting
 10. Steering Committee meeting

Agenda III: Project Evaluation

Discussion on project evaluation

- Project evaluation should be carried out by an out-source consultant.
- Mr. Taweep Boonvanich offered the way on project evaluation that there was two ways, evaluated whole of project (5 years) or only phase II, because the project was evaluated phase I already. The meeting agreed to evaluate the whole project.
- Dr.Worawit Vanchana informed the project on project evaluation that it should follow the project objectives.
- Mr.Etoh gave more information that some parts of evaluation on socio-economic have done by project before starting the project implementation and the similar socio-economic survey has to be conducted toward the end of the project.

- Project evaluation will be depended on the TOR, so the TOR will be drafted and discussed. SEAFDEC/TD will prepare it and sent to DOF and MCR for consideration and comments.
- SEAFDEC will support the cost of evaluation, including publication in two languages of Thai and English.

Project implementation after end of project

- Mr. Taweep informed on the end of project that, there are two directions; ICRM-PD project will be finished in December 2006 and transferred to Chumphon province office/Ao.Bo.To, or the project will be extended for continuous operation. The meeting agreed to extend the project beyond December 2006 in use of the budget of Royal Project, but this direction will cause a problem with CMDEC. This center has been supporting the project for too long time. The meeting would like transfer to Ao.Bo.To.
- Mr.Vannakiet Thupthimsang informed that SEAFDEC and DOF may reduce their activities in this year and transfer responsibility to Chumphon Province office /Ao.Bo.To.
- Ms.Suchada Nunpakdee gave information on project as ICRM-PD project was supported by Royal Project, so it could be continued by Provincial Fisheries (PDOF).
- Mr.Etoh said that, Fishers' group should continue the various activities like resource management by themselves even after the project be finished and phased out.
- In 2006, the PFG made a proposal to Ao.Bo.To. requesting FED's installation on demarcated zone, these construction will prevent trawlers' invasion and resource rehabilitation in Pakklong Sub-district.
- Dr. Mala Supongpan said that, DOF's will continue providing technical support to the project site after project finishes.

Agenda IV: Others

- Mr.Taweep Boonvanich said that SC meeting should be held more than one time in this year. The second SC of this year will be held before the end of the project.
- TOR's draft will be finished by the end of February by Mr.Etoh
- TOR's draft will be distributed to DOF and MCR for comments and all concerning parties hold a meeting to discuss for finalization of TOR.
- The meeting agreed to extend the project ICRM-PD until 2008 as the Phase III by DOF. The work plan in 2007 and 2008 will be prepared based on findings and recommendations derived from the result of evaluation.

4. Closing

- Dr. Poolsup Virunhakarn thanked all of participants in this meeting

Annex 7

Report on The 9th Implementing Committee (IC) Meeting ICRM-PD on 10th May 2006

Saivason

Klinsukhon

14 June 2006

1. Background

Under the Integrated Coastal Resources Management Program, SEAFDEC/TD and Department of Fisheries (DOF), Thailand, collaborated in formulating and planning the collaborative coastal fisheries management project in Chumphon. An aim of the collaborative project is to promote and achieve sustainable resource utilization. The second aim is community's participation. The duration of project is five years from 2001 to 2006. This is the second phase focusing on human development, especially on fishers' group in project site.

2. Objectives

The meeting was held for discussion on activities between project's staff and local people, the meeting was focused on the activities since last IC meeting and the immediate future work plan.

3. List of Participants

- | | |
|---------------------------------------|---|
| 1. Mr.Taweep Boonvanich
(Chairman) | Director of Research and Technology
Development Institute, DOF |
| 2. Mr.Pirote Saikliang | Director of CMDEC |
| 3. Mrs.Nipawan Nutsarawanit | Director of MCR |
| 4. Mrs.Noparat Nasuchol | Researcher, CMDEC |
| 5. Mrs.Jinda Petchkumneud | Researcher, CMDEC |
| 6. Ms.Thitiporn Supaniran | Researcher, CMDEC |
| 7. Mr.Tanadol Chantakhuan | Provincial Fisheries Officer, Chumphon |
| 8. Mr.Somporn Dachpakdee | Enforcement Officer, CFEU |
| 9. Mr.Preecha Prodtong | Director of Pathew District |
| 10. Ms.Phajongjit Boonnhun | District Fisheries Officer, Pathew District |
| 11. Mr.Niwat Kumpen | Chumphon Provincial Office |
| 12. Ms.Nattavadee Nokkate | Researcher, MCR |
| 13. Ms.Jumpee Timtong | Teacher,Ban-Pakklong School |
| 14. Ms.Prapa Deesamut | Teacher, Ban-Pakklong School |
| 15. Mr.Auttaphon Tunnung | Director of Ao.Bo.To. |
| 16. Mr.Wara Kateumpai | Chairman, PFG |
| 17. Mr.Reab Srikliang | Head of Village No.2 |
| 18. Mr.Suchin Namwong | Head of Village No. 5 |
| 19. Mr.Suchat Yadam | Head of Pakklong Sub-District |
| 20. Mr.Manut Yodkum | Ao.Bo.To |
| 21. Mr.Chat Tongchim | Development of Pathew District |
| 22. Mr.Sei Etoh | Project Leader, SEAFDEC/TD |

23. Dr. Yuttana Theparoonrat	Div. Head, SEAFDEC/TD
23. Mrs.Sumitra Ruangsivakul	Section Head, SEAFDEC/TD
24. Ms.Jirapa Kumhongsa	Asst. Researcher, SEAFDEC/TD
25. Ms.Jariya Sornkliang	Asst. Researcher, SEAFDEC/TD
26. Ms.Saivason Klinsukhon	Asst. Researcher, SEAFDEC/TD
27. Ms.Rattikarn Pongjit	Extension Worker, SEAFDEC/TD

4. Content of Meeting

1. Information from the Chairman

- Mr.Taweep Boonvanich, the Chairman, opened the meeting by welcoming all members.
- The Chairman introduced himself to new participants and introduce the new director of CMDEC, Mr.Pirote Saikliang, he just came to CMDEC in February 2006, his background was a senior researcher on fishing gear, after that all participants were self-introduced.

2. Adopting of agenda

- He proposed the agenda of the 9th ICC meeting and it was adopted without amendment as follows:

- Agenda I:
- Information from Chairman
 - Evaluation
 - The 2nd Phase of project
- Agenda II:
- Adopting the minutes of 8th ICC meeting
- Agenda III:
- Progress Report (January – April 2006)
 - by CMDEC
 - by SEAFDEC
 - by MCR
 - by Enforcement Unit
 - by FTTD

Agenda IV: Others

Agenda III : Progress of ICRM-PD project

- **By Mr.Pirote Saikliang**
 - On 14th March 2006, they released the black tiger shrimp 1,500,000 pcs.
 - The monitoring survey activity has been in progress.
 - In June 2006, they will train for students at the Coastal Resources Conservation Camp for the Coastal Fisheries Conservation Course.
 - On 22nd April 2006, they started the fish culture by artificial feeds experiment. They released sea bass fish 12,000 pcs. in 12 cages. Each cage has sea bass 1,000 pcs.
- **By Mrs.Sumitra Ruangsivakul**
 - The crab bank activity, the crabs remained 50% of total crabs in last year. Now, Mr.Chang is improving method that the record date of releasing crab, number of releasing crabs and number of remaining crabs when selling after hatching.
 - The PFG completed registration with Provincial Cooperative Promotion. The name of registration group is the Pakklong Aquaculture Group. The group

activity is saving. The future, the member will open a fisheries equipment shop and sell to members with low price.

- FTDD introduced the new products to the women's group no.1 and they bring products for analyze product qualities at FTDD. In addition, the Provincial Community Development Office promised to give a new packing machine to Group No.1.
- The 2nd babylonia experiment started experiment in March 2006. After 6 months, they will evaluate practicability and profitability and report to the fishermen group.
- CFEU checks the wrong fisheries in project area every month. They established mobile public relations unit for student and fishermen.

By Dr.Yuttana Theparoonrat

- On August 2005, FEDs installed 10 sets. Now, one FED is remaining. The reasons of FEDs losing were that buoys may be stolen by other fishermen or the swivel may be broken. Now, SEAFDEC/TD is improving FEDs structure with the new swivel fabricated with SUS and the buoy be prepared by PVC. Also, the new FEDs were equipped with rope cutters to protect the invaders like trawlers and purse-seiners. SEAFDEC/TD will install the new FEDs 10 sets.

Recommendation

• **By Mr.Preecha Plodtong**

- CFEU should inform the telephone number to fishermen because the fishermen call to CFEU when they detect the illegal fishers.
- Contacts to the Provincial Industrial Office should be made for more technical support for women's group activities, especially for packaging.
- To support fishing tourism, utilization of FEDs installation area should be considered.
- Experiment to culture green-mussel in the project area should be carried out as a great number of green-mussel seeds are observed.

• **By Mr. Suchin Namvong**

- He wants FEDs installation at village no.5 for fishing source to tourist. It also contribute for increasing fishermen's income.

• **By Mr.Sei Etoh**

- SEAFDEC/TD will install new FEDs 10 sets for experiment. Ao.Bo.To will approve the budget for 60 units of FEDs only after convincing the durability.

Agenda V : Others

• **By Mrs.Nipawan Bootsaravit**

- She introduced herself. She is the new director of MCR and she just came in April 2006.

• **By Mr.Sei Etoh**

- On 18th June 2006, SEAFDEC/TD will provide a study tour to Mr.Wara and Mr.Chang for inspecting the Japanese cooperative system and the swimming crab management approach in Japan by NPO's and SEAFDEC/TD budgets

• **By Ms.Jumpee Timtong**

- She requested documents and books of ICRM-PD for student.

The meeting close at 12.00 pm