

Biannual Project Progress Report

- Project title** : **Integrated Coastal Resources Management in Shihanoukville (ICRM – SV)**
- Program Categories** : Program under the ASEAN-SEAFDEC FCG Mechanism
- Program Title** : Capacity Building of Human Resources and Participation in Integrated Coastal Resources Management
- Duration of Project** : 3 years and 2 months from November 2005 to December 2008
- Executing Agency** : SEAFDEC/TD in collaboration with The Fisheries Administration (FiA), Ministry of Agriculture, Forestry and Fisheries, Cambodia
- Funding Agency** : The Japanese Trust Fund (FCG Scheme and Special 5-year Program)
FiA Cambodia (Co-financing)
Japanese Grassroots Level Aid (Japanese Embassy)
- Proposed Budget (2008 only)** : USD 41,4600 (Under the Japanese Trust Fund IV)
USD ?? (FiA contribution)
- Reporting period** : **July to December 2008**

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1. GENERAL ACCOUNT

In general, the project has progressed on the right track in line with the project document.

The Community Fisheries Area Management Plan (CFAMP) was submitted to FiA Cantonment and approved pending amendment of the Community Fishing Ground Map.

Fish landing survey has been continued. The fish landing data in 2007/2008 was compiled.

Patrolling activity by the LEU was reactivated.

The Mushroom Producers Group (MPG) was established and functioning as a commercial corporation. Mushroom production resumed at a high return pace.

A new venture in production of mushroom spores was commenced by MPG after being trained in Battambang.

The 3rd trial of mud-crab fattening commenced in middle September and completed in early November 2008 with promising outcome.

The Self-regulatory Measures for Blood Cockle Fishing has been put in practice with by filtering the smaller size of cockles by means of a sieve.

Members of the Crab Bank Group (CBG) have increased and they continued stock gravid crabs in cages.

The 1st experiment in culturing sea-bass by the Fish Cage Culturing Group (FCCG) was conducted but the outcome was discouraging.

A total of 1,000 mangrove seedlings were planted on the occasion of the mangrove plantation day.

The 3rd Local seminar was conducted to disseminate the project achievement among stakeholders as well as local authorities.

The project pamphlets in both versions in English and Khmer were published.

The 7th ICC Meeting was convened on 21 November 2008.

2. ACTIVITIES

The project has progressed on the right track as seen in the project activity monitoring sheet (Annex 1).

2.1 Baseline/monitoring survey

Fish landing data collection

The fish landing data collection has been regularly conducted everyday by designated enumerators in fish landing stations. The data collected were sent to SEAFDEC/TD for analysis and compilation. The data obtained from October 2007 to October 2008 were preliminary analyzed and the results for the main species landings like swimming crab, mud crab, blood cockle and bivalves were presented the graphic form at the local seminar on 25 December 2008. The status of the landings of four species from February 2006 to October 2008 is briefly described as follows:

- Swimming crab: slightly increasing
- Mud crab: stable but lack of data for comparison
- Blood cockle: gradually decreasing
- Bivalve: varying by year, need to monitor more often

The data analysis has so far been carried out by SEAFDEC however a training course is envisaged to be conducted in February 2009 for Cambodian marine biologists to practice on the analytical exercises.

2.2 Encourage and extend locally based fishery resources management

2.2.1 Community Fisheries Area Management Plan (CFAMP)

Following the Guideline of the Community Fisheries amended in 2007, the related documents such as the Internal Law (I/L) and By-law (B/L), List of CF members, structure of the Community Fisheries Committee, Community Fisheries Area Management Plan (CFAMP), and Community Fishing Area Agreement (CFAA) were finalized and submitted to the newly reorganized office, the Kampong Som FiA Cantonment (KSFC). However, its formal endorsement has been pending until the amendment of zoning map is completed. The current scale of the zoning map is 1/60,000, which should have been 1/50,000 to be consistent with the guideline. Even prior to the formal promulgation, the implementation of CFAMP could be put in practice but on an ad-hoc basis.

The formation of the Community Fisheries Coordination Committee (CFCC) was discussed at the 3rd SC meeting held in March 2007. Consistent with the provisions in the Sub-Decree of Community Fisheries, the need to form the CFCC was deemed necessary to pursue fisheries resources management matters. Although there was certain confusion among the SC members in the past on the expected roles of the CFCC and the Community Fisheries Committee (CFC), after the clarification was made by the officers of CFDO of the FiA, it was understood that the timely formation of a CFCC was necessary. It was further agreed that for the time being the ICC meeting of the project would perform the functions of the CFCC instead. This issue was further discussed in the 7th ICC meeting on 21 November 2008, but the formation of the CFCC was still left pending until the proper time comes

2.2.2. Local Enforcement Unit (LEU)

The patrolling activity by the LEU has been suspended from time to time during the previous reporting period due to some mechanical troubles of the patrol boat. To improve the situation, it was proposed at the 6th ICC meeting held on 20 June 2008 that the FiA should provide a new engine. Responding to the proposal, the new engine was provided to LEU by FiA in July at the cost of USD320. Since then, the patrolling activity has been regularly conducted. The result of the patrolling activity by the LEU during the reporting period is listed in Table 1.

Table 1: Result of Patrolling by LEU from January to June 2008

Violation	Cases	Punishment for violations
Use of illegal fishing gear - Blood cockle dredger	1	Confiscation of dredger and catches Receiving lecture on law abiding
Use of illegal fishing gear – Push net	12	Arrest
Mangrove felling	8	Write pledges not to do again
Digging ponds/canals in mangrove forest	2	Write pledges not to do again and confiscation of shovels

There was one incident during the patrolling activity by LEU in September when the offenders who were arrested for illegal fishing gear were armed with cleavers and axes and tried to attack to the LEU boat. This issue was raised at the local seminar on 25 December 2008 and the local authorities committed to take a stern action on it and also suggested that a fishery officer should always be accompanied by the patrol team.

2.2.3. Establishment of the fish refugia

The draft Self-regulatory Measures for Blood Cockle Fishing in conjunction with the establishment of Fish Refugia was thoroughly discussed among the members and a consensus was reached during the 8th Fishers Workshop on 2 April 2008. This self-regulatory measure was further discussed with the Blood Cockle Fishing Group (BCFG) on 19 June 2008 in the light of technical applicability. At this workshop, it was agreed that the minimum size of harvestable blood cockle was limited to 100pcs/kg or over 32 x 22 mm (L x H). Consistent with this size restriction, the mesh size of filtering sieve was also enlarged to 22 x 22 mm. However, after repeated tests in sifting the blood cockles in the markets, it was found that an appropriate sieve mesh size should be 18 x 18 mm as shown in Fig 1. It is evident from this graph that no larger than 10 g blood cockles are allowed to pass the sieve, but on the other hand some blood cockles smaller than 10 g may remain in the sieve depending on the shape of the shell. This is in fact lowering or a bit loosening the size restriction. The BCFG members, however, was finally determined to begin with this size of the sieve at the 6th BCFG Workshop on 24 December 2008, taking into account the fact that most currently harvested blood cockles are smaller than 10g (accounting for 78.2%) as demonstrated in Fig 2. After this decision, 4 units of sieves were distributed to 4 blood cockle middlemen who were expected to regulate the size of the cockles to be purchased from the fishers. The fishery officers in the Cantonment are bound to monitor whether the self-regulatory measures are being observed, and to do the monitoring properly thus, one set of sieve was also provided to them.

As for the determination of the spawning season during which it is prohibited to harvest mature blood cockles over 20 g in accordance with the provisions of the Self-Regulatory Measures, a

research study on gonad has been continued since April 2008. The real spawning season will be identified after March 2009 by analyzing the data obtained. Meantime, restrictions on size and season of blood cockles during the spawning season are treated as pending.

Fig. 1: Effectiveness of 18 mm mesh sieve by weight

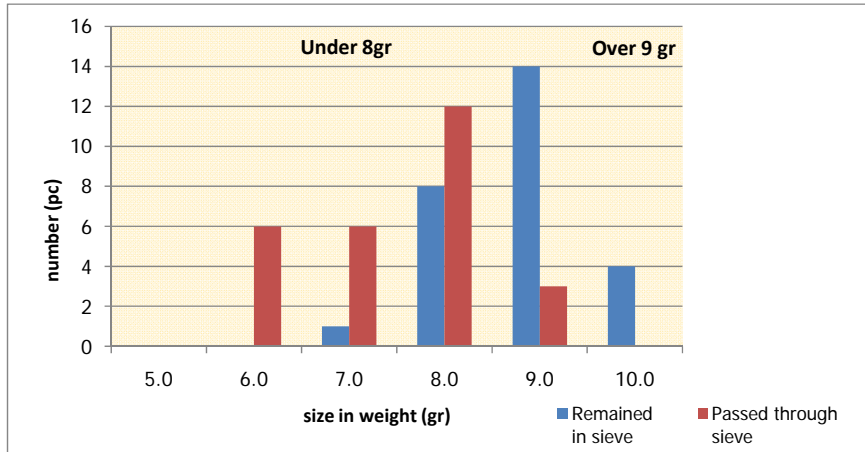
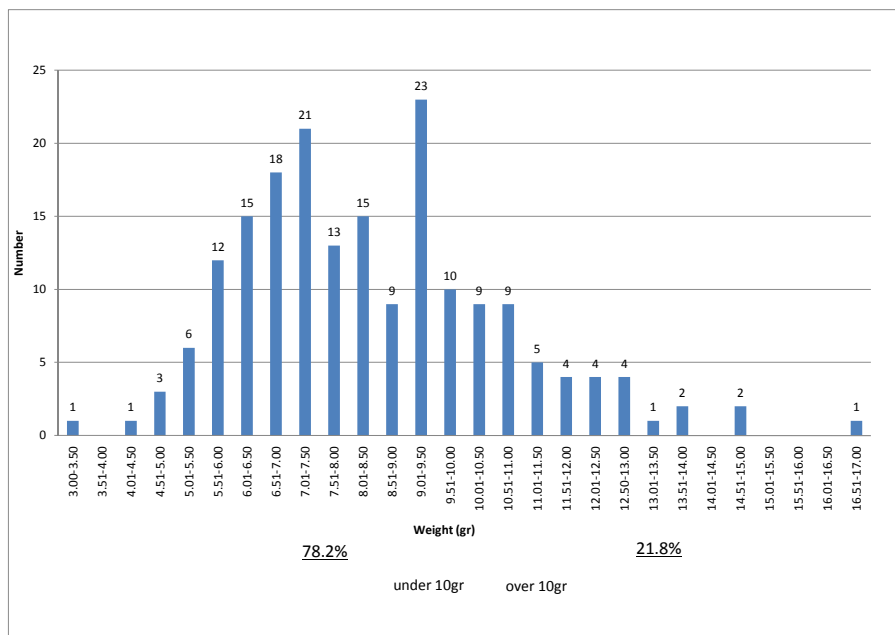


Fig 2: Variation of weight of blood cockle sold in Veal Renh market



As to the zoning for the fish refugia, there has been an argument in the previous reporting period on determining the size of the demarcated dimensions. The project initially suggested that the area covered should be 196 ha (about 200 ha), while the FiA recommended 48.9 ha. Discussions with the members of BCFG were repeated over the months with the delineated location map. They

insisted to initiate with a limited dimension of 20 ha based on their practical managerial capacity. Respecting their opinion, it was once decided to demarcate the zone for fish refugia with than area of 20 ha. Thereafter, however, the Cantonment of FiA intervened for reconsideration on the size selection by BCFG as the area of 20 ha could be too small to establish the fish refugia demarcation. As the result, it was decided at the 4th Workshop of BCFG on 13 August 2008 that the demarcated zone would be 200 ha as originally suggested by the project. The map indicating the position of the fish refugia is shown in Fig 3.

As a next step, the proposal of establishment of Fish Refugia along with the Self-regulatory Measures accompanied with the demarcation map would be submitted to Kampong Som FiA Cantonment by the Community Fisheries Prey Nup II through the regular channels in accordance with the Prakas on Guidelines of Community Fisheries. In the meantime, preparations for the establishment of the Fish Refugia and the implementation of the Self-Regulatory Measures should proceed even if on a provisional basis.

In the wake of the above decision, preparation for the installation of marking poles in every 200 m distance is under way. It is expected to be completed in early 2009.

In conjunction with establishment of the fish refugia for blood cockle, the main concern of the fishers is on how to protect the area from invasion of illegal fishing boats especially those with mechanical cockle dredgers. The Local Enforcement Unit has been exerting their maximum efforts in arresting a number of dredgers, but invasions by illegal fishers are still rampant. To cope with such situation, it was decided that the most effective way would be the installment of some objects in the demarcated zone that could obstruct the incoming illegal fishing boats. But, it should be borne in mind that such objective should be eco-friendly and conducive for fish resources and habitat enhancement. In this sense, the design of the objects should be similar with the structure of the ARs that have been used in Koh Kong with a successful outcome. Thus, 30 units have been under construction using the SEAFDEC funds and are expected to be installed by FiA in early 2009.

In addition to the efforts in protecting the area of fish refugia, dissemination of its concept in the neighboring villages is very crucial and the workshops in five such villages will be conducted and the results will be included in the next reporting period.

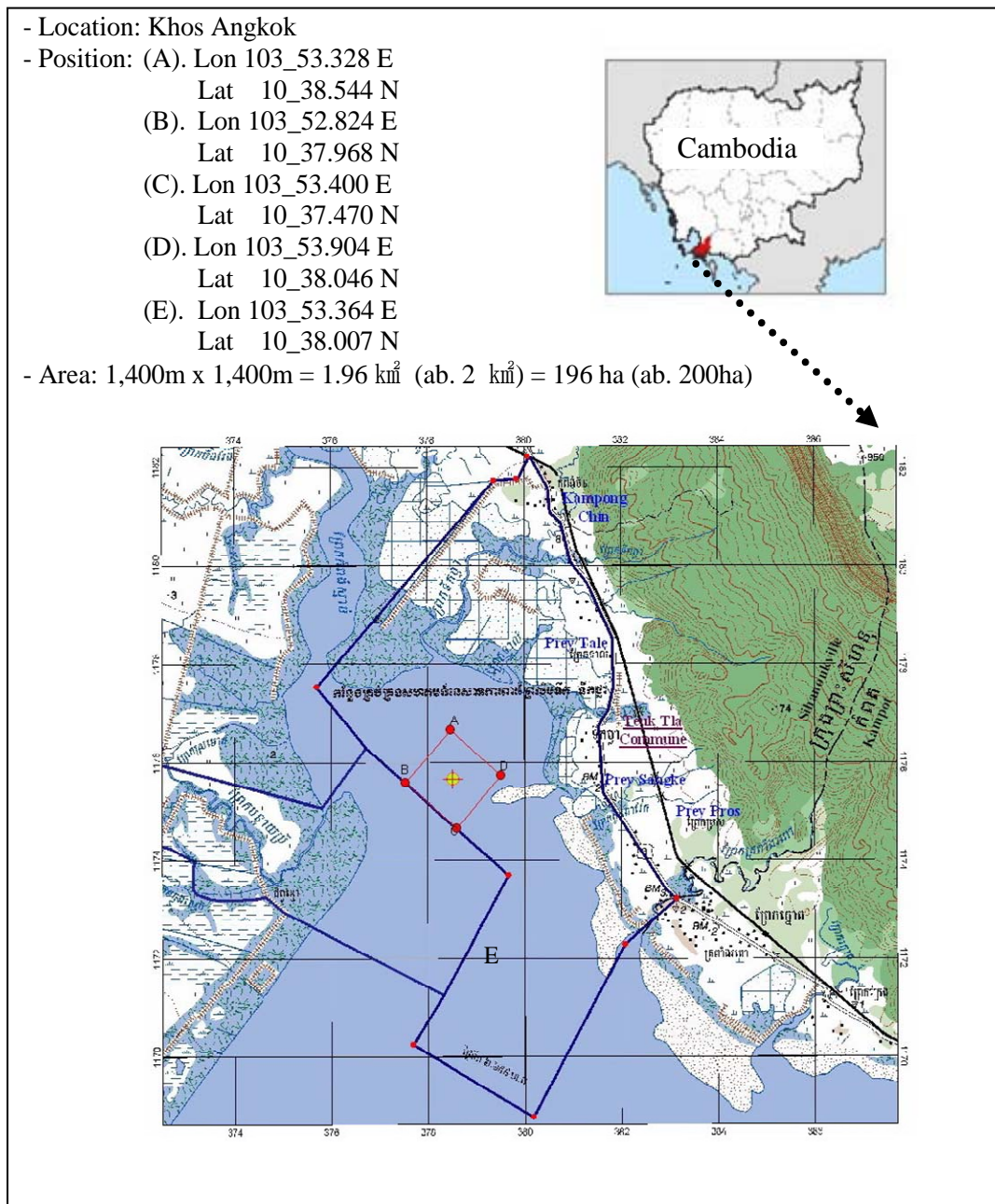


Pic 1: Construction of obstacle objects



Pic 2: Practicing using a sieve for filtering blood cockles

Fig 3: Map of the Fish Refugia for Blood Cockle in Prey Nup II



2.2.4 Crab bank

The Crab Bank Group (CBG) was established during the 7th Fishers Workshop on 5 December 2007, with 11 crab fishermen as members who elected their leader, the sub-leader and the cashier. Meanwhile, the FiA Cambodia had shown keen interest in introducing the crab bank system along the coastline in Cambodia and, to begin with, the scheme was initiated in two sites in Stung Hao and Prey Nup in March 2008.

The study tour to Stung Hao was conducted to inspect the crab bank scheme initiated by FiA on 5th April 2008, with 16 members of the Crab Bank Group participating in the study tour. Thereafter, construction of two cages to stock gravid crabs was completed by the CBG members on April

2008 and stocking of gravid crabs was initiated on 16 May 2008. However, as addressed in the previous report, the number of gravid crabs contributed by the members was relatively limited and in a bid to improve the situation, the 4th Workshop on Crab Bank was held on 12 August 2008 with 29 participants.

In this workshop, the progress from the outset of the crab bank scheme was described by the group leader. The actual number of gravid crabs stocked from May to July was only 13 pcs, which was really disappointing. The explanation for this poor result was that (1) the area where the group is fishing is near the shore with few gravid crabs caught, and (2) the most active members were the crab gillnet fishers while many crab trap fishers did not take part in the scheme. The CBG members exerted their efforts to persuade more crab trap fishers in Prey Pros to become members of the group. As the result, 12 crab trap fishers became new members and the total number of members was 38 as of September 2008 (the number has been increased to 44 by the end of 2008). This attributed to the great leap in the number of gravid crab released as read in Table 2.

Table 2: Quantity of gravid crab released by fishing methods in 2008

Village	Fishing gear used	Number of members	Crab released in 2008								Total	(%)
			May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Prey Pros	Trap	12	0	0	1	0	51	0	0	0	52	24.6
	Gill net	1	0	0	0	0	5	0	0	0	5	2.4
	Sub-total:	13	0	0	1	0	56	0	0	0	57	
Prey Sangke	Trap	0	0	0	0	0	0	0	0	0	0	0.0
	Gill net	4	0	2	1	9	2	2	2	0	18	8.5
	Trap /gill net	5	0	1	1	15	4	6	3	8	38	18.0
	Middlemen	2	0	0	0	13	7	1	4	12	37	17.5
	Sub-total:	11	0	3	2	37	13	9	9	20	93	
Cantonment	FiA	-	5						56		61	28.9
Total		24	5	3	3	37	69	9	65	20	211	100.0

Also, the modality for stocking gravid crabs was discussed in the workshop, they reached certain agreements that include the following:

- Each member brings gravid crab to the cage every day for stocking.
- The Crab Bank leader stays at the cage for one hour every day to receive the gravid crabs from the members.
- The gravid crab is marked by a member on the carapace with a white magic pen and the details are recorded by the leader in the logbook. The marking should include the date and name for subsequent identification.
- After hatching, the crabs are taken out by the leader for marketing when necessary and the relevant information is entered into the logbook and the general ledger.
- The number of gravid crabs stocked is calculated after one year's operation and the project will award some prizes to those who have contributed the most number of gravid crabs for stocking. Nine prizes were offered by SEAFDC (5), FiA (2) and JICA (2).

The number of gravid crabs contributed by the members had increased in August and September (56 pcs in October were contributed by the FiA Cantonment), but it has dwindled again towards the end of 2008. The discussion was made with the committee members to clarify this negative trend on 24 December 2008. The explanation was (1) seasonal variations, (2) the fact that the location of cages is close to the village of Prey Sangke and far from the village of Prey Pros, and (3) only 24 members out of total 44 members had in fact actively participated in the scheme.

Considering the sustainable operation of this scheme, it needs further follow-up action by the project.

2.3 Promotion of local business

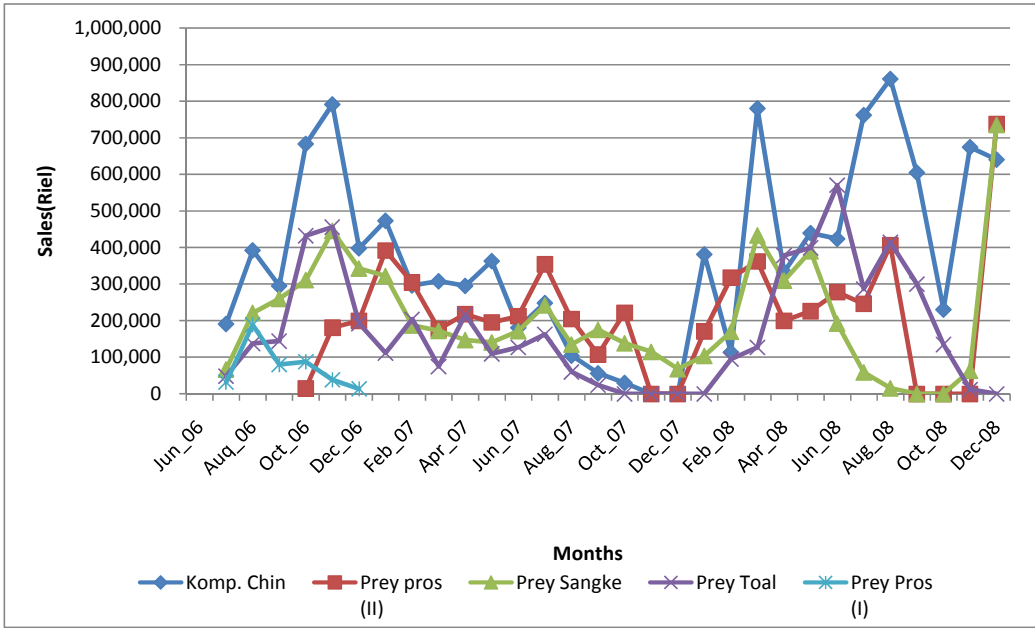
2.3.1 Women’s Group Activity

Mushroom production

The first general assembly of the Mushroom Producers Group (MPG) was convened on 2nd April 2008. In this meeting, the provisions of the Internal Rules of the Group were unanimously adopted, after which the Leader, the Vice Leader and the committee members including one from the CF were also elected consistent with the Rules. There had been some confusion during this transitional period, which certainly affected the production of mushrooms as shown in Fig 4. Also, the difficulty in procurement of raw materials like saw dust for a prolonged period aggravated the low production. Partly caused by such low production, an internal friction in the group of Prey Sangke erupted and old 4 members dropped out from the group and with the new members a new group was formed. Upon secession of their membership, the amount of Riel 1,806,640 equivalent to USD 451.7 was paid to the 4 members as their share from the remaining balance of the account.

To discuss the situation for improvement, the 3rd Workshop on Mushroom Producers Group (MPG) was held on 13 August 2008, and further the first monthly meeting with the committee members of MPG was convened with participation of the project staff on 21 August 2008. As seen in Annex 2: Minutes of Monthly MPG Meeting, it was a very fruitful meeting that discussed problems encountered by each group in an open manner, thereafter each group started their production of mushrooms in a harmonious way.

Fig 4: Monthly mushroom production in 2006 - 2008



As such, the impetus of mushroom production has been resumed through a joint corporate type of work including joint procurement of necessary raw materials, joint marketing and sharing of information in a harmonized way after experiencing the transitional period to reform the

production management from project type to a corporate one. As stated in the Local Seminar on 25 December 2008 by the leader of the MPG, it is convinced that production of mushroom as upheld by the function of the MPG will be quite optimistic in the future. This can be demonstrated in Fig 4 which shows a rapid increase in terms of production level in 2008 except in Prey Toal.

The mushroom production in October and November was noticeably reduced primarily because it was rice harvesting season and also due to the prolonged non-availability of raw materials, saw dusts in particular, that aggravated the slump in production.

Fig 5: Mushroom production in 2006 – 2008
(Sold in the form of mushroom packet excluded)

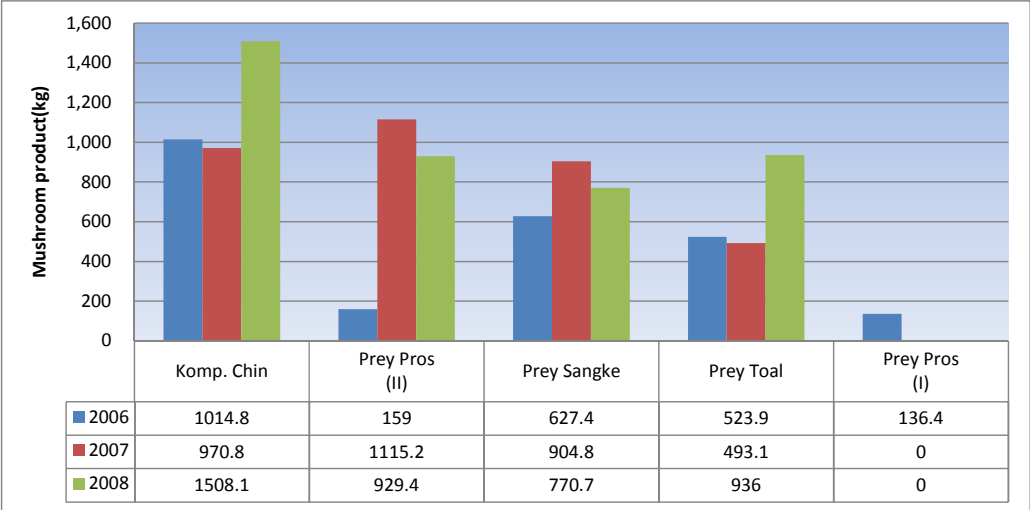
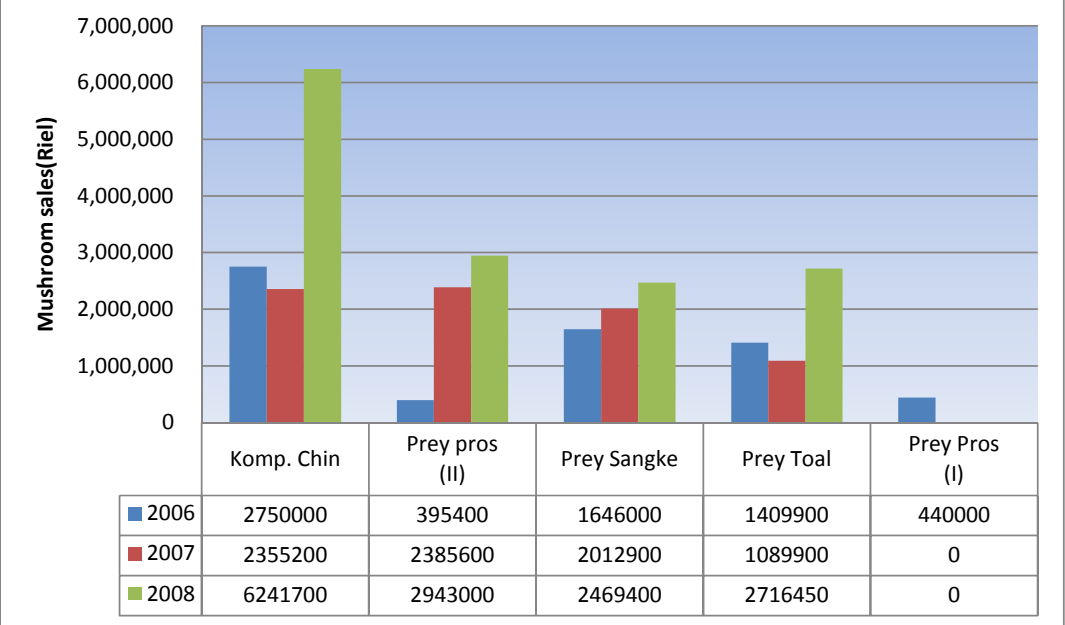


Fig 6 : Sales of mushroom product in 2006 - 2008



The production quantities in 2008 by the groups of Prey Sangke and Prey Pros were reduced in comparison with those in 2007 as seen in Fig 5, but the sales amounts were increased as seen in Fig 6. This is mainly attributed by the increased market price in 2008. The market prices of mushroom

varied from Riel 2,777, Riel 2,262 and Riel 2,916 per kg in 2006, 2007 and 2008, respectively. The great leap of sales by Kampong Chin in 2008 is attributed by the starting marketing of new products; mushroom packets. This is very lucrative compared with selling the final products. Mushroom packet is marketed at Riel 1,000 – 1,100 per packet against the production cost at Riel 425. A total of 1,400 packets were sold in 2008.

The experimental production for the new species of mushroom; i.e. straw mushroom, was commenced by the MPG in Prey Sangke as seen in Pic 4.

Mushroom production is getting popular in all the villages and the MPG arranged a training course for school children for 7 days in December 2008 at Kampong Chin with 15 participants. All the trainees have been contributing mushroom production in their respective villages.



Pic 3: Newly started spore production



Pic 4: Experiment on straw mushroom production

Spore production

In 2008, the Mushroom Producers Group (MPG) observed that a number of mushroom incubation packets were spoiled due to the inferior quality of spores obtained from a private producer which led to the decreasing MPG economic balance sheet. This constraint was seriously discussed at the 7th ICC meeting of the project on 26 November 2008, where it was decided that production of spores should be tried by the MPG themselves with a view that the excess spores produced can be marketed to other potential producers. Considering that the FiA has envisaged to introduce mushroom production in remote fishing villages using the ICRM-SV model since demand for mushroom has gradually increased, the spores that are not used by the MPG could be marketed to such areas. The technical viability in spore production was discussed with the Director of Prey Konkhla Vocational Training Center (PKVTC) where a JICA expert introduced the Japanese mushroom production model few years ago. He positively replied on the proposed new venture from the technical points of view and agreed to conduct the training course on the production of mushroom spores at PKVTC in Battambang Province for the project.

Given the above needs and the possibility, the training course on production of mushroom spores was conducted on 16 – 20 December 2008 in Battambang, where 4 leading members of MPG and the Project Team Leader attended. After returning back from the training course, the MPG established the spore production center in Kampong Chine at the cost of USD 372, which was shared equally between SEAFDEC and the MPG. The test production was actually initiated on 22nd December 2008.

2.3.2. Mud Crab Culture Group Activity

Mud crab fattening

After completing the 2nd experiment which showed very discouraging outcome, the 9th Fishers Workshop was held on 1 April 2008 in a bid to review the outcome of the 2nd experiment and also to determine the future course of operation including an option for withdrawal. The members were still eager to continue the trial once more because the reason for the low survival rate was primarily due to the unusual high tide in November and December 2007 which covered the ponds with tidal water and many crabs escaped. The members realized correctly the cause of low returns and committed to exert their full efforts in the future operation. Similarly, the Chief of Community Fisheries Prey Nup II strongly requested to continue the experiment once more, and he committed to support in an attentive way during the next experiment with the full strength of the CF Prey Nup II. Considering the above proposal, it was eventually decided to repeat the third experiment. During this workshop, thorough discussions were also made on any remedial measures in order to improve the survival rate. As a result, it was decided to employ the crab fattening system with maximum 6 weeks stocking for growing crabs from 3rd grade (under 200 g per crab) to 2nd grad (over 200 g). In addition, the FiA also committed to assign a field officer (an additional extension officer) attached to the crab fattening activity particularly aimed at protecting mud crab from being stolen.

In the meantime, in order to further study the commercially-based mud-crab fattening operation, a study tour to Kompot Province was conducted for the members of Mud-Crab Culturing Group and the project national staff on 8 April 2008 under the financial auspices of JICA. Based on the observation in the private mud-crab culture ponds in Kompot Province and experiences gained through the 2nd experiment, discussions were made on the detailed preparation work for the 3rd experiment during the 10th Workshop on Mud-crab Culturing Group (MCCG) held on 18 June 2008. In this workshop, it was decided to carry out some improvements and modification work on pond No. 2 and 3 as follows:

- Closing of the existing sluice gate
- Installation of the two PVC pipes at the lowest elevation of the ponds to enable the bottom water to circulate
- Pumping out the water to completely dry the ponds
- Removing bottom soil and applying lime
- Construction of feeding platforms

All the above preparatory works were completed by the end of July 2008 and set to stock the crabs for fattening at the beginning of August. However, due to the abnormally continuous rain fall in July and August, the actual commencement of the stocking was delayed until the middle September 2008.

Meanwhile, the 11th workshop on Mud Crab Culturing Group (MCCG) was held on 12 August 2008 with 18 participants. In this meeting, the preparation work for the 3rd experiment was discussed in details, especially the difficulty in drying up the ponds under continuous rains. Also, the successful case study in mud crab fattening in Thailand was explained by SEAFDEC. In addition, the JICA Expert, Mr. Hatori lectured on the relationships of salinity, tide movement and water temperature with mud-crab mortality based on scientific data.

Eventually, the 3rd experiment commenced on 8 September 2009 and the detailed description on the progress and outcome of this experiment is dealt at length in the report “ The 3rd Experiment on Mud-crab Culture in Sihanoukville” (Etoh S. 2008). In brief, the stocking record is shown in Table 2.

Table 2: Stocking summary for the 3rd experiment of mud-crab fattening

Pond No.	Original stock (Pc)	Harvested		Dead crab (pc)	Lost crab (pc)	Survival rate (%)	Sales (USD)
		(Pc)	(Kg)				
II	154	94	22.65	19	41	61.0	119.6
III	114	59	14.00	20	35	51.8	74.1
Total	268	153	36.65	39	76	57.1	193.7

As demonstrated in Table 2, the result produced very prospective outcomes with as much as 57.1% survival rate compared with 6.4 and 2.4% in the previous trials. The major improvement from this experiment was attributed to the revised approaches based on experiences gained from the past trials such as:

- The culture system was changed from culturing juvenile crabs to fattening within a shortened stocking period, i.e. 40 – 57 days compared with 100 – 110 days in the 1st and 2nd experiments.
- The size of juvenile crabs used was 93 g on the average compared with 73 g and 63 g in the 1st and 2nd experiments, respectively.
- The culture conditions were improved, i.e. construction of bottom water circulation channels, installation of feeding platforms, clogging water leaking holes and closing of the sluice gates.
- Assignment of a round-the-clock guard by FiA who reportedly protected the crabs from poaching.
- More evidently, the self-consciousness among the members of MCCG as well as the committee members of Community Fisheries for the achievement of the operation has emerged.

Among others, the author feels that the working morale among the fishers has been evidently boosted through the day-to-day operation, which is the most invaluable asset of the project implementation.

Through this experiment, the project is convinced of the technical applicability of this venture and the next challenge is to put this venture into commercial-scale operation to attain improved profit and returns. As seen in the Table 3 below, the profit return is still negative in the current level of production.

In order to increase the productivity, a conceivable solution would be to increase the volume of mud crabs stocked in ponds and the next 4th experiment should be carried out to demonstrate such commercial application. The recommended stocking density would be as is shown in Table 4. Given such objectives, the 4th experiment commenced on 15 December 2008.

It was claimed by the meteorological data that the rainfall in 2008 from July to November could be abnormally higher compared with an average year. Therefore, the attention was centered to the possible high mortality rate due to the low salinity as is claimed that the optimum salinity level for mud-crab would be 15-30 ppm (AQD Aquaculture Extension Manual No.27, 1999). In fact, the salinity level varied as shown in the following graph of Fig 7 from 5.0 to 25.0, which was by far lower than the optimum level. However, it has proved that mud crab could fairly tolerate low salinity but not against high salinity as experienced in the 1st and 2nd experiments, although this should be taken into account with the combined factors like water temperature and DO.

Table 3: Calculated Profit and Loss in Mud-crab Fattening for 2 months operation

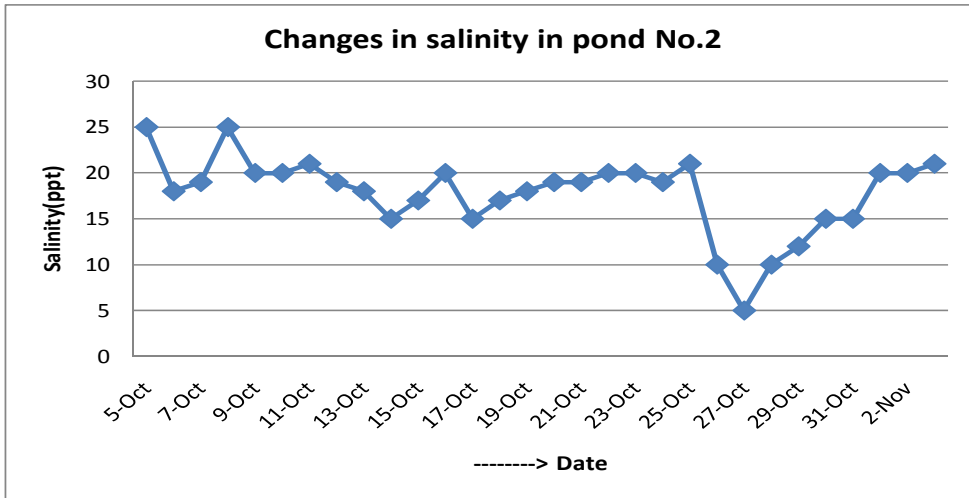
1. Base of calculation	<u>Calculation on</u>	<u>Calculation on improved base</u>	
	<u>theoretical base</u>	<u>Senario 1</u>	<u>Senario 2</u>
- Terminal density (gr / m ²):	28	50	90
- Number of seed crab (pc):	328	586	848
- Average weight of seed crab (gr):	100	100	100
- Total weight of seed crab (Kg):	32.8	58.6	84.8
- Calculated initial density (gr / m ²)	16.7	29.8	43.1
- Cost of seed crab (\$/Kg) :	3.0	3.0	3.0
- Survival rate (%):	70	70	87
- Number of crab harvested (pc):	230	416	738
- Average weight of harvested crab (gr):	240	240	240
- Total weight of harvested crab (kg):	55.2	99.8	177.1
- Cost of harvested crab (\$ / Kg):	5.25	5.25	5.25
- Period of fattening (days):	50	50	50
- Cost of feed fish (\$ / Kg):	0.38	0.38	0.38
- Expected FCR (% – actual result in 3rd tria	18.8	18.8	18.8
- Amount of feed required (kg)			
{(328+230)/2*0.14/0.188}	208		
{(586+410)/2*0.14/0.188}		371	
{(848+738)/2*0.14/0.188}			591
	<u>Amount (\$)</u>	<u>Amount (\$)</u>	<u>Amount (\$)</u>
B. Profit and loss calculation			
1.Fixed cost			
- Depreciation	0.0	0.0	0.0
- Maintenance cost	0.0	0.0	0.0
Sub-total:	0.0	0.0	0.0
2. Variables			
- Labour cost (\$1.25 x 2ps. X 60dys)	150.0	150.0	150.0
- Cost of seeds (\$3 x 32.8kg)	98.4		
(\$3 x 58.6kg)		175.8	
(\$3 x 84.8kg)			254.4
- Cost of feed (\$0.38 x 208kg)	79.0		
(\$0.38 x 371kg)		141.0	
(\$0.38 x 591kg)			224.6
- Cost of misc. materials & services (actu	180.0	180.0	180.0
Sub-total:	507.4	646.8	809.0
3. Gross sales of fattened crab (\$5.25 x 55.2k	289.8		
(\$5.25 x 99.8kg)		524.0	
(\$5.25 x 177.1kg)			929.8
4. Net sales	-217.6	-122.9	120.8

Table 4: Recommended stocking rate of crabs

Pond No.	Dimensions (m ²)	No. of crab harvested	No. of seed crab
1	416	49	69
2	352	41	59
3	432	50	72
4	356	42	59
5	412	48	69
Total	1,968	230	328

Note: Terminal stocking: 90 g/m²
Survival rate : 87%
ABW/harvest: 240 g

Fig 7: Changes in salinity in the pond No.2



Pic 5: Harvested crab over 300gr



Pic 6: Crab ponds with escape-protection fence

2.3.3. Fish Cage Culture

The Fish Cage Culturing Group (FCCG) was established as a sub-group of the CF Prey NupII in April 2008 with 6 members to promote a cage culture venture. Sea bass (*Lates calcarifer*) was selected as the species of fish to be cultured for a number of advantages in the area, knowing that there might be some technical constraints like parasites, skin disease, etc. that should be tackled.

Prior to setting to work, an economic feasibility study was carried out and the outcome was thoroughly discussed in the 3rd Workshop of FCCG on 18 June 2008 with all the members incorporating their local knowledge. The financial feasibility was concluded as positive. In the wake of such convincing economic feasibility study, preparation work began in August in order to commence the experimental cage culture operation. Materials necessary for construction of the cages were provided by the SEAFDEC fund and all construction work were done manually by the members. Within the fund available, the cage culture raft containing 6 cages having dimensions of 2.5m x 2.5m x 2m = LWH was constructed by early September. A total of 2,500 pieces of sea-bass fingerlings 2 inches long were procured using the FiA fund from Thailand and stocked on 23 September 2008. But by 30 September, all the stock was found dead. The members claimed that was caused by the strong stream of water from the creek after a downpour on the 3rd day against which the small fish fingerlings could not survive.

In order to investigate the cause of the mortality, various efforts were made. Firstly, discussions were held with scientists and commercial fish cage culturists dealing with sea-bass culture in Thailand. They were collectively with the view that:

- a. The fingerlings were too small, as the size should have been 3 inches at the minimum.
- b. Most probably, the cause of mortality could be disease from the hatchery considering that the fins were detached from the dead fish.
- c. The density may be too high.
- d. Sea-bass can generally tolerate low salinity and therefore fresh water flow-in would not be a cause of the mortality.

Secondly, Mr. Hatori investigated the parameters measured like salinity, DO and temperature in the creek on 19 November 2008. He discovered that the DO measurement especially in the bottom was fairly low at 3.66 ppm. This fact might be related to the mortality, as he suggested in his report as attached in Annex 5: Report on Site Inspection of Sea-bass Cage Culture. He also pointed out that the high density could have contributed to the mass mortality.

Aimed at reviewing the failure in the first experiment, the 5th Workshop on the Cage Culture Group (CCG) was held on 19 November 2008. In this workshop, a description was made by the group leader on the course of stocking including the environmental changes toward the end of September. Based on such observations, technical as well as scientific views were presented to the workshop by the JICA Expert. As a result, it was agreed to repeat the experiment attentively taking into account the following cautious points:

- a. The position of the cages should be changed to the nearest place of the village where a strong current can be avoided and where the sufficient depth is 1.5m at the lowest tide.
- b. Fingerlings to be procured should be 3" long at minimum
- c. Size selection should be made every 2 weeks.
- d. To do that, cages with 3 cm ST mesh size nets should be constructed in addition to the presently available cages with 1.5 cm ST mesh.
- e. Water temperature, salinity and *DO* should be attentively measured. To do that, SEAFDEC had provided a salinometer and a water temperature gauge.
- f. Feeding in the earlier stage should be made using the minced form of small fish. To do that, SEAFDEC had already provided a hand mincer.
- g. For the safety side in the trial, the maximum density of stocking should be kept within 600 pcs per cage, which can be reckoned at 25.6 kg/m² at harvest.

Abiding by the above instructions, it is expected to conduct the 2nd trial in early January 2009.

2.4. Enhance human resources capacity and participation

Throughout the project operation, main emphasis was given to human as well as institutional capacity building especially for the Community Fisheries Prey Nup II, and further for the sub-groups such as the Mud-crab Culture Group (MCCG), Blood Cockle Fishers Group (BCFG), Mushroom Producers Group (MPG), Crab Bank Group (CBG), and Fish Cage Culture Group (FCCG). A series of workshops, training courses and a seminar were conducted during this reporting period. In each workshop, relevant handouts in the Khmer language were distributed as discussion and extension materials. Also, more chances were given for all members to participate actively in the discussions and presentations in the workshops so that they would be convinced to take part in the activities.

2.4.1. Local Seminar

In the regular operation of the ICRM-SV project, various concerned authorities like the District (Khan) Office in Prey Nup, Sub-District (Sangkat) Office in Prey Nup II and Kampong Som FiA Cantonment have been involved. Also, the Japanese Embassy in Cambodia contributed some funds for the project operation and JICA has been providing technical assistance to the project. The project has been grateful for such contributions and dedication as the planned activities had been successfully deployed during past three years. Further, the most conspicuous dedication to this achievement rests with the self-motivated and active participation by the fishers themselves. In order to disseminate the current project achievement and status to all stakeholders and concerned local institutions and agencies, to draw feed-backs on the project orientation from stakeholders and impacts as well as from concerned institutions and agencies, to summarize the project achievement for the last one year and internally review its progress with stakeholders and thereby reflect the findings and outcomes of the seminar into the future project operation, the 3rd Local Seminar on Project Progress and Local Participation was organized in the meeting hall of the Sub-District Office, Veal Rinh, Sihanoukville on 25th December 2008, in which 70 participants were present. The detailed outcomes are described in the Proceedings of the 3rd Local Seminar to be published.

Among many remarks with regard to the project progress and impacts given to the community, the Statement made by the Chief of Toeuk Tla Commune is very descriptive and impressive. The essence of his statement is as follows.

“Mr. Phoun Nam expressed his appreciation on the SEAFDEC efforts on fisheries resources management, livelihood improvement of fishermen and capacity building. For fisheries resources he noticed that mangrove forests are maintained 100% in good condition. Now, fishermen can get a lot of bivalves inside mangrove area, he said. He continued that, for last 2 year, even illegal fishing activities still remain in the CF fishing ground, but generally fishermen living standard is becoming better. He suggested CF members to acknowledge the reality; not only see only one aspect (illegal fishing).

For local business development for women, he congratulated the great success in mushroom cultivation. He expressed his optimistic on the long term sustainability of this business. He continued that even 16 members were supported by the Project; many people received indirect benefit such as labor supplies, other food sources (before people in this area did not know oyster mushroom). He estimated that at least 50 persons are getting benefit from mushroom cultivation; and he hoped that in the future the numbers would increase.

For blood cockles, he supported the project plan to install protection-obstacles to protect illegal fishing. He continued that, the installation is the best way because even fisheries staffs and CFs could not patrol every day. He strongly hoped that after installing the protection-obstacles, people will get more fish catch and their livelihoods will be improved. However, he requested that FiA should clearly define and inform him about the prohibited size of gill net, size of blood cockle and other issues so that he can find a way to help CFs.

At the end of his presentation, he promised to cooperate and help the CFs Prey Nub2 to manage fisheries resources.”

In this local seminar, 12 technical reports were prepared and presented. Most of them were presented by the respective leader of each group and such an occasion encouraged the beneficiaries to a large extent a sense of self-participation. Compared with the first and second

local seminars held in 2006 and 2007, the techniques and contents in the presentations by each leader of the sub-groups have been noticeably improved.

2.4.2. Workshops

Various workshops also took place during this reporting period as listed in Table 5.

Table 5: List of Fishers Workshops taken place from July to December 2008

<u>No.</u>	<u>Date</u>	<u>Title of Workshop</u>	<u>Particulars of the workshop</u>	<u>No. of participants</u>
1.	12.08.08	11 th W/S for MCCG	Review of preparatory work for the 3 rd experiment for mud-crab culturing	18
2.	12.08.08	4 th W/S for CBG	Case study in Crab Bank activity in Chumphon	29
3.	13.08.08	4 th W/S for BCFG	Establishment of zoning for fish refugia	34
4.	13.08.08	3 rd W/S for MPG	Review of the mushroom production from 2006	21
5.	14.08.08	4 th W/S for FCCG	Discussion on the feasibility study result for sea-bass cage culture	10
6.	19.11.08	12 th W/S for MCCG	Review of the progress on 3 rd experiment on mud-crab culture	18
7.	19.11.08	5 th W/S for FCCG	Review of the failure of the 1 st sea-bass cage culture	6
8.	20.11.08	4 th W/S for MPG	Review of the function of a corporation-type of MPG	14
9.	20.11.08	5 th W/S for CBG	Discussion on new membership for crab fishermen in Prey Toal	31
10.	20.11.08	5 th W/S for BCFG	Determination of the mesh-size of sieve and dimensions of zoning	27
11.	24.12.08	6 th W/S for BCFG	Application of sieves and its demonstration	23

*Note: MCCG - Mud-crab Culturing Group FCCG – Fish Cage Culture Group
 CBG - Crab Bank Group MPG - Mushroom Producers Group
 BCFG - Blood Cockle Fishers Group*

2.4.3. Training

During the reporting period, more emphasis was placed in onsite training especially in the improvement of bookkeeping and accounting technologies for Mushroom Producers Group, Crab Bank Group, Mud-Crab Culturing Group and Fish Cage Culture Group. Through such efforts, the preciseness of the records entered in the accounting books has noticeably been reckoned as having considerably improved.

The spore production training course took place in Prey Konkhla Vocational Training Center (PKVTC) in Battambang from 16 – 20 December 2008. In this training course, 4 leading members of the MPG and one project staff participated. After returning back from the training course, the test production was successfully initiated on 22 December 2008.

2.4.4. Publication of project pamphlet

The project pamphlets describing the project approach, the achievement, lessons learned, the project management regime etc. were printed in December 2008 in both English and Khmer with numbers of 500 each.



Pic 7: Published pamphlet

2.5. Rehabilitate and enhance coastal resources

2.5.1. Establishment of the fish refugia

As dealt at length in 2.2: “Encourage and extend locally based fishery resources management”, the fish refugia targeting blood cockle fishing was established in the project area, and the self-regulatory measures were formulated and the zoning map having dimension of 200 ha was drawn by the responsible blood cockle fishers themselves. These were endorsed by the FiA Cantonment. The marking poles to enclose the demarcated zone were procured for installation. In order to protect this zone from invasion of illegal fishing boats like blood cockle dredgers, 30 units of protection obstacles, similar to the shape of artificial reefs, were constructed. After completion of these units, they were immersed in the zoning area sporadically by the FiA.

The fish refugia established in the project area is the first one which has been practically functional in Cambodia and is expected to be disseminated to other areas following this model depending on its outcome in future.

2.5.2. Mangrove reforestation

The people in the project operational area became more conscious on the protection of the natural environment, especially in the conservation of mangrove forests. This was particularly addressed at the local seminar on 25 December 2008. To uphold the movement as such, the mangrove plantation day was set on 26 December 2008 which included an educational session for school children who would be responsible for environmental protection in the future. On that day, about 200 school students and 50 fishermen participated in the event and 1,000 mangrove seedlings were planted in the swamps of Prey Sangke. All participants were provided with T-shirts showing the campaign logo for mangrove plantation. Prior to this occasion, members of Community Fisheries Prey Nup II have dedicated their efforts in bringing up for a few months a total of 1,000 mangrove seedlings in plastic bags.

2.6. Project management meeting

Implementation Coordinating Committee (ICC) meeting

The 7th ICC meeting was convened on 21 November 2008 in Sihanoukville. This is actually the second ICC meeting in 2008. At this meeting, the progress made since the last ICC meeting was reported and pertinent issues were raised to seek solutions at the local level. Also, the immediate action plan for the succeeding four months was discussed in detail. The major issues raised at this meeting included: the fisheries management tactics in the newly established fish refugia by the blood cockle fishers group, expansion of the commercial activity of the Mushroom Producers Group, the promising outcome of the 3rd mud-crab culture and its future action plan, the disappointing result of sea-bass cage culture and the counter measures to address the constraints, low level contribution of gravid crabs for the Crab Bank scheme, etc. The detailed results of the discussions at this meeting are shown in Annex 7: Minutes of the 7th ICC Meeting, prepared in both Khmer and English languages for distribution. In this meeting, the Director of the newly established Marine FiA Inspectorate also participated and was positively involved in discussions.

3. OUTCOMES

The major outcomes of the project activities during this reporting period include:

Baseline/monitoring survey

- The regular fish landing data collection exercises produced the monthly data.
- The data obtained from October 2007 and October 2008 were compiled and analyzed for publication.

Encourage and extend locally-based fishery resources management

- The final draft of CFAMP was endorsed subject to amendment of the zoning map.
- The Local Enforcement Unit reactivated its patrolling activity of the project area after the new engine was donated by FiA.
- The zone for Fish Refugia of blood cockle was demarcated with the dimension of 200 ha (1,400 m x 14,000 m) and marking poles were constructed.
- The Self-regulatory Measures in the fish refugia of blood cockle fishing was formulated by the Blood Cockle Fishers Group and provisionally endorsed by the FiA Cantonment. The implementation of this regulation restricting harvestable sizes of blood cockle by sifting with the sieves commenced.
- The research work to determine spawning seasons for blood cockle is continuing.
- The objects to obstruct the fish refugia from invasion of illegal fishing boats were under construction.
- The Crab Bank Group commenced stocking gravid crabs. The number of members CBG has increased to 44 from the initial of 11 members.

Promotion of local business

- The Mushroom Producers Group initiated its commercial corporation venture, mainly with joint procurement, marketing and training. The income level has been increased in total. The MPG working morale has been increased after experiencing such a transitional stage.
- The new product, i.e. mushroom spores, was produced after the members have been trained in Battambang.
- The 3rd trial of mud-crab fattening was completed with encouraging outcome.
- The cage for Fish Cage Culture Group was completed and the 1st trial of sea-bass culturing was conducted but ended up with mass mortality. The investigation on the causes was carried out.

Enhance human resources capacity and participation

- The local seminar was conducted with over 70 participants.
- Various workshops were conducted for each sub-group.
- The training course in production of mushroom spores was conducted in Battambang.
- Throughout all the activities, emphasis has always been put on training in bookkeeping and accounting.
- 500 project pamphlets were printed in each version of English and Khmer.

Rehabilitate and enhance coastal resources

- The fish refugia for blood cockle was demarcated and its function as a resources enhancement tool commenced.
- The mangrove plantation day was set on 26 December 2008 and over 1,000 mangrove seedlings were planted.

Project management meeting

- The 7th ICC meeting was convened on 21 November 2009.

4. MAJOR CONSTRAINTS

The project has experienced negative outcomes in sea bass cage culture as well as in mud-crab fattening experiments primarily due to unprecedented climatic changes like heavy downpour in a long spell and, on the other hand, severe drought in dry seasons which affected the condition of the fish culture due to abrupt changes in salinity and water temperature. There was no sufficient meteorological data and information in hand and it was difficult to predict the sudden climatic changes to be able to make the necessary counter measures. Moreover, relevant technical data and information are also lacking. For example, the JICA expert indicated in his presentation during the workshop on Mud Crab Culture attended by the Mud Crab Culturing Group that there should be a certain correlation between high mud-crab mortality rate and the full and new moon. However, such a proposition could not be shared as no sufficient data and information were available and no applicable counter measures established. There was no other way to tackle such a condition except by adopting the “try and error approach”. The project is actually facing this dilemma considering that the period of implementation of the project is limited until the end of 2009 only, while the technical constraint that should be hurdled before commercialization is relatively high. In this regard, commencement of a full-scale research work by the newly established Marine Aquaculture Center would be highly anticipated.

5. WORK PLAN FOR THE NEXT REPORTING PERIOD

Consistent with the proposed activity plan in 2009, the immediate action plan, covering the next 6 months from January to June 2009 is described as follows.

Baseline / monitoring survey

- Continue fish landing data collection
- Continue marine biological survey for blood cockle
- Conduct a monitoring socio-economic survey

Encourage and extend locally-based fishery resources management

- Following the provisions of CFAMP, resources management measures should be implemented; i.e. management of fish refugia for blood cockles
- Reinforcement of the structure and capacity of Local Enforcement Unit (LEU)
- Management of Crab Bank

Promotion of local business

- Monitoring the activities of the Mushroom Producers' Group and assisting them when necessary
- Commencement of the 4th mud-crab fattening experiment
- Commencement of the 2nd experiment of sea-bass culture

Enhance human resources capacity and participation

- Reinforcement of the structure and capacity of CFPN2
- Identify the community based volunteer work
- Publication of reports, manuals and PR materials
- Organizing fishers' workshops, training courses and study tours as required

Rehabilitate and enhance coastal resources

- Promotion of the management of fish refugia
- Implement mangrove reforestation through voluntary participation
- Monitoring growth of the mangrove seedlings

Project management meeting

- Convene the 5th SC meeting
- Convene the 8th ICC meeting

Final project evaluation

- Identification of a relevant outsourced consultant to carry out the final project evaluation

6. REPORTS PREPARED

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

<u>No.</u>	<u>Title of the report</u>	<u>Name of author</u>	<u>Date of issue</u>
01.	Monthly Progress Report July 2008	Yos Chanthana	Aug. 2008
02.	Monthly Progress Report August 2008	Yos Chanthana	Sept. 2008
03.	Minutes of Mushroom Producers Group Meeting	Nen Chamroeun	Sept. 2008
04.	Monthly Progress Report September 2008	Yos Chanthana	Oct. 2008
05.	Monthly Progress Report October 2008	Yos Chanthana	Nov. 2008
06.	Monthly Progress Report December 2008	Yos Chanthana	Jan. 2009
07.	The Crab Bank System in Prey Nup II	Etoh S.	Aug 2008
08.	Report on Site Inspection of Sea-bass Cage Culturing	Va Longdy and T. Hatori	Nov. 2008
09.	Report on Inspection of Water Quality at Demarcated Zone of Blood Cockle Refugia	Va Longdy and T. Hatori	Nov. 2008
10.	The Third Experiment on Mud-Crab Culture in Sihanoukville	Etoh S.	Dec 2008
11.	Travel Report to Cambodia in December 2008	Sumitra R.	Dec. 2008

Annex 1

Project Activity Implementation Chart for ICRM – SV in 2008

(as of 31 December 2008)

Revision : "0"

Activity	2008												Remarks	
	1	2	3	4	5	6	7	8	9	10	11	12		
1. Baseline / monitoring survey														
<u>1.1. Fish landing survey at the project site</u>														
1.1.1. Regular collection of fish landing data	←-----→												Continued activity	
1.1.2. Analysis and compilation of data and information				←-----→								↔		Data in 2007/2008
2. Encourage and extend locally-based fishery resources management														
<u>2.1. Community Fisheries Area Agreement (CFAA)</u>														
2.1.1. Promulgation of CFAA	←-----→													
2.1.2. Formation of Community Fisheries Coordination Committee (CFCC)	←-----→									←-----→			Endorsed by FiA	
2.1.3. Practical application of CFAMP				←-----→									Continued activity	
												↔		Blood cockle
<u>2.2. Local enforcement unit (LEU)</u>														
2.2.1. Strengthening the capacity of LEU	←-----→												Continued activity	
3. Promotion of local business														
<u>3.1. Cottage scale industry by women's groups</u>														
3.1.1. Monitoring mushroom production	←-----→												Continued activity	
3.1.2. Identify the second local business	←-----→												Continued activity	
<u>3.2. Aquaculture business</u>														
3.2.1. Running mud-crab culturing business	←-----→									←-----→				During dry seasons
3.2.2. Running tilapia / sea-bass culturing business	←-----→												Study/implementation	
3.2.3. Evaluation of the above business														
4. Enhance human resources capacity and participation	←-----→													
<u>4.1. Reinforcement of structure and capacity of existing Prev Nup II CF (PN2CF)</u>														
4.1.1. Increase awareness on implementation of CFAMP	←-----→												Continued activity	
4.1.2. Study tour to inspect a model case on CBRM or community Development														
<u>4.2. Participation in community development work</u>														
4.2.1. Identify and implement relevant volunteer works for community development and environmental improvement	←-----→													
<u>4.3. Local seminar</u>														
4.3.1. Organize and conduct local or national seminar														
<u>4.4. Publication and PR materials</u>														
4.4.1. Publication of reports and manuals	←-----→												As required	
4.4.2. Distribution of PR materials	←-----→												As required	

ANNEX 2

MINUTES OF MUSHROOM PRODUCER GROUP COMMUNITY FISHERIES PREY NUP2

- Venue: Mud crab culture Hut

- Date: 21 August 2008

List to participants

Fisheries Officers

- | | |
|----------------------|---|
| 1. Mr. Nen Chamroeun | Vice chief of Fisheries Administration
Cantonment, Kompong Som |
| 2. Yos Chanthana | Project team leader |

CFs

- | | |
|---------------------|---------------------|
| 3. Mr. Rim Mousoeur | CFs Chief |
| 4. Mr. Les subri | CF committee member |

Mushroom Producer Group

- | | |
|---------------------|----------------------------------|
| 5. Ms. Hok Tean | Group leader |
| 6. Ms.Kang Noun | Representative from Kompong Chin |
| 7. Ms.Prum Neap | Representative from Kompong Chin |
| 8. Ms. El Mariyam | Representative from Prek Sangke |
| 9. Ms. Sen Fass | Representative from Prek Toal |
| 10. Ms. Cheng Saing | Representative from Prek Pros |
| 11. Ms. Teng Huy | Representative from Prek Pros |

Proceedings of the meeting

Mr. Yos Chanthana, project leader informed the objectives of the meeting:

- internal conflicts,
- implementation of internal rule and
- future course of mushroom

Regarding to internal conflicts, Mr. Yos Chanthana said that member from Prek Pros complained Mrs. Hok Tean for not informing her over purchasing saw dust. He added that In Prek Sangke, one member went to Phnom Penh and brought with money with her; so he asked the group members to take back money for conducting mushroom or other business.

For implementation of internal rule, Mr. Yos Chanthana asked the participant to discuss how to apply this rule. He explained the role of the group leader in coordinating any activities among group members.

Concerning to future course of mushroom production, Mr. Yos chanthana explained that the groups that cannot run mushroom economically, so they should think other business for instance, buying rice, credit scheme or raising animal. He suggested each group to give opinions in the following:

A. Kompong Chin

- Mrs. Hok Tean, agreed on lack information sharing because of no budget for spending in communication. She complained that, the distance from Kompong Chin to other villages is quite far, she did not have money to spend on transportation cost. But she did not agreed with Prek Pros member who complained on not informing her in purchasing saw dust. She said, I asked Mrs. Cheng Saing to buy saw dust, but she did not buy; so why now Cheng Saing said like this?

- For mushroom production, Mrs. Kang Noun insisted that “I don’t think we cannot get profit from producing mushroom; our group still continues this activity because we can get more money than other businesses “.
- Mrs. Hok Tean added, our group will continue producing mushroom even high price of every commodity. Now we have not started new packages because we cannot receive saw from supplier in Kampong Cham.
- Mrs. Hok Tean, expressed angry on Prek Toal group that refuse to sell saw dust for Kompong Chin. She said that, Prek Toal did not produce mushroom, so when Kompong Chin suggested buying these saw dusts, Prek Toal refused to sell.

B. Prek Sangke

- Mrs. El Mayam, our group faced difficult problems because cashier went to Phnom Penh and brought with group money with her. She expressed confident that” this money would be taken back because cashier informed me that she would come back soon”.
- She said that “our group may not produce mushroom anymore, but we choose other business, especially buying rice”.

C. Prek Pros

- Mrs. Cheng Saing said that” our group still continues mushroom production, we are waiting saw dust. She suggested Mrs. Hoc Tean to buy saw dust as soon as possible.
- She complained that, her group received small amount of budget supported by SEAFDEC because the old group(Prek Pros I) made some troubles in producing mushroom.

D. Prek Toal

- Mrs. Sen Phase promised to produce mushroom on December.
- She did not agree with Hok Tean. She explained why she refused to sell saw dust to Kompong Chin? Because she planed to produce mushroom at that time.

E. Hok Tean

- Mrs. Hok Tean promised to coordinate among the group members to avoid any conflicts.
- She asked Mr. Yos Chanthana to arrange buying saw dust from Battambang.
- She requested project to support 4 log-books and 5 dollars per month for prepaid card.
- She insisted that, group members should continue mushroom production because she did not agreed with those who said that producing mushroom did not get profit.
- She also recommended that “we should organize such kind of meeting every month.

F. Mr. Rim Mousoeur

Mr. Rim Mousoeur instructed mushroom group in the following:

- The group members should joint responsibility on producing mushroom
- Producing mushroom get profit, so the group should continue these activities

Mr. Yos Chanthana

Mr. Yos Chanthana expressed his appreciation on the results of the meeting and he will bring any request to Project leader.

Drafted by Nen Chamroeun
Approved by Yos Chanthana

Date: 22 September 2008
Date: 02 September 2008

Comments by Sei Etoh, Project Leader, SEAFDEC

12 September 2008

1. As a whole, this is the first group meeting as such and very fruitful and substantive as the members discussed very straight forward by expressing their opinions and views frankly. It is most important in the group work.
2. The advices that I want to extent were precisely expressed by Mr. Mousoeur; i.e. they should join more group responsibility in mushroom production and the mushroom production is profitable as far as good volume of production is maintained as demonstrated in 2006.
3. The procurement of saw dust seems to be the bottleneck in continuation of mushroom production. Can those be transported from Battambang? It is so far and how is the transportation cost? Mr. Yos Chanthana should help in finding the supplier near Sihanoukville.
4. As to the complaint by Prey Pros II for the less contribution by SEAFDEC, it is not significant as seen in the following.

SEAFDEC contribution from June 2006 to May 2008

Kampong Chin:	USD692.8	Prey Sangke:	USD735.6
Prey Pros I:	USD353.5	Prey Pros II:	USD531.3
Prey Toal:	USD772.7		

- Moreover, it is noticeable that Prey Toal received the highest amount from SEAFDEC but the production level is lowest, and also in the case of Kampong Chin they received less than Prey Sangke and Prey Toal but the production level is the highest among others. Given the fact as such, the amount received has little connection with the production level. It is determined with the good management and the group working spirit.
5. As alternative species of mushroom, we have manual for a few more species that we are studying. They were written in Thai so that Ms. Sumitra will translate in English for reference.
 6. As to shortage of communication cost, I can see the appeal by Ms. Hok Tean. The project provides USD5 from September 2008 to her every month as the communication cost. I expect the smooth communication from now-on.
 7. For the log book, Mr. Yos Chanthana, please print and provide them as required.
 8. I hope this exercise should be continued once a month or two months at least.

Annex 3

TRAVEL REPORT to CAMBODIA 11-14 August 2008

Sumitra Ruangsivakul
25 August 2008

1. Objectives

The project team plans to visit the project site in Sihanoukville, Cambodia on 11 - 14 August 2008 to pursue various activities as listed below.

1. Women's Group activity – discussing with the newly organized Mushroom Producers Group on several issues and monitoring its progress on mushroom production business and credit scheme with scrutinizing the accounting books
2. Mud-crab Culturing Group – inspection on the progress of the mud-crab fattening activities, discussing any issues with the members, scrutinizing the accounting book and the logbook and installation of an automatic recording machine for water temperature, salinity and DO donated by JICA,
3. Blood Cockle Fishers Group – explaining the content of self-regulatory measurement which was endorsed by the FiA, installation of marking poles around zoning area and collection of samples for carrying out marine biological survey
4. Fish cage culturing for sea-bass – explaining the result of the economic feasibility study to the Fish Cage Culturing Group, preparing installation of cages and discussing the immediate future action plan,
5. Crab Bank Group – discussing the possibility to increase the members in Prey Pros, monitoring the progress on gravid crab stocking and scrutinizing the accounting book
6. Accompanying DSG, SEAFDEC, and Asst. Japanese Trust Fund Manager for inspection of the project activity at the site in Sihanoukville and discussion with the Director General of FiA Cambodia in Phnom Penh

2. Travelers

- | | |
|-----------------------------|-----------------------------|
| 1. Mr. Hideki Tsubata | DSG/Trust Fund Manager |
| 2. Mr. Seiichi Etoh | Project Leader |
| 3. Ms. Sumitra Ruangsivakul | Socio-economic Section Head |
| 4. Ms. Jariya Sornkliang | Researcher |
| 5. Ms. Thanyalak Suasi | Researcher |

3. Work schedule

11 August 2008 (Monday)

- 07.50 – 09.10 Leave BKK and arrive Phnom Penh (PNH)
09.30 – 12.30 Move to the project site
12.30 – 13.30 Lunch
13.30 – 15.00 Inspect the project site
15.00 – 16.00 Move to Sihanoukville (SNV)
16.00 – 17.30 Internal meeting with the project staff

12 August 2008 (Tuesday)

- 07.30 – 08.30 Move to the project site
09.00 – 12.00 Fishers Workshop for Mud-crab Culturing Group
Installation and testing the salinity and temperature recorder by JICA expert
Account checking for mushroom production and Mud-crab culturing groups
12.00 – 13.00 Lunch at the site

13.00 – 16.00 Fishers Workshop with Crab Bank Group
Account checking for mushroom production

16.00 – 17.00 Move to Sihanoukville

13 August 2008 (Wednesday)

06.00 – 07.00 Move to the project site

07.30 – 10.30 Marine biological survey on blood cockle in the zone of fish refugia
Inspection of crab bank stocking

10.30 – 12.30 Fishers Workshop with Blood Cockle Fishers Group

12.30 – 14.00 Lunch at the site

14.00 – 16.30 Meeting with Mushroom Producers Group

16.30 – 17.30 Move to Sihanoukville

14 August 2008 (Thursday)

07.30 – 08.30 Move to the project site

09.00 – 11.00 Meeting with the Fish Cage Culture Group

11.00 – 15.30 Move to PNH

16.00 – 16.30 DSG SEAFDEC meeting with DG FiA

17.00 – 17.45 Moving to the Airport

19.45 Leave PNH for BKK

4. The results

4.1 Visiting women's group

- Mr. Hideki Tsubata and project's team visited 4 women's groups, the progress of each group that;

Kampong Chin group, group leader went to visit her cousin at Siem Reap. Member's group informed that, group just started new production in July, and sale packages of mushroom to community, the price was 1,200 Riel per package.

Prek Toal group, group leader went to work at rice field, far from Prey Toal. Member's group informed that, group just started new production in July, and production is not yet sale.

Prek Sangke group, group leader was sick and stay with her cousin, far from Prek Sangke. The production was still old packages, because leader's health was not good, nobody order new material.

Prek Pross group, the production was still old packages, group leader informed that, group was waiting sawdust long time, because this season was Cambodia election. Group hope to start new production in next week.

- Mr. Tsubata questioned to Prek Pross group that, did you would like to continue on mushroom production? Group leader replied that, she would like to continue this activity, but all big shop of Cambodia did not work in election time.



Fig. 1 Mr. Hideki Tsubata visited 4 women's groups at Sihanoukville project, on 11 August 2008

4.2 Internal meeting with project staffs of Sihanoukville

- Mr. Etoh introduced Mr. Hideki Tsubata, DSG/Trust Fund Manager to Mr. Doung Samart, Chief of Kampong Som FiA Cantonment, and all staffs of FiA, and explained the first objective of this trip that, TF manager would like to investigation this project to be extension one year more. The program of this investigation is visiting project site and participated in every group meeting, mud crab culture group, crab bank group, blood cockle fishing group, mushroom producer group and fish cage culture group.
- The second objective, Mr. Etoh explained more that, we have organized blood cockle fishing group and establish self-regulation, but this regulation didn't submit with Kampong Som FiA Cantonment, so this meeting would like to discuss on self-regulation and area of fish refugia with Mr. Doung Samart.
 1. Demarcated fishing area, now there are 3 versions of area, by project, by Kampong Som FiA Cantonment, and by FiA Phnom Penh. Kampong Som FiA Cantonment suggested 200 ha, but project suggested only 20 ha, so we would like to discuss on this size,
 2. Limitation of fishing season, they can fishing anytime (whole year)
 3. Restriction of harvestable size, over 100pcs/kg in size all the year round, and over 70pcs/kg in size during one month in spawning season. This regulation will be control size by sieve or not, we will be discussion at the next blood cockle fishing group meeting on 13 August.
 4. Restriction of fishing entry, everybody can be fishing or only member.
- Mr. Etoh suggested that, the area of fish refugia is the most important issue to discussion.
- Mr. Doung Samart explained the background of ICRM-SV project to DSG, the main activity was mud crab culture, because some budget of this activity supported by Japanese Grass Root.
- Mr. Doung Samart suggested on fish refugia that,
 1. FiA proposed 200 ha of fish refugia to fishermen's group, and fishermen agreed on this area, because if this area is too small (20 ha), they could not fishing in low tide situation.
 2. At the spawning season of blood cockle, they agreed on 35-40pcs/kg of size, this season is in August, similar Thailand.
 3. Fishermen from outside can come to fishing at this area
- Mr. Etoh suggested on spawning season that, SEAFDEC need to confirm this duration by Biological survey, and all regulation will be explained and suggested by fishermen at the next meeting.
- Mr. Doung Samart suggested more that, fish refugia area would like to protect by ARs, and FiA Cambodia try to installation ARs around fish refugia, but the cost of ARs have increased from USD50 to more than USD100. The total of ARs was 50 boxes to installation at this area. He informed more that ARs at Stung Hao were successful, the sea bottom of Stung Hao was sandy, but the sea bottom of Prey Nup II was muddy, this situation need to considered the structure of ARs.
- Mr. Etoh given information of ARs at Langkawi that, the sea bottom of Langkawi was muddy also, after one or two years, ARs have been sinking. If AR's construction is good design, it is useful to protection illegal fishing, please given picture of ARs at Stung Hao to SEAFDEC to consideration.
- Mr. Doung Samart explained on self-regulation that, Blood cockle fishing group in project site can be operated this regulation, because this regulation is the same sub-degree of FiA.

There are 5 communities to fishing in fish refugia, Thuk Thla, Thuk Lao, Tha Pong, Ban Tang and Char Long. And fishermen were happy on 200 ha of fish refugia area, FiA and fishermen have released mud crab and blood cockle at fish refugia, all of mud crab and blood cockle came from confiscation. Patrolling team of CF and FiA were very well known on strong team, now we have 2 patrol boats, belong CF and FiA.

- Mr. Doung Samart informed on crab bank that, there are still small number of gravid crab releasing, because total catch of fishermen is small number, so they can not given free to crab bank. We may be invited middleman to participation in this activity, and one system of crab bank, keep gravid crab in crab trap at sea, until crab released egg, and bring crab to sell. Mr. Doung Samart explained crab bank in Stung Hao have successful on resources rehabilitation, because fishermen met a lot of small swimming crab from hand push net.
- Mr. Etoh explained more that, crab bank in Chumphon project was improved by scientific data, and total catch of swimming crab was increasing every year. This survey conducted by DOF Thailand.
- Mr. Etoh informed on fish cage culture that, this culture will be started in September 2008, we plan to stock 2,500 fingerling of sea bass, and need supporting by FiA.
- Mr. Tsubata informed on objectives of visiting that, he would like to learn and observe this project, the reasonable of this visiting will be used on project extend or not.

4.3 Fishers Workshop for Mud-crab Culturing Group

- In the wake of the 2nd experiment of Mud Crab Culturing exercise, the process of this experiment was fully reviewed in the 9th Fishers Workshop on 1st April 2008 and the study tour to Koh Kong was conducted on 8/9 April 2008 to observe mud-crab culturing practices managed by a private venture. Based on these observations, the discussion was made in the 10th Fishers Workshop on 18 June 2008 to identify the critical causes of low productivity and the remedial measures. The preparation works have been completed in line with the remedial measures as dealt at length in the report “The 2nd Experiment on Mud-Crab Culturing in Sihanoukville (Etoh 2008)”. The operation in the 3rd experiment is expected to begin by this time.
- The 11th Fishers workshop of mud crab culturing group started at 0900, on 11 August 2008 with 18 participants of mud crab culture group member, CF’s committee and village leader.
- Mr. Etoh introduced special guest, Mr. Hideki Tsubata, DSG/Trust Fund Manager, this fund is supported this project, and Mr. Ing Try, Deputy Director of FiA, who came here many time. This meeting will be discussed 4 agenda that;
 1. Mud crab culture in Thailand, which successful case (by Mr. Etoh)
 2. The progress activity from last workshop until now (by group leader)
 3. The scientific status of culture pond (by Mr. Hatori)
 4. Base on the knowledge and including some report of mud crab culture, we should discuss on future work

The progress activity

- Mr. Mox Sen, group leader explained that, we have collected all fish, dry and lime at bottom of pond. We plan to start mud crab culture on July, but heavy rain every day, so we could not released mud crab, may be start on September, because next month the rain will be stop or a few raining.
- Mr. Etoh have questioned to mud crab group that,
 1. You have dried and spay lime, are you sure dried, because last month have a lot of rain.

2. Have you take off soil at the bottom, because I did not see lime at pond.
 3. The feeding case from Koh Kong, did you make a slop for feeding at corners of each pond?
- Mr. Mox Sen replied that, we were pumping and pumping again, when raining. We have taken off soil at the bottom and spay lime already, but you could not see lime at pond because rain. The last question, we made slop every corners of each pond, all gates have closed and we plan to cut mangrove root and grass at pond.
 - Mr. Ing Try informed that, the grass will be waiting to cut, because grass can be protect water flow in rainy season.



Fig. 2 DSG and Deputy, Director of FiA, Cambodia participated at the 11th fishers workshop of mud crab culture group at Sihanoukville, on 12 August 2008

Scientific status

- Mr. Hatori, JICA expert, explained on scientific data that, in case of high tide and high salinity, the mortality of mud crab is high. There are 3 recommendations to consider in the 3rd mud crab culture experiment;
 1. You must check water level, and setting water level in pond and canal
 2. You must check temperature, salinity in culture pond 2 times per day, and need to know the measurement by machine.
 3. At the same time, you must check topography (raining), now salinity is only 0.5ppt, but the standard of salinity is 15-30ppt.
- Mr. Etoh suggested that, all member of mud crab culture group must exercise and operating on measurement of salinity, temperature and observation on water level from now until September.
- Mr. Tsubata questioned to member that, can you check salinity and temperature 2 times per day? All members agreed on this checking.
- Mr. Ing Try informed that, everyone promised to SEAFDEC, you must be successful in the next two months of mud crab culture.
- Mr. Ing Try requested T-shirt and hat to mud crab culture group for monitoring activity (14 persons)

Mud crab culture in Thailand

- Mr. Etoh explained successful case of mud crab culture at Samutsakorn Province, Thailand, and members may be get some idea from this culture to used in the next culture, there are 2 types of mud crab culture

Semi-intensive mud crab/shrimp culturing

Size:	3.2 ha
Depth:	0.5-1.5 meter
Culturing amount:	1,200-1,400pcs (3.5pcs per 1,000m ²)

Seed crab: 50gm per pc
Fattening period: 2 months
Marketable size: 200-300gm
Feed: horse mussel (40-50kg or twice a week)

Extensive mud crab/shrimp culturing

Size: 14.4 ha
Depth: 1.5-2.0 meter
Harvesting: every 2 weeks

- Mr. Etoh explained more on sluice gage of each type of pond, and how to collect mud crab, after harvesting.
- Mr. Ing Try informed on tree planting, which increase oxygen in culture pond that, we may be try to plant this tree at one pond at the next culture. Now FiA has constructed more 3 culture pond, these culture ponds will be used to culture experiment for FiA's staffs.
- Mr. Doung Samart questioned on mangrove on culture pond that, the structure of Thailand is without mangrove, but structure of Cambodia is with mangrove, please explain on this different
- Mr. Etoh explained that, Thailand case is one advantage
- Mr. Ing Try explained on this different that, Cambodia bring structure of pond from Philippines, used friendly culture with mangrove.

4.4 Crab bank group meeting

- In the wake of organization of the crab bank group on 1st April 2008, the study tour to Stung Hao was conducted by the leading members on 5th April 2008. Based on the outcome from the study tour, cages for stocking gravid crab were constructed 25 – 28 April 2008 and the operation was commenced on 16 May 2008. The project team intends to monitor its activity at sea and discuss operational issues with the members of Crab Bank Group with the following agenda. Also, the project team will verify and scrutinize the logbook record and the account book.
- The 4th fishers workshop of crab bank group started at 1400, on 12 August 2008 with 29 participants of group members, and CF's committee.
- Mr. Etoh informed that, crab bank activity started on May 2008, and the progress of this activity may be explained by leader
- Mr. Hak E Souer, leader of crab bank group explained that, 8 gravid crabs was releasing from May to now, 5 gravid crab given by FiA and 3 gravid crab given by member.
- Mr. Etoh suggested that, please given the reason on why didn't have more gravid crab in this group, because this season is spawning season of swimming crab in Thailand.
- Ms. Sumitra presented crab bank activity in Chumphon Province, this presentation was showing the result of crab bank activity, the total catch of swimming crab at Pathew District was increasing every year, improved by scientific data and swimming crab trap fishing group.
- One member of crab bank group explained on this problem that, the location of crab bank in Thailand is near shore, so easy to releasing in cage, but location of Thuk Thla is far from shore. The second problem, almost member of crab bank were crab gill net, survival rate of gravid crab is low. The third problem, the total catch of each member is low, difficult to give free to crab bank.
- At the last, all member agreed on crab bank management that, each member will be marking symbol (name and date) at carapace of gravid crab before release at cage, leader

will be checked every day at crab bank. The total of member was 38 of fishermen (33) and middleman (5), and one middleman need to join in crab bank activity.

- Mr. Etoh informed more that, after one year of crab bank activity, SEAFDEC will be provided incentive to 5 ranks, who was releasing gravid crab at the first rank to the fifth rank.



Fig. 3 The 4th Fishers Workshop of crab bank group (left and middle) 2 cages of crab bank activity (right)

4.5 Blood cockle fishers meeting



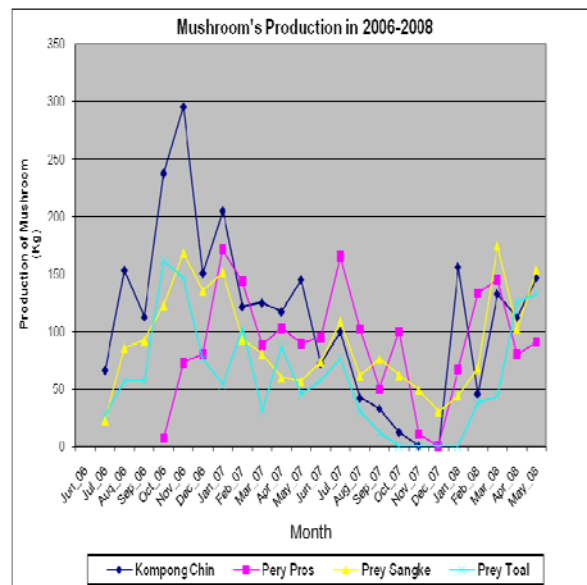
Fig. 4 Marine biological survey on blood cockle (left) blood cockle fishing group agreed on area of fish refugia and self-regulation at the meeting (middle and right)

- The draft Self-regulatory Measures for Blood Cockle Fishing in conjunction with establishment of Fish Refugia was thoroughly discussed among the members and reached a consensus at the 8th Fishers Workshop on 2 April 2008. This self-regulatory measure was further discussed with the Blood Cockle Fishing Group on 19 June 2008 in the light of technical applicability. At this workshop, it was agreed that the minimum size of harvestable blood cockle was limited to 100pcs./kg or over 32 x 22mm (L x H). Consistent with this size restriction, the mesh size of filtering sieve was also enlarged to 22 x 22mm (L x W). Similarly, the discussion was made among members on the size of zoning area to be encompassed as the fish refugia. The member insisted the view that the area should be minimal sufficiently enough to control and as the result it was agreed to limit to 20 Ha. The Self-regulatory Measures incorporating these amendments was sent to the Kampong Som FiA Cantonment for technical as well as legal consultation, which is expected to be finalized by next trip. As the next step, the proposal of establishment of Fish Refugia along with the Self-regulatory Measures should be submitted to Kampong Som FiA Cantonment by the Community Fisheries Prey Nup II through the regular channels in accordance with the Prakas on Guidelines of Community Fisheries. Meantime, preparation of establishment of Fish Refugia and implementation of Self-Regulatory Measures should proceed as a provisional base.

- The placards for establishment of the fish refugia for blood cockle fishing are to be ready by the time for putting up the mark poles, which will be installed in the spotted positions of fish refugia.
- Simultaneously, aimed at monitoring its expected impact on resources dynamics a relevant data collection and analytical system was established in early April 2008 with selected enumerators. The follow up monitoring is conducted with the data recorded. Further, the periodical sample collection in the area of Fish Refugia is also conducted.
- The 10th Fishers workshop of blood cockle fishing group held at 1000, on 13 August 2008, with 34 participants.
- Mr. Etoh informed on objectives of meeting that, we need to confirm on the area of fish refugia, between 20 ha and 200 ha, and self-regulation.
- Group leader and member replied that,
 1. Blood cockle fishing group agreed on 200 ha., because 20 ha was too small for fishing
 2. The size of blood cockle will be collect over 100pcs/kg, and less than 50pcs/kg in spawning season (about one month)
 3. The fishing time was 24 hrs.
 4. The sieve for shell collecting, one sieve for common blood cockle and one sieve for spawning season.
- Mr. Etoh informed on poster of fish refugia that, SEAFDEC will provide poster on fish refugia to every village, the detail of poster was compose map of fish refugia and photo of blood cockle collection by sieve.
- Mr. Etoh informed on pole for installation around fish refugia, SEAFDEC will provide about 20 poles to blood cockle fishing group to marking around fish refugia.

4.6 Mushroom Producer Group meeting

- The Internal Rules of the Group for the Mushroom Producers Group (MPG) was adopted at the first general meeting on 2nd April 2008 and the organizational function was legitimately commissioned under the structural framework of Community Fisheries Prey Nup II. The Workshop for MPG is held with the following agenda and also the project team is going to verify and scrutinize their accounting books.
- Mr. Etoh explained the production graph that;



Kampong Chin women's group

- Mr. Etoh informed that, the production of this group started to down from the 2nd year, please given the reason of decreasing.
- Group's member replied that, after the first production was finished, group did not continue to order material, and the second period of products, the quality of material is not good, especially spore of mushroom.
- Mr. Etoh suggested that, if you connected to produce package anytime, the production was not going down.

Prey Sangke women's Group

- Mr. Etoh informed that, the production of this group was going down also, the reason of this group was the same of Kampong Chin, group did not connect to order new material. Including the new material was not good quality to produce new mushroom.

Prey Pross women's Group

- Mr. Etoh informed that, the production of this group was very good in the first year, but go down at the next, what did happen in this situation?
- Group's leader replied that, we did not produce new one, because group was waiting sawdust long time.

Kampong Chin

Item	2006	2007	2008	Total	Remarks
	(7months)	(12 months)	(5 months)	(24 months)	
A. General Account					
1. Sale	687.5	588.8	511.8	1,788.1	
2. Expenditure	518.1	452.9	255.8	1,226.8	
- Paid by SEAFDEC	469.3	223.5	0.0	692.8	
- Paid by Group	48.8	229.4	255.8	534.0	
3. Gross income	169.4	135.9	256.0	561.3	
4. Share to members	125.0	261.8	0.0	386.8	
5. Net income	44.4	-125.9	256.0	174.5	
6. Transferred to Saving A/C	0.0	366.5	0.0	366.5	
7. Cash in hand (end of the term)	513.8	244.9	500.9	500.9	
B. Saving account					
1. Transferred from G.A	0.0	366.5	0.0	366.5	
2. Income	0.0	254.0	25.0	279.0	
3. Expenditure	0.0	400.4	0.0	400.4	
4. Gross income	0.0	-146.4	25.0	-121.4	
5. Shared to members	0.0	37.5	0.0	37.5	
6. Net income	0.0	-183.9	25.0	-158.9	
7. Cash in hand (end of the term)	0.0	182.6	207.6	207.6	
C. Total cash in hand	513.8	427.5	708.5	708.5	

Prey Toal women's Group

- This group was waiting sawdust also.
- Mr. Etoh suggested that, now all group have been association, this situation, group can order sawdust together, because association structure liked company.
- Mr. Etoh explained the summary of production that,
- The production in 2005 (only 7 months) was more than production of 2006 (all year)
- In 2006, they had income 135.9 USD, but they paid share to member 261.8 USD, this system was not business way.
- The budget from SEAFDEC didn't include in income, this fund is initial cost (investment), when they started to saving, all saving is SEAFDEC, because they did not get profit.
- Group's member explained that, cost of all material was increasing.

Prey Sangke

Item	2006	2007	2008	Total	Remarks
	(7months)	(12 months)	(5 months)	(24 months)	
A. General Account					
1. Sale	411.5	503.2	383.9	1,298.6	
2. Expenditure	549.4	444.6	124.8	1,118.8	
- Paid by EAFDEC	514.5	221.1	0.0	735.6	
- Paid by Group	34.9	223.5	124.8	383.2	
3. Gross income	-137.9	58.6	259.1	179.8	
4. Share to members	205.0	0.0	0.0	205.0	
5. Net income	-342.9	58.6	259.1	-25.2	
6. Transfer to Saving A/C	0.0	34.9	0.0	34.9	
7. Cash in hand	171.6	416.4	675.5	675.5	
B. Saving account					
1. Transfer from G.A	0.0	34.9	0.0	34.9	
2. Income	0.0	0.0	0.0	0.0	
3. Expenditure	0.0	14.8	0.0	14.8	
4. Gross income	0.0	-14.8	0.0	-14.8	
5. Share to members	0.0	0.0	0.0	0.0	
6. Net income	0.0	-14.8	0.0	-14.8	
7. Cash in hand	0.0	20.1	20.1	20.1	
C. Total cash in hand	171.6	436.5	695.6	695.6	

- Expenditure was more than income, but they given share to member in the first year. But more two years, they did not give share to member, this is true way of business, especially in 2007.
- Group's member replied that, material was high cost, and some material bought in 2007, but used until 2008.
- Mr. Etoh explained this case that, if you order some material in 2007, and used in 2008, you must get a lot profit in 2008.

Prey Pross

Item	2006	2007	2008	Total	Remarks
	(7months)	(12 months)	(5 months)	(24 months)	
A. General Account					
1. Sale	98.9	681.4	318.9	1,099.2	
2. Expenditure	171.9	769.7	3.5	945.1	
- Paid by SEAFDEC	75.8	455.5	0.0	531.3	
- Paid by Group	96.1	314.2	3.5	413.8	
3. Gross income	-73.0	-88.3	315.4	154.1	
4. Share to members	0.0	370.1	0.0	370.1	
5. Net income	-73.0	-458.4	315.4	-216.0	
6. Transferred to Saving A/C	0.0	0.0	0.0	0.0	
7. Cash in hand (end of the term)	2.8	0.0	315.4	315.4	

- In 2007, net income was -458.4USD
- In 2008, production was only 5 months, group had 315.4 USD, but SEAFDEC's fund provided 531.3

Prey Toal

Item	2006	2007	2008	Total	Remarks
	(7months)	(12 months)	(5 months)	(24 months)	
A. General Account					
1. Sale	352.5	272.5	249.7	874.7	
2. Expenditure	579.6	381.3	235.5	1,196.4	
- Paid by SEAFDEC	550.6	222.1	0.0	772.7	
- Paid by Group	29.0	159.2	235.5	423.7	
3. Gross income	-227.1	-108.8	14.2	-321.7	
4. Share to members	200.0	0.0	0.0	200.0	
5. Net income	-427.1	-108.8	14.2	-521.7	
6. Transferred to Saving A/C	0.0	0.0	0.0	0.0	
7. Cash in hand (end of the term)	123.5	236.8	251.0	251.0	

- In 2006-2007, they get minus of net income, in 2008, the expenditure was very high, and the total of expenditure was very high, 1,196.4
- Mr. Etoh explained more on saving account that, please bring this money to start new business, because SEAFDEC didn't bring back of money. All of you must be discussion and informed to SEAFDEC, we will be supported by giving training course. If you have saving account, saving account did not mix with mushroom production account and other business account.
- Mr. Etoh informed on next meeting that, you may be held meeting on discussion of new business at next week.
- Mr. Chanthana informed that, the next meeting will be held on 20 August at Commune, compose 2 members of each women's group, member of CF committee and leader of village.

4.7 Fish Cage Culture Group (FCCG) Meeting

- Cage Culture Group was established on 3rd April 2008 when the 2nd meeting with potential members was held. The leader was elected among 6 members. The operational and management mode was thoroughly discussed at this meeting and it was agreed to construct the cages by hands of the members in case of commencement of culturing from September 2008. The result of economic feasibility study was discussed at the 3rd meeting on 18 June 2008 and it was defined as the venture economically viable. The meeting is held with the member of FCCG with the following agenda.
- The 4th Fishers Workshop of fish cage culture group, the meeting was starting at 0900, on 14 August 2008, with 10 participant of member's group, CF committee and Leader of Kampong Chin village.
- Mr. Etoh introduced special guest to participants, Mr. Hideki Tsubata, Trust Fund Manager, and this activity will be supported by this fund, and informed more that, this meeting have revised economic feasibility study again.
- Mr. Tsubata informed that, this is the first time to investigation this project, so far I will get information to used on extension this project.
- Mr. Etoh explained the economic feasibility study one by one, and all of you have question, please
- Mr. Etoh informed more after end of explanation that, please consider the net income per member was 80 USD, if you except this income, SEAFDEC will be starting this culture on September. If you take care best and best, the survival rate of sea bass must more than this figure.
- Mr. Ing Try mentioned that, base on SEAFDEC's study, you will get low income, but you can get experience of fish cage culture, and please take this opportunity to start this culture. In the future you can get experience from this business, and other communities can learn this business from your group. SEAFDEC and JICA's expert will help you on technical and check quality of water.
- CF's committee and village leader mentioned that, thank you to SEAFDEC and FiA, Kampong Chin chance to get opportunity on mushroom production and fish cage culture.
- Mr. Ing Try informed to SEAFDEC that, SEAFDEC try to find fund to printing manual on sea bass culture in cage in Khmer.
- Mr. Etoh informed at the last minute that, this culture is cost sharing,
 - Labor cost by share in kind (construction)

- Investment cost by SEAFDEC (this cost is not take back, but used for the next investment)
- Stocking (fingerling) cost by FiA Cambodia
- Mr. Etoh informed more on collecting data that, log book and accounting book must be used in this culture. One member will be nominated to train on general accounting and log book.
- Mr. Ing Try suggested that, please confirm on date to construction on cage and hut. Group leader informed that, we will be started on 17 August.



Fig. 5 The 4th Fisher's workshop on fish cage culture group was held on 14 August 2008

Economic Feasibility Study on Fish Cage Culture (Revised)

(Fish Cage Culture Group of Community Fishery Prey Nup 2)

1. Base of calculation

- Number of members : 6
- Species of fish for culturing: Sea-bass (Lates calcarifer)
- Construction cost: Self-employed labour
- Dimensions of cage: 2.5x2.5x2.0m(LxWxH)
- Number of cages: 6 sets
- Cost of installation : Riel 4,232,000 (USD 1,058)
- Depreciation of facilities: 4 years for frame and 2 years for cages
- Culturing duration: 6 months
- Number of croppings per year : 1time (Sept to May)
- Marketable size of fish: 500gr
- Duration of culturing : 6 months up to 500gr
- Size of fingering : 3 inch
- Cost of fingering: 900 Riel per pc (3" size)
- Feed conversion rate: 3.0
- Price of fish feed (trash fish caught by set-net): Riel 1,500 per kg
- Price of marketable size of fish: Riel 16,000 per Kg in Sihanoukville
- Mortality rate: 40 percent
- Number of harvestable fish : 1,500pcs (500gr size)
(20kg/sq.m. x 2.5m x 2.5m x 6 cages/0.5kg)
- Total weight of harvested fish : 750kg
(1,500pcs X 0.5kg)
- Number of fingerings stocked : 2,500pcs (3" size)
(1,500pcs /0.6)

	<u>Riel ('000)</u>	<u>USD</u>
2. Annual Fixed cost		
- Depreciation of facilities (Frame for 4 years: Riel 656,000) (Cages for 2 years: Riel 804,000)	1,460	365
- Maintenance cost for facilities (Riel 4,232,000 x 5%)	212	53
Sub-total:	1,672	418
3. Annual variable cost		
- Cost of fingering (2,500pcs x Riel 900)	2,250	563
- Cost of feed (2,500pcs x 0.8 x 0.5kg x 3 x Riel 1,500)	4,500	1,125
- Cost of fuel (10l x 8 months x 5,000Riel)	400	100
- Marketing overhead (750kg x Riel 16,000 x 5%)	600	150
- Misc. including communication (Riel 3,000 x 210dys)	630	158
Sub-total:	8,380	2,095
4. Annual net income		
- Sales (750kg x Riel 16,000)	12,000	3,000
- Expenditure	10,052	2,513
- Gross income	1,948	487
- Share to each member per year	325	81
5. Return on investment		0
- Initial investment cost	4,232	1,058
- Return on initial investment (%)	46.0	

TRAVEL REPORT TO CAMBODIA
23-26 December 2008

Sumitra Ruangsivakul

1. Objectives

SEAFDEC project team plans to visit the project site in Sihanoukville, Cambodia on 23-26 December 2008 to monitoring progress on various activities as listed below.

1. Inspection of activity by Mud crab Culturing Group (MCCG) – In the wake of the 12th Workshop on MCCG on 19 November, it was decided to conduct the 4th experiment on mud-crab fattening after cleaning the culturing ponds and putting up the plastic sheet wall to protect crab from escaping during the high tide in early December. It is expected that crab fattening has been in progress by the time on 24th December and monitoring its process will be made at the site.
2. Inspection of activity by Fish Cage Culturing Group (FCCG) – The first fish cage culturing experiment was ended up all fingerings perished toward the end of September. Probable causes were thoroughly discussed at the 5th Workshop of CCG on 19 November to remedy the constraints and it was decided that the 2nd experiment was to be commenced in early December after determination of a better location for cages. It is expected that the progress in sea-bass cage culturing has been put in place by the time of visiting and monitoring its progress is made at the site.
3. Inspection of activity by Mushroom Producers Group (MPG) – The production of mushroom has been commercialized with formation of MPG since early this year. The project continues to check monthly bookkeeping system by verifying their accounting books every month.
4. Monitoring activity by Crab Bank Group (CBG) – The Crab Bank Group was organized in the 2nd workshop of CBG on 1 April 2008 and releasing gravid crab was commenced in May. In the 5th Workshop of CBG on 20 November 2008, it was proposed to establish one more cage near the village of Prey Pros to serve crab fishermen in this village. The volume of gravid crab released into the crab bank by Prey Pros fishermen should be kept monitoring on end to judge its necessity.
5. Workshop on Blood Cockle Fishers Group (BCFG) – In the 5th Workshop of BCFG on 20 November, the practicability of introducing a sieve to filter juvenile size of blood cockle under 10gr was tested with the mesh size of sieve of 20 x 20mm in accordance with Self-regulatory Measures for Blood Cockle Fishing. As the result, it was found that almost 80% of blood cockle were filtered out and some of them appeared to be bigger than 10gr. Given the fact, the members stated in the 7th ICC meeting that the permissible size should be less than 130pcs per kg or over 7.7gr. Before taking their request into consideration, it needs more verification to decide the exact mesh size of sieve to filter blood cockle under 10gr. In this workshop, the sieve with 18 x 18mm will be tested.

Simultaneously, aimed at monitoring its expected impact on resources dynamics a relevant data collection and analytical system was established in early April 2008 with selected enumerators. The data recorded by enumerators will be collected for analysis. Further, the periodical sample collection in the area of Fish Refugia is also conducted.

6. Local Seminar - The 3rd local seminar will be organized on 25th December 2008 in the meeting room of District Office, Khan Prey Nup, Sihanoukville.
7. Mangrove Plantation Day - The mangrove plantation will be taken place with voluntary participation by school children and village stakeholders on 26 December 2008.

2. Travelers

- | | |
|-----------------------------|-----------------------------|
| 1. Mr. Seiichi Etoh | Project Leader |
| 2. Ms. Sumitra Ruangsivakul | Socio-economic Section Head |
| 3. Ms. Jariya Sornkliang | Researcher |
| 4. Ms. Thanyalak Suasi | Researcher |

3. Work schedule

23 December 2008 (Tuesday)

- | | |
|---------------|---|
| 05.30 – 11.00 | Leave BKK and arrive at the border of Cambodia (Koh Kong) |
| 11.00 – 15.30 | Move to Project site |
| 15.30 – 17.30 | Visit each women's group |
| 17.30 – 18.30 | Move to Sihanoukville |

24 December 2008 (Wednesday)

- | | |
|---------------|---|
| 07.30 – 08.30 | Move to the project site |
| 09.00 – 12.00 | - Monitoring mushroom production record (visiting each village)
- Monitoring progress of fish cage culturing (visiting the site)
- Monitoring progress of mud-crab culturing (visiting the site)
- Monitoring progress of crab bank (discussion with the leader) |
| 13.00 – 15.00 | Workshop on Blood Cockle Fishing Group |
| 15.00 – 16.30 | Marine biological survey on blood cockle in the zone of fish refugia |
| 16.30 – 17.30 | Preparation of the venue of Local Seminar |
| 17.30 – 18.30 | Move to Sihanoukville |

25 December 2008 (Thursday)

- | | |
|---------------|--|
| 07.30 – 08.30 | Move to Khan Prey Nup Office meeting room |
| 08.30 – 16.30 | Participation at the 3 rd Local Seminar |
| 16.30 – 17.30 | Move to Sihanoukville |

26 December 2008 (Friday)

- | | |
|---------------|--|
| 07.30 – 08.30 | Move to the project site |
| 08.30 – 11.00 | Mangrove plantation activity |
| 11.00 – 12.00 | Lunch |
| 12.00 – 16.00 | Move from Veal Rinh to Cambodia border, Koh Kong |
| 18.00 – 23.00 | Move from Thai border to BKK |

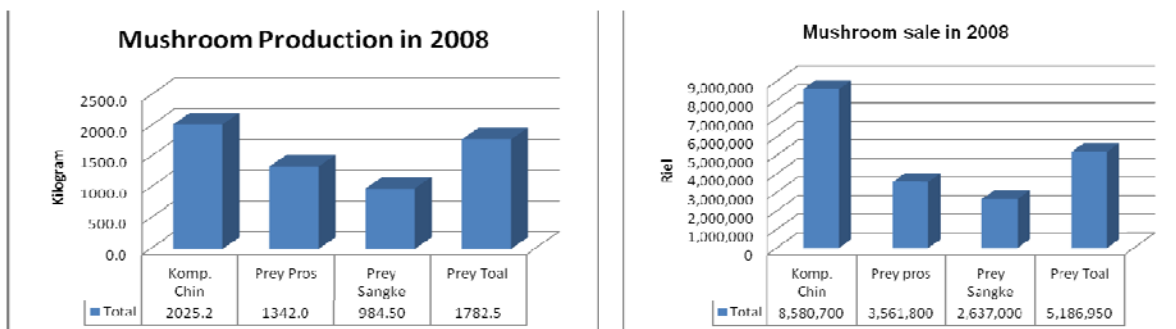
4. The results

4.1 Visiting women's group

- Project's team visited 4 women's groups on mushroom production, and monitoring on the total production and total sale of each group in 2008, and collecting the result of training course on spore production at Battambang Province on 16-20 December 2008.

Training course on spore production, 16-20 December 2008

There are 4 participants of women's group (3 of Kampong Chin and one of Prey Pros) and one FiA's officer went to spore production training course at Battambang, the objective was that, mushroom incubation packets were spoiled due to inferior quality of spore obtained from the private producer which caused the decreasing economic balance in the Mushroom Producers Group of the project ICRM-SV. This constraint was seriously discussed at the last Project ICC meeting on 26 November 2008, which decided to try out production of spore by the MPG themselves in a view that produced spore can be marketed in other potential producers in addition to usage by themselves. SEAFDEC have supported 50% of training's budget, and 50% provided by mushroom producers group.



Kampong Chin group, group started spore production on 22 December 2008 at her group, the result of this production will be known after one month.



Fig.1 Laboratory of spore production at Kampong Chin Group

Prey Toal group, group did not start new mushroom production, because group's leader was busy on rice harvesting.

Prey Sangke group, group has re-organized new structure, and collecting new leader with 4 members, they work hard, and preparing new packet of mushroom and starting new mushroom (straw mushroom).



Fig. 2 The new leader of Prey Sangke Group with their work, Oyster Mushroom and Straw Mushroom

Prey Pros group, the location of this group moved to new place and produced about 3,000 of mushroom packets.



Fig. 3 The new place of Prey Pros Group with a lot of packet of mushroom

4.2 Monitoring Fish Cage Culture Group (FCCG)

- The 1st experiment of Fish Cage Culture started on August 2008, and failed on September. The 2nd experiment will be planned to start the early of December 2008, and need to change the location of cage. The new location is far from sea, not strong current, and temperature and salinity is stable than old location.



Fig. 4 The new location of fish cage culture

4.3 Monitoring Crab Bank Group

Monthly record of crab release and sale of Crab Bank Group

Month	Crab remained (pc)	Crab released (pc)	Crab sold		
			(pc)	(kg)	(Riel)
May	0	5	5	-	12,000
Jun	0	3	3	-	1,500
Jul	0	3	0	-	0
Aug	0	36	13	-	5,500
Sep	19	62	22	-	11,500
Oct					
Nov					
Dec					
Total		109	43	0	30,500

4.4 Monitoring Mud-crab Culturing Group

- The 4th experiments of mud crab culturing started to release mud crab on 15 December 2008 as follow as;

Date	Male		Female		Total		Pond No.			
	No.	Weight (kg)	No.	weight (kg)	No.	Weight (kg)	1 (Male)	2 (Female)	3 (Male)	5 (Female)
15 Dec. 08	100	9.9	25	7.3	125	17.2	100			25
16 Dec. 08	70	6.0	57	4.8	127	10.8	70			57
23 Dec. 08	85	9.0	60	6.3	145	15.3		60	85	
24 Dec. 08	77	7.3	35	3.8	112	11.1		35	77	
Total	332	32.2	177	22.2	509	54.4	170	95	162	82

- Mr. Etoh have explained more that, mud crab culturing group must put more crab at pond no. 2 and 3 only, because mud crab at pond no. 1 and 5 have culture long time, new crab may be eaten by old crab.



Fig. 5 Members of mud crab culture group released mud crab to pond no. 2 and 3 on 24 December 2008

4.5 Workshop on Blood cockle fishers group

- The 11th Fishers workshop of blood cockle fishing group held at 1300, on 24 December 2008, with 30 participants.
- Mr. Etoh informed the objectives of workshop that, we would like to confirm the condition of blood cockle, and mesh size of sieve. In data collection from middleman, we found that, catch data of blood cockle have go down in rainy season (Aug-Oct.), this condition have occurred every year or only this year.
- Group leader and member replied that, blood cockle dead from dredger fishing gear and rain together.
- Mr. Etoh mentioned that, dredger boat was difficult to operation in this area, because they will be arias by enforcement unit. Mr. Etoh shown the total catch of blood cockle from September to November in 2007 and 2008 to fishermen, the total catch in rainy season have go down in every year.
- Member said that, the number of fishermen increased every year, so CPUE of catch data have go down.
- Mr. Etoh mentioned on size and number of blood cockle that, SEAFDEC provided 5 sieves with 18 x 18mm to testing. Fishermen agreed to use sieve (1.8 cm) to collecting, and given sieve to 4 middlemen and one sieve to FiA Sihanoukville.



Fig. 6 Member of blood cockle fishing group tested mesh size of sieve (1.8 cm)

4.6 The 3rd Local Seminar

- The first and the second local seminars were convened in November 2006 and December 2007 respectively in a bid to review the progress of the project activity since inception of the project operation together with local beneficiaries and evaluate its degree of project attainment consistent with the original project concept. It was also very conducive for the project to verify numbers of realistic views and receive instructive suggestions among participants, which were certainly incorporated in the subsequent project operational plan. In the wake of such fruitful outcomes produced in the first and the second local seminars, the 3rd Local Seminar on Project Progress and Local Participation is envisaged to be organized in the meeting hall of the Sub-District Office, Veal Rinh, Sihanoukville, on 25th December 2008.

The objectives

- To disseminate the current project achievement and status to all stakeholders and concerning local institutions and agencies
- To expect feed-backs on project orientation and impacts from stakeholders and concerning institutions and agencies
- To summarize the project achievement for the last one year and internally review its

progress with stakeholders

- To reflect findings and outcomes of the seminar into the future project operation
- To stimulate participations by all stakeholders to the project operation more positively through such an event.

Expected outcome

- All stakeholders understand more evidently and correctly the project orientation and its impacts particularly given during the year of 2008.
- The project receives fresh and firsthand remarks on the project operation from the stakeholders, which are very useful and conducive in reviewing the future project orientation.
- The project summarizes the project activity for the last one year and publicly monitor and evaluate its approach and outputs.
- More beneficiaries who realize the real spirit and approach of the project orientation tend to participate positively in the project operation.
- The local administrative authorities verify the extent of the project impacts and its needs from the socio-economic aspects.

The timetable and agenda

08.30 – 09.00	Registration
09.00 – 09.15	Welcome address by Mr. Ban Salom, District (Khan) Governor
09.15 – 09.30	Opening by Mr. Ing Try, Deputy Director General, FiA
09.30 – 09.50	Address on the objective of the seminar by Project Leader, SEAFDEC/TD
09.50 – 10.10	Outline of the project progress in 2008 by Project Leader, SEAFDEC/TD
10.10 – 10.30	Report on project progress: Fish landing survey
10.30 – 10.35	Coffee break
10.35 – 10.55	Report on project progress: Formulation and promulgation of CAFMP and other documents (Fisheries Office, Cantonment)
10.55 – 11.15	Report on project progress: Function and effects of Local Enforcement Unit (Chief of CF Prey Nup II)
11.15 – 11.35	Report on project progress: Establishment and operation of Crab Bank (Leader of Crab Bank Group)
11.35 – 11.55	Report on project progress: Commercialization of mushroom production (Leader of Mushroom Producers Group)
11.55 – 12.15	Report on project progress: Establishment and management of Fish refugia (Leader of Blood-cockle Fishers Group)
12.15 – 13.30	Lunch break
13.30 – 13.50	Report on project progress: Mud-crab fattening experiment (Leader of Mud-crab Culture Group)
13.50 – 14.10	Report on project progress: Sea-bass cage culturing (Leader of Fish Cage Culturing Group)
14.10 – 14.30	Report on project progress: Progress in institutional capacity building of Community Fisheries by the Project Team Leader
14.30 – 14.50	Tangible socio-economic impacts given to the local community by the project operation (Community Leader and District Office)
14.50 – 15.00	Coffee break
15.00 – 15.20	Mangrove
15.20 – 15.40	Free discussion on evaluation of the project activities and future orientation

- 15.40 – 16.00 Summary of the outcome of seminar by the Deputy Director, FiA, Phnom Penh
- 16.20 – 16.30 Closing the seminar by Director of Agriculture, Sihanoukville Municipality

Participants

About 69 participants are anticipated to join the local seminar, 4 from FiA HQ Phnom Penh, 9 from Kampong Som Fia Contonment, 5 from Prey Nup FiA Office, 4 from Prey Nup District, 2 from Chief Commune, 41 from Local community, and 4 from SEAFDEC/TD.

The results

Full report of local seminar will be reported by project’s staff of Cambodia.



Fig. 7 The 3rd Local Seminar of ICRM-SV was held on 25 December 2008, at Khan Prey Nup, Sihanoukville, Cambodia

4.7 Mangrove plantation

Objective

- awareness building in the community, including children, for mangrove reforestation,
- thereby, preventing illegal logging of mangrove,
- planting 1,000 mangrove seedlings and
- fostering the voluntary participation among community members in environmental protection activity

- About 150 Participants came from governors, village chief, school and fishermen, SEAFDEC provided 150 T-shirt, 60 pens, 60 pencil and 60 rubbers to students.
- 1,000 mangrove seedlings provided by FiA



Fig. 8 Mangrove plantation was held on 26 December 2008, at Thuk Thla Commune

Annex 5

REPORT on Site Inspection of Seabass Cage Culture 19th November 2008

On 19th November 2008, there was a site inspection of seabass cage culture along the creek of Sangkat Prek Nob II, Sihanoukville due to the completed failure of seabass cage culture caused by strong water flowing in the last 10 days of September in 2008.

Water quality was measured at five different areas along the creek (Table 1) in order to find out the appropriate place to install cages for continuing the seabass culture in the near future. The first checked point is the nearest site to the village and protected from water flow by the mangrove bay. The second checked point (Picture 1) was considered to be affected by strong water flowing because this place is the junction with tributary. The third and fourth checked points are at the middle of the creek and they are low in D.O and shallower. The fifth checked point, the failure of seabass culture, is located near the sea and the salinity is good for seabass culture, but it is not easy to access, far from the village.

Table 1: Water quality along the estuary

Checked Point	Date	Time	Measured Depth (m)	Temperature □	Salinity ‰	D.O (ppm)	Saturation %
1 (junction with tributary)	19-Nov-08	13:50	Surface	29.32	8‰	4.06	54
		13:53	3	28.05	15	3.1	48
2(Cage)	19-Nov-08	13:37	Surface	29.16	6.72	4.24	57
			1	29.32	11.77	3.24	45
			2.6	27.76	15.55	3.37	46.7
3	19-Nov-08	14:03	Surface	29.45	10.78	3.6	50.3
			2.6	28.61	14.51	3.41	48
4	19-Nov-08	14:25	Surface	28.34	17.14	3.45	48.9
			1.2	28.39	17.82	3.7	52.4
5(Ex.cage site)	19-Nov-08	14:30	Surface	28.34	17.82	3.89	51
			2	28.24	18.06	3.66	52

Note: The salinity in bay(the outside of estuary) was 16.6‰



Picture.1.The first checked point1 (junction)



Picture.2.The second checked point (present cage)



Picture 3: The forth checked point



Picture 2: The fifth checked point (previous cage site)

The seabass culture's group gave the reason why they selected the fifth checked point because the culture started in raining season; therefore, the salinity along the creek is very low, but it is higher if it is located near the sea.

As a conclusion of this survey, the seabass culture's group was recommended to set the cage culture near the village because of easier access and higher salinity in dry season even in upper area of creek. However, the lower D.O will be estimated along the creek; the density stock of seabass culture should be reduced.

As the conclusion of the discussion with Mr. Etoh, SEAFDEC and JICA Expert, 600 seabass fries will be stocked as a 2nd experiment.

November 25th, 2008

Va Longdy
Fishery Administration Staff

Tatsuya HATORI
JICA Expert on Fisheries Administration

Annex 7

THE MINUTES OF THE 7TH IMPLEMENTATION COORDINATION COMMITTEE (ICC) MEETING

Integrated Coastal Resources Management in Sihanoukville (ICRM-SV)

- Venue: Meeting Room, Agriculture Department Sihanoukville

- Date: 21 November 2008

List to participants

DOF Cambodia & Fisheries Office Sihanoukville

12. Mr. Ing Try	Deputy Director General, DOF, PP
13. Mr. Pum Sotha	Director of Marine Fisheries Inspectorate
14. Mr. Duong Samath	Director of Fisheries Administration
15. Mr. Soun Kam San	Head of accounting office, Department of agriculture Sihanoukville
16. Mr. Pich Bunna	Vice chief CFDO, DOF, PP
17. Mr. Kim An	Director of Fisheries Administration Division, Prey Nub
18. Khin Saravuth	Chief of Community Section, Sihanoukville
19. Mr. Yos Chanthana	Project Team leader
20. Ms. Heng Punley	Project Socio-economist
21. Mr. Nen Chamroeun	Project Aquaculturist
22. Mr. Sam Rith Keila	Project Extension worker
23. Mrs. Sam Leakna	Fisheries officer, Sihanoukville

CFs

24. Mr. Phoun Nam	Sangkat chief, Toeuk Tla
25. Mr. Rim Mousoeur	CF leader of Prey Nub 2
26. Mok Sen	Mud-crab Culture Group leader
27. Mrs Hok Tam	Chief of mushroom producer group
28. Ms. Ya	Blood Cockle Fishers Group leader
29. Mr. Noh Bet	Deputy Chief of CFs Prey Nub2
30. Mr. Hak E Soeur	Crab Bank Group leader

SEAFDEC/TD

31. Mr. Sei Etoh	Project leader
------------------	----------------

Proceedings of the meeting

Mr. Yos Chanthana asked a permission from Mr. Ing Try to start the 7 ICC meeting and he mentioned the main objectives, the provisional agenda and timetable. Regarding to the

objectives of the meeting, he mentioned 3 important points in the following:

- To monitor the project progress since the 6th ICC meeting,
- To discuss the proposed project immediate action plan for the next 3 months, from the point of view of practical implementation,
- And to identify the constraints in the project implementation at local level and suggest

After Mr. Yos Chanthana finished his explanation, Mr. Ing Try delivered the welcome speech in which he expressed deeply thanks to all participants from Department Agriculture, SEAFDEC/TD, Fisheries Administration Inspectorate, CFDO, Fisheries Administration Cantonment, CF Prey Nub 2. He reminded the participants to take into consideration on discussing the problems happened during implementation of the project since the 6th ICC meeting.

2.1 Endorsing Minute of the 6th ICC Meeting

After adopting the provision agenda, Mr. Ing Try invited Mr. Yos Chanthana to read the 6th ICC minute and he suggested all participants for comments and clarifications from on the minute. The results of discussion and comments were described in the following:

- Mr. Ing Try asked Mr. Yos Chanthana and Mr. Doung Sam Ath on the progress of video spot demonstrating the achievements of the project.
- Mr. Yos Chanthana replied that this activity has not yet started because he was busy to concentrate on mud crab culture. He apologized for not conducting video spot.
- To share the responsibility from Mr. Yos chanthana, Mr. Ing Try assigned Mr. Doung Sam Ath to prepare and contact with cameraman to produce video spot.
- Replying to this assignment, Mr. Doung Sam Ath suggested Mr. Nen Chamreoun working closely with Mr. Yos Chanthana to find a suitable way in producing video spot. He also recommended that the sport should be made in Khmer Version.
- Mr. Doung Sam Ath suggested adding activities of H.E Nao Thouk in the project report. Mr. Yos Chanthana agreed with Mr. Doung Sam Ath's comment.
- Regarding to communication system, Mr. Etoh expressed his appreciation with the improvement taken by the team leader reflecting from his complain at the 6th ICC meeting. For local enforcement unit, he was informed from the field that the cantonment provided one brand new engine with 13 hp. He continued that project still supports 25liters of gasoline to CF Prey Nub2 every month, but he found that illegal fishing activities still operate in CF fishing ground.
- Concerning to Mr. Etoh comments, Mr. Ing Try asked Mr. Rim Mou Soeur to explain this issue.
- Mr. Rim Mou Soeur replied that the boat was repaired recently so we had only a short time to conduct patrolling. Moreover, this season was rice harvesting time, he added, so the patrolling members were busy in their rice fields. For mangrove forest, we can say that mangrove areas are well protected, he said.

For the patrolling unit, Mr. Ing Try recommended that, CF should not focus only illegal activities in the sea, but mangrove protection should be taken into account as well. He instructed CF members that when encountering mangrove felling, the CF member should

inform it to Fisheries officers immediately (Division to Cantonment, Cantonment to Inspectorate). He explained that ‘no mangrove no fish and no fisheries’.

- Responding to Mr. Etoh concern, Mr. Doung Sam Ath insisted that CF and fisheries officers worked closely in patrolling. He acknowledged the existences of illegal fishing activities, because fisheries officers could not stay 24 hours for monitoring these activities. He added that now FiA reformed the administration structure in which Fisheries Administration Division Prey Nub was installed and performed its function. He expressed his being optimistic of reduction in illegal fishing.

- Mr. Ly Vuthy expressed his appreciation on great achievements of the CF Prey Nub 2. He recommended CF members continuing their activities especially local businesses and fishing ground protection.

- For refugia, blood cockle leader suggested changing cockle size from over 100pcs to 130pcs (prohibited size) because she concerned on the application of the self-regulatory measure.

- Mr. Yos chanthana complained that in several meetings, CFs agreed on prohibited harvesting blood cockle with more than 100 pcs per Kg, but now blood cockle leader want to change to 130pcs. It is very difficult for the project to prepare document, he said. For spawning season, he continued, SEAFDEC is conducting biological research and the results will be announced after one year of the research.

- Mr. Pum Sotha noticed 3 important points (1) illegal fishing (2) mud crab culture and (3) blood cockle.

- o For illegal fishing: according to his observation, illegal fishing in CFs Prey Nub 2 happened every day (30day/30days). He ordered Mr. Kim An, Director of FiAD Prey Nub to take action immediately.

- o For prohibited size of blood cockle, he said, according to the Proclamation of the MAFF, over 300pcs/kg are not allowed to harvest. This proclamation is followed our study as well. So he asked the project leader to explain the reason why 130pcs size was selected.

- o For mud crab culture, he strongly condemned the stolen case. He agreed on this case because he found some traps in the ponds when he visited crab site last time. He asked crab members to cooperate with Sangkat chief to identify the thieves and sue them to the court.

- Responding to Mr. Pum Sotha comments, Mr. Ing Try ordered Mr. Kim An to take measures on illegal fishing. To prevent any stolen case, FiA Cantonment Kampong som offered 200,000Riels per month to support on member to stay 24 hours at the crab site, he informed.

- Mr. Etoh still maintained that over 100pcs was suitable because this size was approved by CFs during fishermen’s workshops conducted several times. He said that 300pcs/kg size is very small. According to our research, 78.2% of blood cockles selling in Veal Renh falls over-100pcs/kg size.

- After Mr. Etoh explained clearly on the self-regulatory measure, Mr. Pum Sotha agreed keeping the prohibited size of blood cockle as drafted by the project.

- For mud crab culture, Mr. Mok Sen, crab leader said that “ I told the person who get crab from the pond not to do like this anymore”. Now, this situation of stolen crab did not happen anymore.

After discussing actively, all participants endorsed the Minute of the 6th ICC Meeting

2.2. Achievement of activities since the 6th ICC meeting

After endorsing 6th ICC meeting minute, Mr. Yos Chanthana reported the achievement on project activity made since the last ICC meeting. Based on Mr. Chanthana's presentation, participants asked for clarification and comments in the following:

- Mr. Ing Try expressed his appreciation on the 3rd experiment of mud crab culture. He instructed FiA Cantonment, project staffs and CFs to continue mud crab culture for the next step. He also asked the project staff to prepare mud crab culture report for documentation.
- To enhance efficiency of LEU, Mr. Rim Mou Soeur asked FiA to provide 2 mobile phones for CFs in Prek Pros and Prek Toal. He also mentioned the importance of mobile phone in cracking down illegal mangrove felling.
- Mr. Nos Apidin, CFs in Prek Toal said that "I'm difficult to inform about illegal mangrove cutting to fisheries officers because I don't have mobile phone".
- On behalf of FiA, Mr. Pum Sotha, promised to provide 2 mobile phone, one for Prek Toal and one for Prek Pros. He suggested that when receiving the phones, please use it for the community affairs not for private issue. He also advised CFs to maintain the phones properly in order to use last long time.
- Mr. Ing Try thanked to Mr. Pum Sotha for providing 2 mobile phones to CFs and he reminded CFs to use these equipments in the right purposes.
- Mr. Etoh mentioned that in line with the work plan of the project the establishment of a Community Fisheries Coordination Committee (CFCC) had been pending.
- Mr. Doung Sam Ath said that the formation of CFCC is not necessary at this stage because now we have Inspectorate, Cantonment, Division and Sangkat. So we can work through these channels.
- Regarding to crab bank, Mr. Pum Sotha asked project staff to explain the system how to collect gravid crab for releasing in the cage.
- Mr. Ing Try replied that, FiA has different approach in collecting gravid crab in other fishing villages. The ICRM-SV encourages CFs to release gravid crab voluntarily, not buy. At the end of the year, SEAFDEC will give the prize for 5 outstanding members who release most crabs in the cage. Mr. Ing Try insisted that he don't want to hear that when project finishes, crab bank disappears.
- For mushroom producing group, Mrs. Hoc Tean, MPG leader, thanked to SEAFDEC and FiA for initiating and supporting mushroom production in CFs Prey Nub2. Now, without the project support, MPG can sustain mushroom production; we get great success in the business, she said. She continued that, now many people in each village are able to produce mushroom, so during free time they come to work with MPG and they get income. She noticed that after formulating MPG, mushroom production in the CFs Prey Nub to is stronger than before because of :

- we can order materials together with low cost
 - we can share information on producing techniques and marketing
 - we can stop relying on middlemen in term of price
- To disseminate the experiences from MPG of CFs Prey Nub2, Mr. Ing Try suggested Mr. Doung Sam Ath to find other CFs to visit and learn mushroom producing from Prey Nub2.
 - At the end of discussion on the progress report, Mr. Ing Try instructed in the following:
 - Local seminar should be organized on 25 December 2008.
 - Mrs. Punley prepared printing reports in Khmer version
 - Project should organize study tour to visit any successful CF or training CFs on other subjects.
 - Mr. Yos chanthana should compile all documents and burn into CD
 - Cantonment find suitable place for planting mangrove
 - Mr. Nen Chamroeun and Mr. Kim An draft the budget for protection- obstacles
 - Mr. Kim An strengthens law enforcement in CFs Prey Nub2

2.3 Immediate work plan (please insert your presentation)

Mr. Etoh explained the meeting the immediate work plan covering 4 month from November 2008 to February 2009 as following.

1. Baseline / monitoring survey

- Continue fish landing data collection
- Continue marine biological survey for blood cockle
- Monitoring socio-economic survey

2. Encourage and extend locally-based fishery resources management

- Continue management of fish refugia
- General fishers meetings in neighboring villages
- Continue management of crab bank
- Formation of Community Fisheries Coordination Committee (CFCC)
- Continue reinforcement of the structure and capacity of Local Enforcement Unit (LEU)

3. Promotion of local business

- Continue monitoring activities of Mushroom Producer Group and assisting them if necessary
- Completion of mud-crab fattening experiment and efforts be made for commercialization, if feasible
- Continue study and experiment on cage culturing of sea bass with the limited scale

4. Enhance human resources capacity and participation

- Local seminar to be held in Veal Renh
- Publication of reports, manuals and PR materials

- Organizing fishers' workshops, training courses and study tours as required

5. Rehabilitate and enhance coastal resources

- Promotion of management of the fish refugia
- Implement mangrove reforestation through voluntary participation
- Installation of protection objectives in fish refugia

6. Project management meeting

- SC meeting in February

7. Final project evaluation

- Identification of a relevant outsourced consultant (Evaluation would be taken place in July)

Closing the meeting

At the end of the meeting, Mr.Ing Try thanked to all participants for their time and efforts to participate in the 7th ICC meeting. After that he declared closing the meeting.

Drafted by Yos Chanthana

Date: 22 November 2008

Endorsed by Sei Etoh

Date: 15 January 2009