

Outcomes of the Baseline and Monitoring Socio-Economic Surveys

Thanyalak Suasi
Socio-economic Scientist
SEAFDEC/TD

Introduction

The Locally-based Coastal Resources Management Project in Pulau Langkawi was initiated in Langkawi, Malaysia in August 2003 under the collaborative operational framework between the Department of Fisheries (DOF) Malaysia and the Southeast Asian Fisheries Development Center/Training Department (SEAFDEC/TD). Since the financial arrangement for the first phase of the project under the Japanese Trust Fund I was terminated in December 2004, the project continued its second phase in January 2005 with financial support from the Japanese Trust Fund IV for two years until the end of 2006. The second phase of the project put more emphasis on human capacity building in the coastal fisheries management sector, and the project title was changed to Integrated Coastal Resources Management in Pulau Langkawi (ICRM-PL).

The Tsunami disaster on 26 December 2004 damaged the project site. Since the unexpected natural calamity caused great changes and delays in the approaches and progress of the project, it was therefore agreed at the 28th Meeting of the SEAFDEC Program Committee in December 2005 that the project tenure would be extended for one more year until the end of 2007.

Socio-economic Survey is an important part of the project for collecting the baseline information before, during and after the project implementation. It is useful in identifying the needs and problems as well as in identifying the future plans to sustain the project. The Socio-Economic Survey of the ICRM-PL project was conducted two times. The first was the baseline socio-economic survey in 2003 when the project was initiated and the second was the monitoring socio-economic survey in 2006 after the Tsunami disaster to assess the condition of the community. The socio-economic database would be useful to assess the changes in the project area and during the project implementation for easy reference during future community development planning exercises.

The results from both surveys were analyzed and compiled at length as reports dealing with the survey outcomes. This report mainly addresses the socio-economic changes occurring during the tenure of the ICRM-PL project.

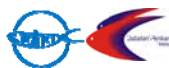
Objectives

Baseline survey was conducted in order to identify the:

- socio-economic status of the fishing communities;
- current status of coastal resources management, particularly for the fish aggregating device (FAD) management;
- gender roles in the community's economic development;
- role of KEN (Fishermen's Economic Group) members and the function of KEN to develop the community economics and manage the coastal resources; and
- problems, basic needs, and interests in appropriate extension services as well as in capacity building to encourage the local people to participate in community development.

Moreover, monitoring surveys were conducted to:

- monitor the changes in the socio-economic conditions of the project area starting in August 2003;
- monitor the changes caused by the December 2004 tsunami and to identify its lasting impacts;
- monitor the concerns among the stakeholders on the project operation and the new approach of community-based fishery resources management (CBFRM);



- identify the present socio-economic conditions as baseline reference for future development with the on-going application of CBFMR; and
- assess the extent of awareness toward the CBFMR concept and the positive cooperation of fishermen from neighboring villages under the newly developed framework of fishery resources management regime.

Basic Data Collection

Secondary data were collected from two reference documents, namely: Report on the Preliminary Socio-Economic Survey in Kuala Teriang, Pulau Langkawi; and Report on the Monitoring Socio-Economic Survey in Kuala Teriang, Pulau Langkawi in August 2006. These reports contained the results of the baseline and monitoring surveys, respectively.

The baseline socio-economic survey was conducted from 13 to 14 October 2003 to identify the socio-economic status of the fishing community, the current status of coastal resource management, the role of KEN members, and the functions of KEN. The survey also assessed the concerns on the basic needs, interests and the problems by interviewing 53 fishermen from three villages, namely: Kuala Teriang, Kuala Melaka and Batu Ara within the area of the KEN Kuala Teriang, based on the number of households in the villages.

The monitoring socio-economic survey was carried out on 18-20 July 2006 to monitor the changes in the socio-economic condition after the tsunami assaulted the project area, identify the present socio-economic conditions, and clarify the extent of awareness toward the CBFMR concept. The survey was conducted by interviewing 77 fishermen in the villages under the KEN Kuala Teriang, i.e. Kuala Teriang, Kuala Melaka and Batu Ara.

Data Analysis

The results from the secondary data were reviewed and analyzed using descriptive statistics to delineate the socio-economic information in terms of percentages and presented in tables or in matrix format. Tabulation of the data is done in a simple and easy form for better understanding of the socio-economic conditions.

Results of the Surveys

Part I. General Information

The baseline and monitoring surveys were carried out by interviewing 53 and 77 fishermen of the sample groups, respectively, from three villages within KEN Kuala Teriang. The average sampling representations from the three villages for the two surveys were 43.0% and 50.7%, respectively (Table 1).

Table 1. Number of households and sample sizes

<i>Village</i>	<i>Number of fisheries households</i>	<i>Number of interviewees</i>	Representatives (%)
Baseline Survey 2003			
Kuala Teriang	24	13	54.0
Kuala Melaka	31	13	42.0
Batu Ara	67	27	40.0
Total	122	53	43.0
Monitoring Survey 2006			
Kuala Teriang	46	23	50.0
Kuala Melaka	75	43	57.3
Batu Ara	31	11	35.5
Total	152	77	50.7

The results of the baseline and monitoring surveys showed that most fishermen were aged between 46 to 55 years old, representing about 41.5% and 32.5%, respectively. About 2.6% of fishermen in the monitoring survey were aged less than 25 years old, a fact that did not appear in the first survey (Table 2).

In addition, the data also indicated that most fishermen in the two surveys were married, representing about 94.3% and 92.2%, respectively. The percentage of single fishermen has increased from 1.9% in 2003 to 7.8% in 2006. From both surveys, the average number of family members was 6.0 and 5.8, respectively, and it appeared that the average number of household members was consistent. As for their educational level, most fishermen in the two surveys graduated from primary school levels, representing about 64.2% and 77.9%, respectively. About 22.6% and 15.6% of fishermen, respectively, completed the lower secondary school. A lower percentage of the fishermen completed upper secondary school at 13.2% and 6.5%, respectively (**Table 2**).

Most fishermen in the two surveys were engaged in fisheries activities, 52.8% and 68.8%, respectively. The percentage of fulltime fishermen in the second survey has increased from the first survey, followed by engagement in fishing combined with general labor (22.6% and 11.7%), agriculture (11.3% and 10.4%). Combined occupations with aquaculture and livestock have only been added in the second survey (**Table 2**).

Table 2. General information of the fishermen-respondents

<i>Item</i>	<i>Baseline 2003</i>		<i>Monitoring 2006</i>	
	Number	Percentage	Number	Percentage
Age group				
Under 25	0	0.0	2	2.6
25 - 35	7	13.2	8	10.4
36 - 45	12	22.6	19	24.7
46 - 55	22	41.5	25	32.5
56 - 65	9	17.0	21	27.3
66 - 75	1	1.9	2	2.6
76 - 85	2	3.8	0	0.0
Marital status				
Single	1	1.9	6	7.8
Married	50	94.3	71	92.2
Widower	2	3.8	0	0
Family structure				
Average no. of family members	6	-	5.8	-
Education				
Primary school	34	64.2	60	77.9
Lower secondary school	12	22.6	12	15.6
Upper secondary school	7	13.2	5	6.5
Occupation				
Fisheries only	28	52.8	53	68.8
Fishing & Agriculture	6	11.3	8	10.4
Fishing & Trading	4	7.6	2	2.6
Fishing & Labor	12	22.6	9	11.7
Fishing & Tourism	2	3.8	2	2.6
Fishing & Agri & Tourism	1	1.9	0	0
Fishing & Aquaculture	0	0	1	1.3
Fishing & livestock	0	0	1	1.3
Others	0	0	1	1.3

The baseline survey in 2003 indicated that the fulltime fishermen earned RM 570 per month which was less than the income of the part-time fishermen (**Table 3**). Fishermen engaged in agriculture and tourism earned the most income (2,700 RM/month) followed by the combination of fishing with trading (2,617 RM/month). In the monitoring survey, the monthly income level of the fulltime fishermen was RM 777 while the part-time fishermen engaged in trading earned the highest income (1,150 RM/month) followed by those engaged in tourism (800 RM/month) as shown in **Table 3**.

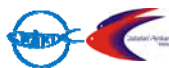


Table 3. Monthly income of fishermen respondents (in Malaysian Ringgit – RM)

Average income	Occupation								
	Fisheries only	Combination with other profession							
		Agriculture	Trading	Labor	Aquaculture	Livestock	Tourism	Agri & Tourism	Others
Baseline	570	1,071	2,617	1,015	-	-	975	2,700	-
Monitoring	777	604	1,150	405	670	60	800	-	100

The average ratio of boat owner in the baseline survey in 2003 was 66.0% (**Table 4**), almost similar to that of the monitoring survey (68.8%). Most fishermen in both surveys lived in their own homes (87.3% and 70.0%, respectively), they owned land (58.2% and 50.6%, respectively) and also owned motorbikes (96.2 and 87.0%, respectively) as shown in **Table 4**.

Table 4. Ownership of fishing boats and other assets

Property	Baseline Survey 2003	Monitoring Survey 2006
	(%)	(%)
Fishing boat		
Average ratio of boat owner	66.0	68.8
Other assets		
House	87.3	70.0
Farmland	3.8	15.6
Land	58.2	50.6
Vehicle/Car	21.5	26.0
Motorbike	96.2	87.0
Livestock/Cow	3.7	11.7
Chalet	1.2	0
Share	11.5	0

Part II. Engagement in capture fisheries

The results from both surveys showed a high percentage of unlicensed fishing boats about 65% and 71.7% in the baseline survey and the monitoring survey, respectively. Most fishing boats are motorized with outboard engines at 78% and 60%, respectively. The percentage of outboard engines decreased from 2003 to 2006 as shown in **Table 5**.

Table 5. Fishing boats with outboard and inboard motors

Fishing boat	Baseline Survey 2003	Monitoring Survey 2006
	(%)	(%)
Unlicensed boats	65.0	71.7
Licensed boats	35.0	28.3
Out board engine	78.0	60.0
In board engine	-	9.0
Without boat	-	31.0

Remarks: - means data not available

The main fishing gear used by the fishermen in the baseline survey were the shrimp trammel net (55%), bottom gill net (34%), hand-lining and long-lining. The results of the monitoring survey showed that the shrimp trammel net and drift gill net were favorably used in the fishing operations (about 66.2% and 62.3%, respectively). None of fishermen interviewed was engaged in long-line fishing (**Table 6**).

The average catch from long-lining and bottom gill net in the baseline survey were 60.0 kg and 46.0 kg per trip, respectively. In the monitoring survey, the average catch from bottom gill net was highest about 59.5 kg followed by the drift gill net at 31.9 kg (**Table 6**).

Table 6. Main fishing gear used and the average catch per trip per boat

<i>Fishing gear</i>	<i>Baseline Survey 2003</i>		<i>Monitoring Survey 2006</i>	
	<i>% of fishing gear used</i>	<i>Catch per trip per boat (kg.)</i>	<i>% of fishing gear used</i>	<i>Catch per trip per boat (kg.)</i>
Shrimp trammel net	55	13.5	66.2	13.0
Bottom gill net	34	46.0	2.6	59.5
Hand-lining	-	38.0	20.8	24.6
Long-lining	-	60.0	0.0	0.0
Drift gill net	0	0.0	62.3	31.9
Cast net	0	0.0	5.2	26.2

The results of the baseline and monitoring surveys showed that the fishermen used their catch for home consumption at 10% and 3.3%, respectively, while the remaining product was distributed through the middlemen (about 96%) and only a few (4%) was sold directly in open markets, with the same percentages in both surveys (Table 7).

Table 7. Disposal of fish catch and distribution

<i>Disposal</i>	<i>Baseline Survey 2003</i>			<i>Monitoring Survey 2006</i>		
	<i>Disposal (%)</i>	<i>Middleman (%)</i>	<i>Open market (%)</i>	<i>Disposal (%)</i>	<i>Middleman (%)</i>	<i>Open market (%)</i>
Consumption	10	-	-	3.3	-	-
Sale	90	96	4	96.7	96	4

Table 8 shows that the net income of using the hand-lining and long-lining fishing gear was high in the baseline survey and the average net income for owners and crew were 1,749 RM and 1,156 RM, respectively. For the monitoring survey, the owners and crew had the highest income from bottom gill net 10,983 RM and 6,118 RM, respectively followed by the drift gill net with average net income of 4,244 RM and 2,133 RM, respectively.

Table 8. Net income of boat owners and crew per working month

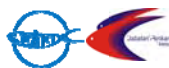
<i>Fishing gear</i>	<i>Net income per working month(RM)</i>			
	<i>Baseline Survey 2003</i>		<i>Monitoring Survey 2006</i>	
	<i>Owner</i>	<i>Crew</i>	<i>Owner</i>	<i>Crew</i>
Shrimp trammel net	755	393	1,999	797
Bottom gill net	851	497	10,983	6,118
Hand-lining	2,050	1,980	2,802	1,085
Long-lining	3,340	1,755	-	-
Drift gill net	-	-	4,461	1,655
Cast net	-	-	973	1,011
Average	1,749	1,156	4,244	2,133

Table 9 shows the result of the two surveys indicating that most fishermen lack access to credit 67.9% and 83.1%, respectively. The fishermen were able to access loans from middlemen about 30.2% and 14.3%, respectively. Only few fishermen utilize the credit scheme of commercial banks.

Table 9. Source of credit of fishermen interviewed

<i>Source of credit</i>	<i>Baseline Survey 2003</i>	<i>Monitoring Survey 2006</i>
	<i>(%)</i>	<i>(%)</i>
Without loan	67.9	83.1
Middleman (fishermen fund)	30.2	14.3
Commercial Bank	1.9	2.6

Part III. Gender roles



About 16% of the housewives interviewed in the first survey work outside their homes and about 3.9% in the second survey. They spent 11-14 hours and 9-10 hours per day a month, respectively for household work. Most fishermen in the two surveys fished for 7 and 8 hours a day around 20 and 22 days per month, respectively. The result of the monitoring survey also showed that about 3.9% of the housewives of fishermen interviewed dedicated their time for community volunteer works with the KEW (Women's Economic Group) for 5.5 hours a day for around 14 days a month. The fishermen interviewed dedicated their time to community volunteer works with the KEN for about 40% of their time (Table 10).

Table 10. Involvement of women and men in household work and other business

<i>Item</i>	<i>Baseline Survey 2003</i>	<i>Monitoring Survey 2006</i>
	Involvement	Involvement
Housewives		
work outside	16%	3.9%
time spent for house work	11-14 hrs/day/mo	9-10 hrs/day/mo
time for KEW	-	3.9%: 5.5 hrs/day; 14 day/mo
Fishermen		
time spent for fishing	7 hrs/day; 20 days/mo	8 hrs/day; 22 days/mo
time spent for house work	2-4 hrs/day; 2-5 days/mo	3-5 hrs/day; 2-3 days/mo
spend time for KEN	-	40%: 3.5 hrs/day, 2 days/mo

Part IV. Fishermen participation in social organizations

There were three existing community social organizations in both surveys, namely: KEN (Fishermen's Economic Group), FA (Fishermen's Association) and JKKK (Village Development and Security Committees) where the fishermen interviewed were members. In the baseline survey, about 49%, 45% and 37% were members in KEN, FA and JKKK, respectively. For the monitoring survey the percentage of fishermen interviewed were members in the KEN, FA and JKKK social groups at 37%, 27% and 4%, respectively (Table 11).

Table 11. Membership in KEN, FA and JKKK

<i>Social organization</i>	<i>Baseline Survey 2003</i>	<i>Monitoring Survey 2006</i>
Non members in any group	21%	27%
KEN	49%	37%
FA	45%	27%
JKKK	37%	4%

Part V. Problems, interests, needs and expectations in the future

The results of the baseline and the monitoring surveys indicating the problems, interests, needs and expectations in the future of the fishermen-respondents, are summarized in the following tables. The main problem of both surveys were the intrusion by illegal or foreign fishing boats, about 30.2% and 53.2%, respectively, followed by the difficulty in free access to the open sea because of silted canal, about 28.3% and 29.9%, respectively (Table 12).

Table 12. Problems of the fishermen respondents

<i>Problems</i>	<i>2003 (%)</i>	<i>2006 (%)</i>
1. Intrusion by illegal or foreign fishing boats	30.2	53.2
2. Too shallow canals and no jetty exists	28.3	29.9
3. Low fish prices leading to lower incomes	7.5	20.0
4. Fishery resources decreasing	1.9	14.3
5. Sea conditions (weather and bottom condition)	9.4	1.3
6. Social occasions were a nuisance	7.5	-

Table 13 shows that the fishermen in the baseline survey were interested in professional training in engine repair and maintenance as well as in fish handling/processing and marketing, at 18.9% and

9.4%, respectively. For the monitoring survey the fishermen indicated willingness to undergo professional training, especially in new fishing gear and methods (28.6%) and engine repair and maintenance (10.4%).

Table 13. Interests of the fishermen respondents

<i>Interest</i>	<i>2003 (%)</i>	<i>2006 (%)</i>
1. Training course in engine repair and maintenance	18.9	10.4
2. Training course in new fishing gear and methods	-	28.6
3. Training course in fish handling/processing/market	9.4	-
4. Tourism business	9.5	1.3
5. Aquaculture	3.8	7.8
6. Continue as a professional fisherman	1.9	9.1

Table 14 shows that the most urgent need of the fishermen in the baseline survey were loans from the authorities to procure fishing boats and equipment or new business (45.3%) and construction of a new jetty and digging/deepening of the canal (26.4%), which was similar to that of the result in the monitoring survey where the need to construct a new jetty was necessary as indicated by 39.0% and availability of government loan as indicated by 22.1% of the respondents.

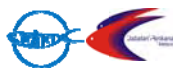
Table 14. Immediate needs of fishermen-respondents

<i>Immediate Needs</i>	<i>2003 (%)</i>	<i>2006 (%)</i>
1. Loans from government to procure fishing boats and equipment or new business	45.3	22.1
2. New jetty construction and digging/deepening of canal	26.4	39.0
3. Procurement of new engine and boats	7.5	16.9
4. Installation of more ARs and FADs	-	18.2
5. Navigational beacons with light for night fishing	-	13.0
6. Strict control of encroaching illegal fishing vessels	3.8	10.4

The result of baseline survey indicated that the fishermen expected to increase their fish production through the procurement of new and larger fishing boats, the use of more FADs, and improvement in fishing techniques (22.7%), and they also expected the authorities to solve the problem related to the shallow canal (9.4%). In the monitoring survey, they expected that the fishery resources would increase and the installation of more ARs and FEDs, about 29.9% and 19.5%, respectively (**Table 15**).

Table 15. Future expectations of the fishermen-respondents

<i>Future expectation</i>	<i>2003 (%)</i>	<i>2006 (%)</i>
1. Fisheries resources increased/high fish catch	7.5	29.9
2. Fishing with new and larger vessels/use of more FADs	22.7	-
3. Construction of deeper canal and a jetty	9.4	7.8
4. Continue to be professional fishermen	5.7	11.7
5. Installation of ARs and FEDs	-	19.5
6. Tourism business development	5.7	14.3
7. Need for succession of fishing by the next generation	-	15.6



Conclusion

Part I. General information

1. Most fishermen in the two surveys were aged between 46-55 years old and the fishermen aged less than 25 years old engaged in the fisheries sector had increased. Most fishermen in both surveys were married and obtained education in the primary school level.
2. The average number of household members in the two surveys was 6 persons, which was consistent in the two surveys conducted.
3. The fishermen in both surveys were mostly engaged in fisheries activities (52.8% and 68.8%, respectively) further showing that the percentage of the fulltime fishermen was increasing while part-time engagement with general labor, agriculture etc. showed decreasing trends.
4. The fulltime fishermen in the second survey earned RM 777 per month. This level was higher than the monthly income of the fulltime fishermen in the first survey (RM 570).
5. The average ratio of boat owner in the monitoring survey was 68.8% which was similar to the average ratio in the baseline survey (66%). Most fishermen in both surveys live in their own homes and own the land they were living on. Almost all fishermen have motorbikes. The data also showed that the results of two surveys had the same trend.

Part II. Engagement in capture fisheries

6. About 72% of the fishermen in the second survey had unlicensed fishing boats. This rate increased from the first survey (65%) which is quite unimaginable as many fishing boats were newly built or procured after the tsunami assault in December 2004 and which should have been registered with the DOF Malaysia. Most fishing boats in both surveys are motorized with outboard engines.
7. The fishermen favored to invest in shrimp trammel net for fishing in both surveys (55% and 66.2%, respectively) and in the second survey, drift gill net and cast net were additional fishing gears that they were willing to use but long-line fishing was out of scope.
8. The fishermen disposed their catch for home consumption at low percentages, 10% and 3.3%, respectively in both surveys. The results also indicated that the fishermen distributed the majority of their catch through the middlemen.
9. The average net income of the boat owners and employed crew of each fishing method in the baseline survey were RM 1,749 and RM 1,156, respectively. In the second survey, the boat owner obtained an average net income of RM 4,244 and RM 2,133 for the crew. This result showed that the average net income for boat owners and crew had increased.
10. The main source of credit for fishermen in both surveys was the middlemen. Most fishermen in the two surveys do not enjoy any credit scheme, about 67.9% and 83.1%, respectively. Lack of credit was identified as one of the main immediate needs for the communities.

Part III. Gender roles

11. About 16% of the housewives of fishermen in the baseline survey work outside their homes, a percentage which decreased in the second survey (3.9%). On the average, the housewives spent their time for household work (12.5 hours and 9.5 hours per day in the first and second surveys, respectively). In addition, 3.9% of the housewives in the second survey dedicated time for community volunteer work with the KEW (5.5 hours a day around 14 days a month), which indicated more awareness on the participation and usefulness of the group.
12. The fishermen in the two surveys dedicated their time of about 7-8 hours a day for fishing for around 20-22 days per month and in the first survey spent some time for household work (about 2-5 hours per day for 2-5 days a month). About 40% of the fishermen in the second survey also dedicated some time (3.5 hours per day around 2 days per month) to community volunteer work with the KEN.

Part IV. Fishermen participation in social organizations

13. The social organizations in the two surveys consisted of the KEN, FA and JKKK, consistent in the two surveys. Most fishermen in both surveys participated in the KEN, followed by FA and JKKK social groups.

Part V. Problems, interests, needs and expectations in the future

14. The most serious problem that the fishermen indicated in both surveys was the “intrusion by illegal or foreign fishing boats” (about 30.2% in the baseline survey and 53.2% in the monitoring survey). Since the data also showed that the percentage of the fishermen stressing such problem has increased, the government should reinforce control over such intrusion. The difficulty in free access to the open sea due to the silted canal was also among the major problems identified by the fishermen interviewed (28.3% and 29.9%, respectively). They suggested that the canals may either be dredged or construction of a new jetty should be carried out to solve the problem. About 20% of fishermen in the monitoring survey complained about the low fish prices and limited market that may lead to lower income of the fishermen. This ratio has increased to 20.0% in the monitoring survey compared with only 7.5% in the baseline survey in 2003.
15. Most fishermen in the baseline survey were interested in professional training in engine repair and maintenance (18.9%) and fish handling/processing (9.4%). They were also interested in tourism business (9.5%). About 28.6% of the fishermen interviewed during the monitoring survey were interested in the training course in new fishing gear and methods and about 10.4% were interested in engine repair and maintenance training. The percentage of fishermen who were willing to stay in the fishing business increased from 1.9% in the baseline survey to 9.1% in the monitoring survey.
16. The most urgent needs of the fishermen interviewed in both surveys were the availability of government loans for the procurement of fishing equipment or a new business, and construction of a new jetty. The fishermen proposed the digging and deepening of the canal. Installation of more ARs and FADs, and construction of a light house and installation navigational beacons with light for night fishing were identified recently as immediate needs as raised during the second survey.
17. About 22.7% of fishermen interviewed in the baseline survey wanted to go fishing with new and larger vessels, and the use of more FADs. Most fishermen interviewed in the second survey expected that the fishing resources could be increased (29.9%) an expectation that has increased compared with only 7.5% in 2003. Installation ARs and FADs are additional expectations during the last survey.

References

- SEAFDEC/TD. 2004. **Report on Preliminary Socio-Economic Survey in Kuala Teriang, Pulau Langkawi**. Department of Fisheries Malaysia and Training Department, Southeast Asian Fisheries Development Center
- Etoh S., Suasi T. and Klinsukon S. 2007. **Report on the Monitoring Socio-Economic Survey in Kuala Teriang, Pulau Langkawi in August 2006**. Department of Fisheries Malaysia and Training Department, Southeast Asian Fisheries Development Center