

REPORT OF

MONITORING SOCIO-ECONOMIC SURVEY IN KUALA TERIANG, PULAU LANGKAWI MALAYSIA IN AUGUST 2006



Department of Fisheries Malaysia



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FOREWORD

After a conclusion was reached at the meeting of ASEAN – SEAFDEC Fisheries Consultative Group (FCG) in 2001, the first pilot project on locally-based coastal resource management was initiated in Chumphon, Thailand in November 2001 to test applicability of the Japanese model of community-based coastal fishery resources management in the Southeast Asian countries. After the project had produced a tangible impact to the communities, it was agreed at the 4th FCG meeting in 2002 that similar projects be also implemented in Malaysia, in a bid to disseminate experiences and knowledge gained through the first project to other SEAFDEC Member Countries through the SEAFDEC information transfer mechanism. Thus, the project on “Locally-Based Coastal Resources Management in Pulau Langkawi (LBCRM-PL) began in Langkawi, Malaysia in August 2003 under the collaborative project framework with the Department of Fisheries, Malaysia and SEAFDEC/TD. Later, while recognizing the need to put more emphasis on human capacity building concept, the project was revitalized and its title changed to “Integrated Coastal Resources Management in Pulau Langkawi (ICRM-PL) from January 2005.

The ICRM-PL project had operated various activities on the right track since its inception and produced tangible outputs until 26th December 2004 when the devastating tsunami assaulted in the project operational area. Thereafter, the project orientation was inevitably diversified to the rehabilitation of fishing fleet for a year or so.

After the 2004 tsunami, the project has been primarily concerned with the rehabilitation of fishing activities. Having been convinced in the middle of 2006 that the fishing activities in the project operational area had more or less normalized, the project resumed its activity in line with the originally designed concept. Re-stabilization of the fishing activities in the project operational area to its pre-tsunami state could not have been attained without the support and efforts exerted by the Malaysian authorities, foreign funding agencies and NGOs.

As part of the main activities of the project, monitoring the socio-economic changes occurring in the communities of the target beneficiary groups during the three years’ project implementation was conducted in August 2006. This was aimed at evaluating the degree of contribution of the project to the socio-economic status of the local people and in the improvement of the environmental conditions in the project operational area. This report incorporates all the compiled results of the surveys conducted in the project area and the corresponding analyses of the results of the surveys.

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MONITORING SOCIO-ECONOMIC SURVEY IN KUALA TERIANG, PULAU LANGKAWI IN AUGUST 2006

1. Background

The project on "Locally-based Coastal Resources Management in Pulau Langkawi" was initiated in Malaysia in August 2003 as a collaborative project under the operational framework between the Department of Fisheries in Malaysia and SEAFDEC/TD. This project had been progressing on the right track until December 2004 when the devastating tsunami assaulted the project area. Most fishing boats and gear were either destroyed or lost, and fish landing facilities were ruined, while many houses owned by the fishermen collapsed. Together with NGOs and foreign aid organizations, the Malaysian authorities exerted efforts to rehabilitate the tsunami-stricken area. Partly due to their dedication and partly to the self-help motivation among the fishermen, fishing activity has been more or less resumed to some extent at the level prior to the tsunami in 2004.

Furthermore, the main emphasis underlining the project shifted to human resources development and institutional capacity building which was slightly different from those in 2003. Meanwhile the funding source for the project from SEAFDEC was also shifted from the Japanese Trust Fund 1 to Trust Fund 4 in January 2005. Although such conceptual approach to the project had shifted, the basic project efforts made in 2005 centered on the rehabilitation of the tsunami-stricken damages. In the mean time, while the planned project activity had been unexpectedly suspended or delayed due to the tsunami assault, it was agreed at the 28th Meeting of the SEAFDEC Program Committee Meeting in December 2005 that the project tenure would be extended for one more year until the end of 2007.

Also, an attempt was made to establish community fishing zone compatible with the plan for community-based fishery resources management, a mainstay of the project activity. Such effort is now close to being finalized. Since such movement that would devolve the jurisdiction of fishery resources management to the community level, was entirely a new approach in the country; the need to verify the impact brought about by this new fishery resources management regime on the fishing community and industry arose.

Hence, a monitoring socio-economic survey was conducted on 18–20 July 2006, notwithstanding the base-line socio-economic survey conducted in October 2003, so as to monitor socio-economic changes that resulted from the project implementation and other intersectional socio-economic or environmental factors. The monitoring is also relevant to the tsunami damages and rehabilitation efforts as the data obtained can be used as a major reference for future achievement toward realization of CBFMR and integrated community development.

In the course of the monitoring survey, however, it was found that the data on the number of fishers' households in the target areas provided by the District Fisheries Office were outdated. Therefore, a supplemental door-to-door household survey had to be carried out on fisheries families in October 2006.

2. Objectives of the survey

The objectives of the survey are as follows:

- a. To monitor changes in the socio-economic conditions in the project area starting in August 2003,
- b. To monitor the changes caused by the tsunami assault and to identify its lasting impacts,
- c. To monitor the concerns among stakeholders on the project operation and the new approach of community-based fishery resources management (CBFRM),

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

3. Expected outputs of the survey

The expected outputs of the survey in relation the objectives include the following:

- a. The socio-economic status of the fishing community is documented. The results will give a general picture of the local people's employment, categorize and prioritize the sources of income of the local people. This information is also useful to re-arrange and re-design the activities for community development.
- b. The current status of coastal resources management is documented. This will give an assessment on the degree of participation and awareness of local fishers in CBFRM, and serve as a baseline indicator for the project achievement.
- c. The extent of gender roles involved in community economic development and resources management is assessed.
- d. The role of KEN members and their functions are assessed. This will provide further and up-to-date information on project activities to encourage the KEN and its members to strengthen their capacity and functions in the future. This will also serve as a measure of their involvement in the newly formed Kuala Teriang Fishery Resources Management Committee (FRMC).
- e. The priorities in terms of basic needs and the interests of local people in the community are clearly defined, and the attainment on these issues compared with the results obtained from the baseline survey is appraised.
- f. The extent of awareness and positive involvement of neighboring fishing communities in the CBFRM concept is clarified through the newly developed zoning approach

All survey data and information were analyzed and presented in tabulated forms as listed in Annex 5.

4. Survey design and methodology

The survey was conducted using the rapid rural appraisal (RRA) method, a common approach in collecting information and identifying problems in local communities. The main activity of the survey was the interviews conducted on the fishers using a set of designed questionnaires prepared in English. The target interviewees were selected at random among the fishers and the interviews were conducted at the household level. The fishers were interviewed in Bahasa Malay by the Malaysian interviewers and their responses were translated into English and recorded on the questionnaire sheets by the interviewers for subsequent compilation in English.

5. Topics studied in fishing communities

The topics studied in fishing communities are as follows:

- Demography
- Livelihood activities
- Fishing practices
- Fisheries resources and landings
- Marketing and processing
- Conflicts

- Credit
- Gross income and expenditure)
- Asset ownership (boats, houses, land etc.)
- Labour (time required, different activities, etc.)
- Organizations / affiliations
- Living condition
- Outside linkages
- Women's roles in the community
- Future prospect and expectation
- Reactions and views on the on-going project activities
- Status and impacts of tsunami rehabilitation

6. Questionnaire design

The framework of the questionnaire design is shown in Annex 2 and the questionnaire sheet is attached as Annex 3.

7. Scale of the survey and target sampling groups

After initiating the survey, the team came across the fact that the number of fishermen's households in the target areas provided by the DOF District Office of Langkawi, could be incorrect or outdated. Therefore, a supplementary household survey had to be carried out in order to quantify the precise number of target households in the project operational area. This supplemental survey was carried out in October 2006 by an employed local consultant.

The target sampling groups were the fishers residing in the villages upholding the KEN Kuala Teriang; i.e. Kuala Teriang, Kuala Melaka and Batu Ara. In addition, a survey was also conducted in the neighboring village, Kuala Chenang, with a specific purpose related to their involvement in zoning of the community-based fishery resources management under the management framework of Kuala Teriang Fishery Resources Management Committee (FRMC).

Thus, the survey was conducted in four villages as shown in Table 1. The average sampling representation for three project target villages is 50.7% and 65.9% for the village of Kuala Chenang. Such level of representation was more than the sufficient level.

Table 1: Interviews conducted in four villages

Village	Total population	Household	Fishers' household	Fishermen	Number of interviewers	Representation (%)
Kuala Teriang	1,460	225	46	47	23	50.0
Kuala Melaka	870	120	75	84	43	57.3
BatuAra	644	161	31	34	11	35.5
Sub-total:	2,974	506	152	165	77	50.7
Kuala Chenang	1,953	520	44	220	29	65.9
Tota/average:	4,927	1,026	196	385	106	54.1

(Note: Figures for Kuala Chenang are provided by the District Fisheries Office and not based on the door-to-door survey result.)

8. Interviews

Prior to initiating the survey, an orientation workshop was organized for all survey interviewers. A list of interviewers is shown in Annex 1.

The interviews took place over a period of three days from 18 to 20 July 2006.

9. Results

The raw data was compiled and processed in accordance with the data compilation sheets shown in Annex 4. The result of compiled data is shown in Annex 5. As to the analytical result for Kuala Chenang, no noticeable differences were seen in Part I: Engagement in fisheries section compared with the one in the project operational area and therefore was omitted, except for Part II: Function of KEN.

10. Findings and analytical observations

A. Project operational area – Kuala Teriang

The result of the household survey is shown in the Table 2 of page 10 and the detailed data analysis is shown in Annex 6.

Part I: General information

Age groups of fishermen

- 1) 32.3% of the fishermen surveyed were aged between 46-55 years old and 2.7% are household members under 20 years old. In addition, 13.2% of the entire population were under 35 years old.
- 2) 2.7% of the fishermen surveyed were aged between 66-75 years.
- 3) Age variation among three villages vary; i.e. 50.9 years for Kuala Teriang, 53.6 years for Batu Ara and 44.9 years for Kuala Malaka. It is apparent that the fishing force in Kuala Melaka is dominated by younger generation.

Classification by religion

- 4) All fishermen surveyed are Muslims showing the same trend as in 2003.

Marital status

- 5) Most (92%) male heads of the households surveyed were married, 6 were single and no widower. This is more or less the same trend as in 2003 except the fact that the ratio of the single status household has increased to 7.8% in 2006 from 1.9% in 2003.

Family structure

- 6) About 32.5% of the fishing households surveyed had no children. The average number of children in all the households surveyed was 1.8.
- 7) The average number of family members in a household was 5.8.

Occupation

- 8) 68.8% of the fishermen surveyed were exclusively engaged in fishing activity. The others were engaged in occupations combined with general labour (11.7%), agriculture (10.4%), trading (2.6%), and tourism (2.6%). The ratio of fulltime fishermen has increased from 54.5% in 2003.
- 9) Younger fishermen tend to opt for combined occupations with tourist business, while the aged groups are working on agriculture and livestock. The combined occupation with general labour is mostly limited to the age groups between 36 and 55 years old.
- 10) Batu Ara village is more dependent on fishing occupation than the other two villages. Combined occupations especially with agriculture were more prevalent in Kuala Teriang (34.8%). This trend has been completely changed since 2003, i.e. Kuala Teriang was most dependent on fishing occupation among the three villages and Batu Ara was the least dependent.

- 11) Tourism as one of the combined occupation options was predominant in Kuala Melaka.

Education

- 12) 77.9% of the fishermen surveyed had completed primary school, 15.6% completed lower secondary and 6.5% the upper secondary school. The trend for higher education is discouraging in 2006; i.e. 22.6% and 13.2% for Lower Secondary School and Upper Secondary School graduates, respectively in 2003 while 15.6% and 6.5%, respectively in 2006.
- 13) Higher educational levels were more evident in younger age groups except 2 young interviewees with aged 22 years old who graduated from primary school only.
- 14) Education and income were adversely correlated.

Monthly income

- 15) The monthly income level for fulltime fishermen is RM 777.
- 16) Part-time fishermen engaged in trading earn the highest income, followed by those engaged in tourism.
- 17) Curiously, those who had finished lower secondary school earned less on the whole than those who had only completed the primary school.
- 18) As far as fulltime fishermen are concerned, while those in the age group of 46-55 years old earn, considering all groups the age group of 25-35 years old earned the most.
- 19) The income level in the age group below 25 years old was lowest, even lower than the age group of 67-75 years old.

Monthly expenditures

- 20) The total monthly expenditures per household reached RM 2,042 on the average which by far is higher than the average income of RM 571.
- 21) The highest expenditure is for investment, accounting for 41.3% of the total expenditures.
- 22) The expenditure for food was RM 41.1 accounting for only 20.9% of the total expenditures.

Ownership of fishing boats and other assets

- 23) According to the survey, 68.8% of the fishermen are boat owners, almost similar to the result in 2003 (66.0%). The ratio of boat owners is higher in the age groups of 46-55 years old. This trend is exactly the same as the result in 2003.
- 24) Most fishermen surveyed about 91% lived in their own homes. This trend remains same since 2003.
- 25) More than a half of the fishermen surveyed owned the land they were living on. This trend is the same as in 2003.
- 26) Almost all heads of households owned motorbikes.
- 27) 18.0% of interviewees own their farmland, a trend which has been improved from the 3.7% level in 2003. Part-time fishermen with agriculture comprised 8 out of 77 interviewees and since farmland owners were 12, this means that the remaining 4 part-time fishermen were employed in other people's land.
- 28) 26.0% of the fishermen interviewed own vehicles. This ratio has slightly increased compared with 21.5% in 2003.
- 29) 11.7% of the fishermen interviewed own livestock. This ratio has increased compared with 3.7% in 2003.

Part II: Engagement in capture fisheries

- 1) Almost 68.8% of fishermen are boat owners and 31.2% are employed as crew. (Note: This is consistent with the figure of the compiled data in Part I – Ownership of fishing boats and

- other assets).
- 2) Almost 71.7% of the fishing vessels are unlicensed. The ratio of unlicensed boats has been increased from 65% in 2003. It was obvious from the results of Part V – Problems and immediate needs - that many fishermen are willing to get their boats licensed.
 - 3) Almost 60% of fishing boats are motorized with outboard engines and the rest have inboard engines. All boats are equipped with either outboard or inboard engines.
 - 4) 66.0% of boats are FRP made while the rest are wooden boats.
 - 5) All boats were procured in Langkawi.
 - 6) The dominant fishing method in the project area is trammel shrimp gill netting (66.2%), followed by the drift gillnet (62.3%), hand-lining (20.8%), cast net (5.2%) and bottom fish gill net (2.6%). The trend is the same in 2003 except for the fact that cast net fishing ranked number four.
 - 7) None of fishermen interviewed was engaged in bottom long-line fishing.
 - 8) The fishing grounds of shrimp trammel net and drift-net cover all over Langkawi Island, with handling dominant in the northern part of the island and t cast-net fishing and bottom gill-net limited only within the vicinity of Kuala Teriang.
 - 9) The average number of crew including the boat owner per fishing boat is 1.6 persons for shrimp trammel net fishing, 1.8 persons for drift gill-net fishing, 1.9 persons for hand-line fishing, 1.3 persons for cast net fishing, and 1.0 person for bottom fish gill-net fishing.
 - 10) All boat owners are engaged in daily fishing and not one owner on-land existed. This is the same trend as in 2003.
 - 11) The average number of fishing days per year is 208, 196, 188, 78, and 74 days for hand-lining, drift gill netting, shrimp trammel gill netting, cast net and bottom gill netting, respectively.
 - 12) The average number of fishing seasons is 9, 8, 8, 4, and 3 months per year for such fishing methods as shrimp trammel gill netting, hand-lining, drift gill netting, bottom gill netting and cast net, respectively.
 - 13) The average fishing hours per trip per day is 13.8 hrs for hand-lining, 11.5 hrs for cast netting, 8.5 hrs bottom fish gillnetting, 8.0hrs for drift gill netting, and 6.7 hrs for shrimp trammel netting.
 - 14) The average shrimp catch by trammel shrimp gill-nets per boat per year is 2,441 kg which accounts for 13.0 kg shrimp per trip per boat compared with 13.5 kg in 2003. Similarly, the average fish catch per boat per trip for other fishing methods are: 59.5 kg for bottom fish gill-netters, 24.6 kg for hand-lining, 31.9 kg for drift gill netting (46.0 kg in 2003) and 26.2 kg for cast netting.
 - 15) On the average, 4.2 %, 1.7% and 8.2% of fish, shrimp and squid catches are disposed for home consumption while the remaining products are sold. This trend is more or less same as in 2003.
 - 16) Majority of the fishermen (96%) market their catch to middlemen and only a few (4%) sell directly in the open market. In 2003, almost 10% of fish catch are consumed by the fishermen's families.
 - 17) The average fish price was RM11.5 for high-value fish, RM18.7 for shrimps, RM6.0 for crabs, and RM5.5 for squid.
 - 18) The average gross sales per trip per boat was RM130.0 for hand-lining, RM120.8 for drift gill-netting, RM106.4 for shrimp trammel netting, and RM100.0 for squid cast netting. Information on bottom gill-net fishing could not be obtained.
 - 19) The average gross income per trip per boat was RM84.0 for squid cast net, RM38.8 for drift gill-netting, RM25.6 for hand-lining and RM 20.5 for shrimp trammel net.
 - 20) Gear maintenance costs varied from RM1,000 to 2,000 per year depending on the fishing methods used.
 - 21) Boat repair and maintenance cost also varied from RM150 to RM823 per year depending on the fishing method.

- 22) The net income for owners and employed crew for working a month are calculated as follows:

<u>Fishing method</u>	<u>Boat owner (RM)</u>	<u>Employed crew (RM)</u>
- Hand-lining	2,802	1,085
- B. gillnetting	10,983	6,118
- Shrimp trammel netting	1,999	797
- Drift gillnetting	4,461	1,655
- <u>Cast netting</u>	<u>973</u>	<u>1,011</u>
Average	4,243	2,133

- 23) Most fishermen (83.1%) do not enjoy any credit scheme. Only 2.6% of them utilize the credit scheme from Commercial Banks and 14.3% rely on the so-called "fishermen fund" meaning loans from middlemen. Lack of access to credit was identified as one of the main problems for the communities as shown in Part V.

Part III: Gender roles

- 1) 2.6% of the housewives of fishermen interviewed were engaged in fishing gear preparation and repair.
- 2) No housewife of fishermen interviewed was involved in fishing.
- 3) 3.9% of housewives of fishermen interviewed worked outside their homes.
- 4) Almost all housewives of fishermen interviewed dedicated between 9-10 hours per day for 30 days a month for household works.
- 5) 3.9% of housewives of fishermen interviewed dedicated their time for community volunteer works with the KEW for 5.5 hours a day for around 14 days a month.
- 6) Most fishermen interviewed fished for about 8 hours a day for around 22 days per month.
- 7) About half of the fishermen interviewed spent 3.5 hours a day for around 7 days a month for fishing gear repair and preparation.
- 8) 42% of the fishermen interviewed, except widowers, spent between three and five hours a day for two to three days a month on household work.
- 9) 40% of the fishermen interviewed dedicated their time to community volunteer works with the KEN.

Part IV: Fishermen's participation in social organizations

- 1) 27% of the fishermen interviewed did not belong to any community social organization (CSO).
- 2) 27%, 4% and 37% of the fishermen interviewed were members of the FA, JKKK and KEN, respectively.
- 3) The fishermen interviewed dedicated themselves to the volunteer work with KEN, FA and JKKK activities for 3.5, 6.3 and 5.5 hours a day for 2.2, 1.5 and 3.7 days a year on the average, respectively.
- 4) 5% of the members of social groups are passive.

Part V: Problems, interests, needs and expectations in the future after incomes have increased

Problems

- 1) The most serious problem that the fishermen from Kuala Teriang currently faced is "intrusion by illegal or foreign fishing boats" which was stressed by over 50% of the fishermen interviewed. Some fishermen (10.4%) requested the government to reinforce control over such intrusion.

- 2) About 30% of the fishermen interviewed stressed their difficulty in the free access of the open sea because of the silted canals. They suggested that the canals may either be dredged or construction of a new jetty be carried out to solve the problem.
- 3) About 14% of the fishermen interviewed complained of "low income". This is closely related with the sluggish fish prices coupled with hiked fuel and fishing gear costs. In fact, some fishermen complained about the low fish prices and limited markets. This may lead to conflict with the middlemen and also to lower income of the fishermen.
- 4) It was obvious from about 20% of the fishermen interviewed that the fishery resources are decreasing year by year and this phenomenon had affected negatively the livelihood of the fishermen.
- 5) About 12% of the fishermen interviewed complained of the non-existence of a light house or navigational beacons with light which are necessary for night fishing.
- 6) 5% of the fishermen interviewed complained about the slow process of issuing vessel licenses.
- 7) A minority of fishermen felt that fisheries was a threatened industry because of declining fish stocks, decreasing numbers of fishermen and the ageing of the fishing population.
- 8) Some fishermen (6.5%) interviewed requested that the authorities should provide loans either for the procurement of new fishing equipment or for starting new businesses.
- 9) It should be noted that a fishermen complained of "lack of means of sea security".

Interests

- 10) Over 50% of the fishermen interviewed were eager to undergo professional training, especially in new fishing gear and methods (28.6%), engine repair and maintenance (10.4%), aquaculture (7.8%), and boat repair and maintenance (5.2%).
- 11) Only one fisherman showed his interest in the tourist business and 3 in any business other than fisheries.
- 12) About 9% of fishermen interviewed stated that they wanted to stay in the fishing business.

Immediate needs

- 13) Almost one third of the fishermen interviewed stressed that the most urgent need is construction of a new jetty. As an alternative solution, almost 12% of the fishermen interviewed proposed digging of the canal.
- 14) Almost 22% of the fishermen stated that government loan is vital for the procurement of fishing equipment.
- 15) Almost 18% of the fishermen interviewed expressed the need to install more ARs and FADs.
- 16) 13% of the fishermen stressed the need to construct a light house and install navigational beacons with light for night fishing.
- 17) Almost 17% of the fishermen interviewed stressed the need to procure new engines and boats (mostly FRP).
- 18) Almost 10% of the fishermen expressed the need to reinforce enforcement efforts to curb the encroachment of illegal fishing boats.
- 19) Some fishermen expressed the immediate need for training in aquaculture and only one suggested training in fish handling and quality control.

Future expectations

- 20) Almost 30% of the fishermen interviewed expected that the fishery resources be increased.
- 21) In relation to the above, 20% of the fishermen interviewed wanted to install more ARs and FEDs.
- 22) Almost 12% of the fishermen interviewed were proud of being professional fishermen and wanted to continue fishing, with 8% of the fishermen expected their children to succeed in the fishing profession.

- 23) On the contrary, almost 8% of the fishermen interviewed expressed their wish to change their profession from fishing to others. Also, almost 16% of the fishermen did not want their children to succeed in their fishing profession.
- 24) Almost 14% of the fishermen interviewed showed interests in starting a tourist business.
- 25) Almost 10% of the fishermen interviewed wanted to go into aquaculture development.
- 26) Only 8% expected to get a deeper canal or a jetty constructed.

Tsunami rehabilitation

- 27) Almost 60% of the fishermen stated that the rehabilitation from the tsunami disaster had been attained, while 25% stated that the rehabilitation had not been completed.

Suggestions for the project

- 28) Almost 50% of the fishermen interviewed expected a continuation of the project.
- 29) The mostly appreciated project approaches were the coastal fishery resources management and installation of ARs and FADs.
- 30) Some fishermen appreciated the training course in boat repair with FRP materials, among others.
- 31) Some fishermen expected the project to take more coordination role in order that a new jetty could be constructed and the canal is deepened.
- 32) Some fishermen stressed that they have participated well in the implementation of the project.

B. Neighbouring village - Kuala Chenang

Part VI – 1: Engagement in fisheries sector

Findings and information derived from the questionnaires were more or less similar with those in the project operational area and hence are omitted in this portion of the report.

Part VI – 2: Function of KEN and zoning arrangement

- 1) All fishermen interviewed are perfectly aware of the effectiveness of ARs and FEDs.
- 2) Almost 90% of the fishermen interviewed understood the usefulness and expected functions of the KEN.
- 3) Almost 66% of the fishermen interviewed were aware of the extent of activities by KEN Kuala Teriang and the Project.
- 4) Almost 95% of the fishermen who were aware of the activities of KEN Kuala Teriang expressed that the outcomes are encouraging. Only one fisherman responded “nothing particular”.
- 5) Almost 100% of the fishermen who were aware of the activities of KEN Kuala Teriang expressed that the community fisheries zoning arrangement is encouraging.
- 6) Almost 45% of the fishermen interviewed expressed that the zoning arrangement should be implemented soonest.
- 7) About 7% of the fishermen interviewed stressed that the zoning area should be expanded to outside of 5 nm.
- 8) Almost 28% of the fishermen interviewed suggested the installation of more ARs and FADs.
- 9) Almost 10% of the fishermen interviewed specifically stated that they can jointly manage the zoning area with their colleagues in Kuala Teriang, while almost 7% proposed to establish their own zoning.
- 10) Almost 14% of the fishermen interviewed stressed that more stringent measures are necessary to control the illegal fishing boats in the established zoning.
- 11) Some proposed to establish more diversified sections like aquaculture and trap fishing areas in the zoning.

11. Discussions

General livelihood and social lives

- 1) Table 2 shows the number of fishermen and households in the project operational area. The first table shows the figures based on those provided by District Fisheries Office Langkawi which were considered uncertain. It is suspected that either figure in number of fishermen's households or of fishermen's family member was calculated with the assumption that the average number in each family is 5 persons. This was obvious, and therefore in a bid to identify the exact number of fishermen's households and fishermen which constituted one of the fundamental factors in the socio-economic survey, a supplemental household survey was conducted. According to the result of this survey, the number of fishermen in the project operational area is 165 with 153 fishermen's households meaning 1.1 fishermen per family on the average family members per household are 5.5 persons. Some possible changes that took place in terms of the number of fishermen and households between 2003 and 2006 can not be precisely traced for the reason stated above.

Table 2: Number of fishermen and their households

A. Figures provided by District Fisheries Office Langkawi

Village	Base-line survey in 2003				Base-line survey in 2006			
	No. of fishers' HH	No. of F. members	Av. No. of family/HH	No. of Fishers	No. of fishers' HH	No. of F. members	Av. No. of family/HH	No. of Fishers
Kuala Teriang	24	119	5.0	?	24	119	5.0	?
Kuala Melaka	31	154	5.0	?	55	268	4.9	?
BatuAra	67	336	5.0	?	73	366	5.0	?
Total:	122	609	5.0		152	753	5.0	

B. Figures based on Fish Household survey in 2006

Average	No. of fishers' HH	Number of family members			Av. No/F	No. of fishermen			Av. No. of fisher/HH
		Male	Female	All		Full time	Part time	All	
Kuala Teriang	46	125	119	244	5.3	41	6	47	1.0
Kuala Melaka	75	215	205	420	5.6	71	13	84	1.1
BatuAra	31	101	67	168	5.4	32	2	34	1.1
Total:	152	441	391	832	5.5	144	21	165	1.1

- 2) The survey showed that no fisherman was involved in aquaculture. However, discussions with the FA, KEN and DOF members had revealed that one fisherman in Kuala Teriang was engaged in aquaculture cottage-scale business. Therefore, many of them also showed a keen interest in starting aquaculture business.
- 3) The survey showed that only 5% fishermen were between 21 to 30 years old. There is an evident trend towards an ageing fishing force of over 50 years old. The calculated average age of the fishermen was 49.0 years. Compared with the national statistic data, the dominant average age group in Malaysia is between 36 to 45 years old in the primary industrial population¹, which means the average age in the target group is relatively higher.
- 4) The average family is made up of 5.8 people, which is almost consistent with the result of supplemental household survey, and 92% of the heads of households are married. Almost all fishermen are Muslims, but it seems that polygamy is not practiced.
- 5) The average number of children per family is 1.8, a phenomenon which could lead to the uncertainty in the future succession of fishing profession in the community.
- 6) Almost 80% of the fishermen have completed primary school and less than 10% have completed upper-secondary school. However, it is strange that education and income levels are adversely correlated. In the previous survey the tendency was contrary as "more highly educated fishermen earn more especially among the younger generation". This change can

¹ Source of information: The Socio-economic data in Malaysia in 1995

- not be justified except perhaps for the fact that biased sampling may have occurred.
- 7) The incomes of full-time fishermen are lower than those who were engaged in other part-time occupations, especially those combined with agriculture, tourism and trading. This trend would be more ideal in terms of prospective livelihood improvement as it ensures more stable income sources. But, on the other hand, this may be attributed to the tendency that the younger generation would gradually leave the fishing occupation.
 - 8) Almost 70% of the fishermen are full-time fishermen, while others are part-time with general labour, agriculture cultivation, trading and tourist business to a lesser extent. Among the three villages in the project operational area, Batu Ara is most dependent on fishing business followed by Kuala Meraka.
 - 9) The monthly income level for fulltime fishermen was RM 777. This level has been increased by RM207 compared with 2003 level.
 - 10) The monthly expenditure per household is RM 2,042 which by far is higher than the average income level (RM 571). The figures may not represent the real picture and this is a common trend in any survey. The interviewees tend to psychologically express incomes as low as possible and expenditures as high as possible. The expenditure for food commodity accounts for only 21% of the entire expenditure, which is very low in terms of Engel's Coefficient.
 - 11) Almost all fishermen have motorbikes and 26% of them owned vehicles. Most fishermen (91%) live in their own houses and enjoy stable lives. In general, they are financially living up to the standard.
 - 12) Very few fishermen are enjoying the benefits of any credit scheme. Many fishermen complained about non-access to credit scheme. The Ministry of Agriculture has initiated a micro-credit scheme for small-scale farmers and fishermen to provide soft loans without guarantors and collateral, but this is not being fully utilized.
 - 13) Most housewives of fishermen do not assist in their husbands' works in fishing or fishing gear repair as they are exclusively engaged in domestic works. A few of them are engaged in work outside their homes like trading and labouring or in community volunteer works.
 - 14) Most fishermen assist their wives in domestic work for a few hours for a few days in a month, which is not significant.
 - 15) About one third of the fishermen are members of KEN or FA or JKKK although some have duplicate or multiple memberships with 2 or 3 organizations. Affiliation in community social organizations has been dwindling.
 - 16) In general, dedication to voluntary social works by fishermen is weak at present.

Fishing

- 17) About 70% of the fishermen are boat owners which means mostly are full-time fishermen, while the rest are employed as crew.
- 18) Almost 72% of fishing boats are unlicensed, a rate which was higher than that in 2003 (65%). This is unthinkable as many vessels in 2006 were newly built or procured after the tsunami assault and should have been registered with the DOF. This has been one of the complaints by the stakeholders.
- 19) 60% of the boats were motorized with outboard motors (both outboard engines and long-tail engines) and the rest are with inboard motors. All have been motorized and this has been partly due to the contribution by the tsunami rehabilitation program.
- 20) The most dominant fishing methods was shrimp trammel net fishing followed by drift gillnet fishing. Both fishing methods are conducted around Langkawi Island. The squid cast net fishing method with the use of lighting device started in 2006 when the use of luring lights was permitted. Its fishing seasons are 4-5 months from November to April, and more fishermen tend to engage in this type of fishing. Although bottom long line fishing did not appear in this survey, based on some information 4-5 fishing boats are still engaged in bottom long lining near the coral reefs around the island. There is no notable change in the

fishing grounds compared with those in 2003, except for drift net fishing ground which has been expanded to the eastern part of the island.

- 21) Almost all fishing boat owners are full-time fishermen and no owner-on-land existed.
 22) The change of fish catch per boats per trip by different types of fishing methods is shown in Table 3.

Table 3: Fish catch per trip per boat by different types of fishing methods

<u>Fishing method</u>	<u>Catch per trip per boat (kg)</u>	
	<u>2003</u>	<u>2006</u>
1. Shrimp trammel net (shrimp)	13.5	13.0
2. Drift gillnet (fish)	46.0	31.9
3. Bottom gill net (fish)	-	59.5
4. Hand lining (fish)	38.0	24.6
5. Bottom long-line (fish)	60.0	-
6. Cast net (squid)	-	26.2

As seen above, although the fish catch in shrimp trammel net has been maintained at the same level, those from drift net fishing and hand lining have been reduced to some extent.

- 23) No subsistence fishing existed, but the maximum home consumption of daily catch was at the range of 8% compared with 10% in 2003.
 24) Majority of fishermen (96%) market their catches through middlemen.
 25) The average fish prices for major species of fish quoted during the interviews are shown in Table 4.

Table 4: Mean beach prices of different types of fish

<u>Variety of fish</u>	<u>Mean beach fish price (RM/Kg)</u>	
	<u>2003</u>	<u>2006</u>
1. Shrimp	6.0 – 26.0	19.0
2. Fish (small pelagic/demersal)	1.0 – 8.0	6.0
3. Fish (large pelagic/demersal)	4.0 – 26.0	12.0
4. Squid	3.0 – 5.0	6.0

It seems that shrimp price has increased compared with that in 2003. It was a general view of the fishermen that fish prices have increased by 10 to 20%.

- 26) Net incomes for the crew and boat owner or the captain of each fishing method are calculated based on the outcomes of the interviews as shown in Table 5.

Table 5: Calculated net incomes of boat owners and crew per working month

<u>Fishing method</u>	<u>Net income per working month (RM)</u>			
	<u>2003</u>		<u>2006</u>	
	<u>Owner</u>	<u>A crew</u>	<u>Owner</u>	<u>A crew</u>
1. Shrimp trammel netting	755	393	1,999	797
2. Drift gill netting	851	497	4,461	1,655
3. Hand lining	2,050	1,980	2,802	1,085
4. B. long lining	3,340	1,755	-	-
5. Bottom gill netting	-	-	10,983	6,118
6. Cast net fishing	-	-	973	1,011
Average	1,749	1,156	4,244	2,133

Based on the above figures, the bottom gillnet fishing is predominantly lucrative, followed by drift gillnet fishing.

- 27) The most serious problems encountered by fishermen are as follows (in order of priority).
- Invasion of illegal or foreign fishing vessels
 - Limitation of fishing hours due to lack of passage facilities to the open sea and harboring facilities
 - Low income primarily due to sluggish fish price coupled with hiked fuel cost
 - Evidential phenomenon in decreasing fishery resources year by year
 - Slow process of registration of fishing vessels by the authorities
 - Limited access to loan facilities
- 28) The fishermen have keen interests, prospects and expectations in the future as shown in the following (in order of priority):
- Professional training in various subjects related to fisheries
 - Construction of a new jetty
 - Increased fishery resources through proper management approaches
 - Accessible credit facilities for the procurement of fishing equipment, especially new boats and engines
 - Subsidy by the authorities in the installation of more ARs and FED/FADs
 - Reinforced local enforcement activities
- 29) It is noteworthy to observe that over 12% fishermen are proud of being professional fishermen and continue fishing, while 8% of the fishermen wish to change to other occupation. Also, 16% of the fishermen expressed their wish for their children to succeed in the fishing profession.

Tsunami rehabilitation

- 30) About 60% of the fishermen considered that rehabilitation from the tsunami disaster has been attained, while some fishermen (25%) claimed more rehabilitation work is still necessary.

Suggestions for the project

- 31) Most fishermen wish to continue the project in the future.
- 32) Most appreciated activities of the project are the installation of ARs and FED/FADs, and training courses.
- 33) The fishermen are with the opinion that they have proactively participated in the project activities.

Neighboring village – Kuala Chenang

- 34) As far as socio-economic is concerned as well as the fishing force in Kuala Chenang, the data are quite similar with those with the project operational area, Kuala Teriang.
- 35) Almost all fishermen are perfectly aware of the activities of the project through the KEN in Kuala Teriang and appreciated the impacts resulting from the project implementation.
- 36) The fishermen positively favored the proposed zoning arrangement and suggested for their immediate implementation. They expressed their position to cooperate with the fishery resources management measures of the KEN in Kuala Teriang.

Summary of the changes in conditions of 2006 compared with those of 2003

As a summary, the comparative figures showing the conditions based on the socio-economic surveys conducted in 2003 and 2006 are shown in Table 6.

Table 6: Comparative figures in conditions in 2003 and 2006

No.	Findings and observations	Survey result		Remarks
		Base-line survey in 2003	Monitoring survey in 2006	
01	Average age of fishermen	48.3	49.0	No change
02	Religion	All Muslim	All Muslim	No change
03	Marital status	94% married	92% married	No change
04	Family structure	17% of households without child	33% of households without child	Increased
		Family member: 6.0	Family member: 5.8	No change
05	Fishing occupation	55% fulltime fishermen	69% fulltime fishermen	Increased
		Part time fisher with general labour, agriculture, trading and tourism in order	Part time fisher with general labour, agriculture, trading and tourism in order	No change
		Full time fishing most dominant in K' Teriang followed by K. Malaka and Batu Ara.	Full time fishing most dominant in Batsu Ara followed by K. Malaka and K. Teriang	Adversely changed
06	Education	All are educated.	All are educated.	No change
		LSS: 23% USS: 13%	LSS: 16% USS: 7%	Decreasing
07	Monthly income (see table 5)			Increased
08	Monthly expenditure	RM ?	RM 2,042	Not realistic
09	Asset ownership	Boat: 66%	Boat: 69%	No change
		House: 87%	House: 91%	No change
		Motorbike: 96%	Motorbike: 87%	Decreased
		Vehicle: 22%	Vehicle: 22%	No change
10	Fishing boat	Unlicensed: 65%	Unlicensed: 71%	Increased
		OBM: 78% IBE: 22%	OBM: 60% IBE: 40%	IBE increased
		FRP: ? Wooden: ?	FRP: 66% Wooden: 44%	No comparison
11	Dominant fishing methods - Shrimp trammel gillnet (STG) - Drift gillnet (DGN) - Hand lining (HLG) - Cast net (CSN) - Bottom gillnet (BGN) - Long lining (LLG)	STG: 55%	STG: 66%	Slightly changed
		DGN: ?	DGN: 62%	
		HLG: 1%	HLG: 21%	
		CSN: -	CSN: 5%	
		BGN: 34%	BGN: 3%	
		LLG: ?	LLG: -	
12	Fishing ground - Shrimp trammel gillnet (STG) - Drift gillnet (DGN) - Hand lining (HLG) - Cast net (CSN) - Bottom gillnet (BGN) - Long lining (LLG)	NWS of Island	NEWS of Island	S. expanded
		NWS of Island	EWS of Island	S. expanded
		W of Island	NW S of Island	S. expanded
		-	Near kuala Teriang	New
		-	Near Kuala Teriang	No cf.
		NS of Island	-	No cf.

No.	Findings and observations	Survey result		Remarks
		Base-line survey in 2003	Monitoring survey in 2006	
13	Fishing days per month - Shrimp trammel gillnet (STG) - Drift gillnet (DGN) - Hand lining (HLG) - Cast net (CSN) - Bottom gillnet (BGN) - Long lining (LLG)	20 days - 11 days - 17 days 26 days	21 days 25 days 28 days 26 days 19 days -	No change No cf. Increased No cf. No change No cf.
14	Average fish catch per trip (see Table 3)			Slightly decreased
15	Fish marketing	Middlemen: 96% Open markets: 4%	Middlemen: 96% Open markets: 4%	No change
16	Fish prices (see Table 4)			Slightly increased
17	Calculated net income for fishermen (see Table 5)			Increased
18	Credit scheme	Enjoyed: 17% - Commercial B.: 2% - Middlemen: 15%	Enjoyed: 17% - Commercial B.: 3% - Middlemen: 14%	No change
19	House wives' engagement - Work outside - Household work	16% 12.5 hours per day	4% 9.5 hours	Reduced Reduced
20	Husband involved in household work	39% fishermen works 3 hrs/d. x 4.5 days/m.	42% fishermen works 4 hrs/d. x 2.5 days/m.	More or less in same level
21	Membership of KEN: Member ship of FA: Member ship of JKKK: No affiliation to any community org.	49% 45% 37% 21%	37% 27% 27% 27%	Reduced Reduced Reduced Increased
22	Most serious problem	1. Intrusion by trawler 2. Free access to sea 3. Low income / fish prices 4. Social nuisance 5. Fishery related infrastructure	1. Intrusion by trawler 2. Free access to sea 3. Low income / fish prices 4. Decreased resource 5. Fishery related infrastructure	More or less same
23	Future interest and prospects	1. Profession training 2. Increased fishery resources and catch 3. New jetty 4. New business 5. To be boat owners	1. Profession training 2. New jetty 3. Increased fishery resources 4. Credit scheme 5. Installation of ARs and FEDs	More less same

12. Conclusions and Recommendations

- 1) In general, no drastic socio-economic changes could be observed between 2003 and 2006 in spite of the fact that the project area was assaulted by the devastating tsunami in December 2004.
- 2) Fishing activities have been resumed in the same manner as before the tsunami assault. Most fishermen considered that the rehabilitation stage of tsunami has already passed.
- 3) The level of monthly household income of fishermen has been improved partly due to increases in the fish prices.
- 4) The most serious problem encountered by the fishermen was the encroachment of illegal fishing boats followed by lack of free access to the sea. This has remained the same major problem since 2003. The embodiment of local enforcement function should be expedited.
- 5) The fish production level has been dwindling, and this has caused concern about sustainable fishery resources management by the fishermen. In this sense, the promulgation and implementation of fishery management plan should be expedited. Also, installation of more ARs along with FADs should be promoted.
- 6) The fishing methods and fishing grounds are more or less in the same status as in 2003, except the squid cast-net fishing which begun only in 2006.
- 7) The relationship between fish production and the effect of the tsunami is not known.
- 8) It is obvious that the fishing force in Langkawi has been ageing and succession in the fishing business by the younger generation is quite remote. It is difficult to predict correctly the future course of the fishing industry at this stage, but the gradual decreasing trend in the fishing fleet already existed. This is partly favourable in terms of minimizing fishing efforts to some extent, but in the long run some particular efforts should be exerted to maintain the number of fishing fleet.
- 9) The fishermen including those in the neighboring villages are fully aware of the functions of KEN and the project activity, particularly in terms of fishery resources management approaches within the demarcated zone.
- 10) The fishermen are still eager to learn new technologies through training programs. The project has been encouraged to respond to their ambition.
- 11) Most fishermen interviewed considered that voluntary participation to the project activities had been achieved, although the level of community voluntary work as a whole was still low. This is important as community-based coastal fishery resources management is basically depending on voluntary participation.
- 12) The fishermen are generally with the view that the project should continue its operation to ensure that tangible outputs are attained, which is still under the way.
- 13) Credit scheme is generally inaccessible by the fishermen and many of them are eager to take advantage of it. The DOF should exert more efforts to popularize its credit scheme through extension services.

Researchers and officers who participated in the survey

DOF Malaysia

- | | |
|--------------------------|------------------------------------|
| 1. Mr. A. Krishnasamy | Department of Fisheries, KL |
| 2. Mr. Anuar b. Omar | State Fisheries Department, Kedah |
| 3. Mr. Badeli b. Hassan | Langkawi Fisheries District Office |
| 4. Ms. Sabidah bt. Saleh | Langkawi Fisheries District Office |

NGO or employed

- | | |
|--------------------------|-------------------------|
| 1. Ms. Chitra Devi | Volunteer, WWF Malaysia |
| 2. Mr. Abu Bakar Bin Ali | Temporary employed |

SEAFDEC

- | | |
|-----------------------------|------------------------------------|
| 1. Mr. Sei Etoh | SEAFDEC/TD |
| 2. Ms. Sumitra Ruangsivakul | SEAFDEC/TD |
| 3. Ms. Saivasan Klinsukon | SEAFDEC/TD |
| 4. Ms. Thanyalak Suasi | SEAFDEC/TD (Data compilation only) |
| 5. Ms. Siriporn Pangsorn | SEAFDEC/TD (Data compilation only) |

Questionnaire Design Format for Kuala Teriang

Components of questionnaire	Parameters	Rationale	Output of the Component
Part I: General information	<ol style="list-style-type: none"> Age Religion Marital status Composition of a family Educational level Occupation Source of daily income Monthly expenditures Asset ownership 	Correspondent to Objective (a) & (b)	Generally views information of fishers in the project area to arrange activities appropriately based on occupation and educational level
Part II: Engagement in fisheries Sector	<ol style="list-style-type: none"> Type of engagement Fishing boat length and license Type of fishing gear, seasons, fishing days and ground Catch distribution: by source, species and purpose of distribution and marketing channels Economics in fishing operation including expenditures of fishing operation: by type of fishing gear and Aquaculture operation including scale and species of fish culturing and economics of operation 	Correspondent to Objective (a)	Views capacity of fishers in capture fisheries, characteristics in fishing operation by different types of fishing gear and any measures taken for coastal resources management, a special insight is also made on after-
Part III: Gender role through time-consuming in employment	<ol style="list-style-type: none"> In fishing operation, harvesting and house-keeping Duty in household Participation in social and religious ceremonies 	Correspondent to Objective (a) & (d)	Views role of fisher, fishers' wives and women in community economic development and resource management, including strengthening of family relationship. This is useful to provide extension program or training courses for the specific target groups and ap
Part IV: Role of Community Fisheries' members and its functions in community development and resource management	<ol style="list-style-type: none"> Members status: member of committee, regular member Members participating in KEN's activities and other group activities Categories of CF's activities and status 	Correspondent to Objective (a) & (d)	Views functional performance of KEN and its activities, how active and effective it is to contribute community economic development and resource management. Fishers' participation and level are informative to arrange activities with their contribution.
Part V: Any problems encountered, any interests envisaged, any needs desired and any expectation in the future dream, reactions against tsunami and appreciation against the project operation	<ol style="list-style-type: none"> Clarification of problems, needs, interests and expectation in the near future Reaction against the tsunami disaster Appreciation against the project operation 	Correspondent to Objective (a) & (d)	Views fishers' perspectives, problems currently facing, future plans and dreams, that can measure the degree of negative or positive life styles. Also views fishers' reaction against the tsunami disaster and counter measures in future and fishers' evaluat

Questionnaire Design Format for Kuala Chenang

Components of questionnaire	Parameters	Rationale	Output of the Component
Part I: Engagement in fisheries Sector	<ol style="list-style-type: none"> 1. Type of engagement 2. Fishing boat length and license 3. Type of fishing gear, seasons, fishing days and ground 4. Catch distribution: by source, species and purpose of distribution and marketing channels 5. Economics in fishing operation including expenditures of fishing operation: by type of fishing gear and 6. Aquaculture operation including scale and species of fish culturing and economics of operation 	Correspondent to Objective (e)	Views capacity of fishers in capture fisheries, characteristics in fishing operation by different types of fishing gear and any measures taken for coastal resources management in the neighbouring fishing village, Kuala
Part II: KEN	<ol style="list-style-type: none"> 1. Knowledge on function of ARs and FADs 2. Awareness on the function of KEN 3. Attitude and opinion against the new development on CBFMR movement in Kuala Teriang 	Correspondent to Objective (e)	Views concernment of the new movement concerning CBFMR in the neighbouring villages, either favourable or negative or indifferent and their attitude for cooperation or joining to the movement in future.

**Questionnaire for Monitoring Socio-economic Survey
in Kuala Teriang**

Name of interviewer:

Name of Respondent:.....

Village.....

Date of interview:.....

Part I: General Information

1. Age year.
2. Religion	<input type="checkbox"/> Muslim <input type="checkbox"/> Christian <input type="checkbox"/> Buddhist
3. Marital Status	1. Single 2. Married 3. Widow 4. Widower
4. Composition of family Number of Children	1. Adult (Male....., Female....., Total.....) 2. Child under 15 (Male....., Female....., Total.....)
5. Educational Level (The master of the family only)	<input type="checkbox"/> None <input type="checkbox"/> Primary school <input type="checkbox"/> lower secondary school <input type="checkbox"/> Upper secondary school <input type="checkbox"/> College or other.....
6. Major occupations (The source of main income for the household)	<input type="checkbox"/> Fishing only <input type="checkbox"/> Aquaculture only <input type="checkbox"/> Tourism only <input type="checkbox"/> Trading only <input type="checkbox"/> Fishing and agriculture <input type="checkbox"/> Fishing and trading <input type="checkbox"/> Fishing and laboring <input type="checkbox"/> Fishing and processing <input type="checkbox"/> Fishing and aquaculture <input type="checkbox"/> Fishing and livestock <input type="checkbox"/> Fishing and tourism <input type="checkbox"/> Others.....
7. Source of total monthly income	<input type="checkbox"/> Fishing (.....RM) <input type="checkbox"/> Agriculture (.....RM) <input type="checkbox"/> Trading (.....RM) <input type="checkbox"/> Laboring (.....RM) <input type="checkbox"/> Processing (.....RM) <input type="checkbox"/> Aquaculture (.....RM) <input type="checkbox"/> Live stock (.....RM) <input type="checkbox"/> Tourism (.....RM) <input type="checkbox"/> Others (.....RM)
8. Monthly expenditure on average	1. Water (.....RM), 2. Electricity (.....RM) 3. Foods / drinks (.....RM), 4. Clothing (.....RM), 5. Education (.....RM), 6. Social affair (.....RM) 7. Entertainment (.....RM), 8. Transportation (.....RM), 9. Investment (.....RM) 9. Others, pls. specify (.....,RM)
9. Asset ownership (Estimated current prices)	<input type="checkbox"/> Fishing boat (.....RM/unit), (.....RM/unit), <input type="checkbox"/> House (.....RM/unit), (.....RM/unit) <input type="checkbox"/> Land (.....ha) <input type="checkbox"/> Farmland / paddy field (.....ha) <input type="checkbox"/> Live stocks (cow, buffalo.....) <input type="checkbox"/> Car (.....RM/unit), (.....RM/unit) <input type="checkbox"/> Motorbike (....RM/unit) x unit(s) <input type="checkbox"/> Others, pls specify.....

5. Economics in fishing

5a. Operational cost and returns per trip on average

(1).Type of fishing gear	Operational costs (RM)						(7).Total gross sales (RM)
	(2).Fuel	(3).L.oil	(3). Food	(4).Salary	(5).Bait	(6).Other s	
A.							
B.							
C.							
D.							

5b Maintenance costs

a) Fishing gear.....RM/month b) Boat.....RM/year

5c Do you have any loan taken and from whom and how much for what and monthly repayment?

(1).Have any loan taken (yes or no)	(2).From whom	(3).For what	(4). How much (RM)	(5). Interest per year (%)	(6).Monthly repayment (RM)
A.					
B.					
C.					
D.					

6. Aquaculture

6.a. Fish ponds or cages for aquaculture (Pond , Cage)

(1) Species (Aquaculture)	(2) Number of cages or ponds	(3) Average size of cage or pond	(4) Stock density (Pcs. per cage or pond)	(5) Number of workers	(6) Price of a pond or a cage (RM)

6.b. Seed supply and marketing for aquaculture

(1) Species (Aquaculture)	(2)Fingering supply (from who?)	(3) Average price of fingering(RM/Pc.)	(4) Duration of culturing (month)	(5) Average total production per year (Kg)	(6) Average market price (RM/Kg)
A.					
B.					
C.					

6.c. Monthly operational cost for aquaculture

(1) Species (Aquaculture)	Operational cost (RM)				Total (6)
	(2) Feeds	(3) Medicines	(4) Labour	(5) Other materials	
A.					
B.					
C.					

Part III: Gender role through time-consuming in working for a month

(1) Activity	Male		Female	
	(2) Working day	(3) No. of hours	(4) Working day	(5) No. of hours
a. Fishing gear repair & preparation				
b. Fishing				
c. Fish trading				
d. Fish processing				
e. Fish culturing				
f. Laboring other than fisheries				
g. Household works				
h. Volunteer works for community & KEN				

Part IV: Role of fishermen participation in KEN's activities or other fishery or community related activities

1. Participation in KEN and community group activities

(1). Group	(2). Position held	Participation		
		(3). Main Activity No. of days per month	(4). Hours per day	(5). Any Incentive provided? If yes, how much per month or in kind? (RM)
a. KEN				
b. Women's Group				
c. Others:				
d. Others:				

2. Participation of KEN members in community development and resource management (KEN Member only) per year

(1). Position held	KEN Activities				
	(2). Meeting (day)	(3). Training (day)	(3). Management /operation: (day)	(4). Other: (day)	(5). Other: (day)

Part V: Problems, interests, needs and expectations in the future after incomes have increased.

A. Problems: (not only in fisheries sectors)

- 1.....
- 2.....
- 3.....

B. Interests: (for example: training in improved fishing technique, fish processing etc.)

- 1.....
- 2.....
- 3.....

C. Immediate Needs: (for example infrastructure construction, access to credit scheme etc.)

- 1.....
- 2.....
- 3.....

D. Future Expectation and visions

- 1.....
- 2.....
- 3.....

E. Tsunami rehabilitation

- 1. Do you think the fishing activity has been resumed now as it was before the tsunami?
 - Yes, satisfactorily
 - More or less attained
 - Not yet in full scale
 - No, far behind the expectation

2. Lesson learned by the tsunami disaster

2.1. How to protect the tsunami disaster?

-
-
-
-

Any other lessons learned?

-
-
-
-

F. Observation and suggestions for the project operation

1. How do you evaluate the project activities?

- Planning in general: Very good, Good, Not good, very bad
- Operation in general: Very good, Good, Not good, very bad
- Training: Very good, Good, Not good, very bad
- Women's activity: Very good, Good, Not good, very bad
- Zoning: Very good, Good, Not good, very bad
- Installation of FADs: Very good, Good, Not good, very bad

2. What do you want the project to do (more) in future?

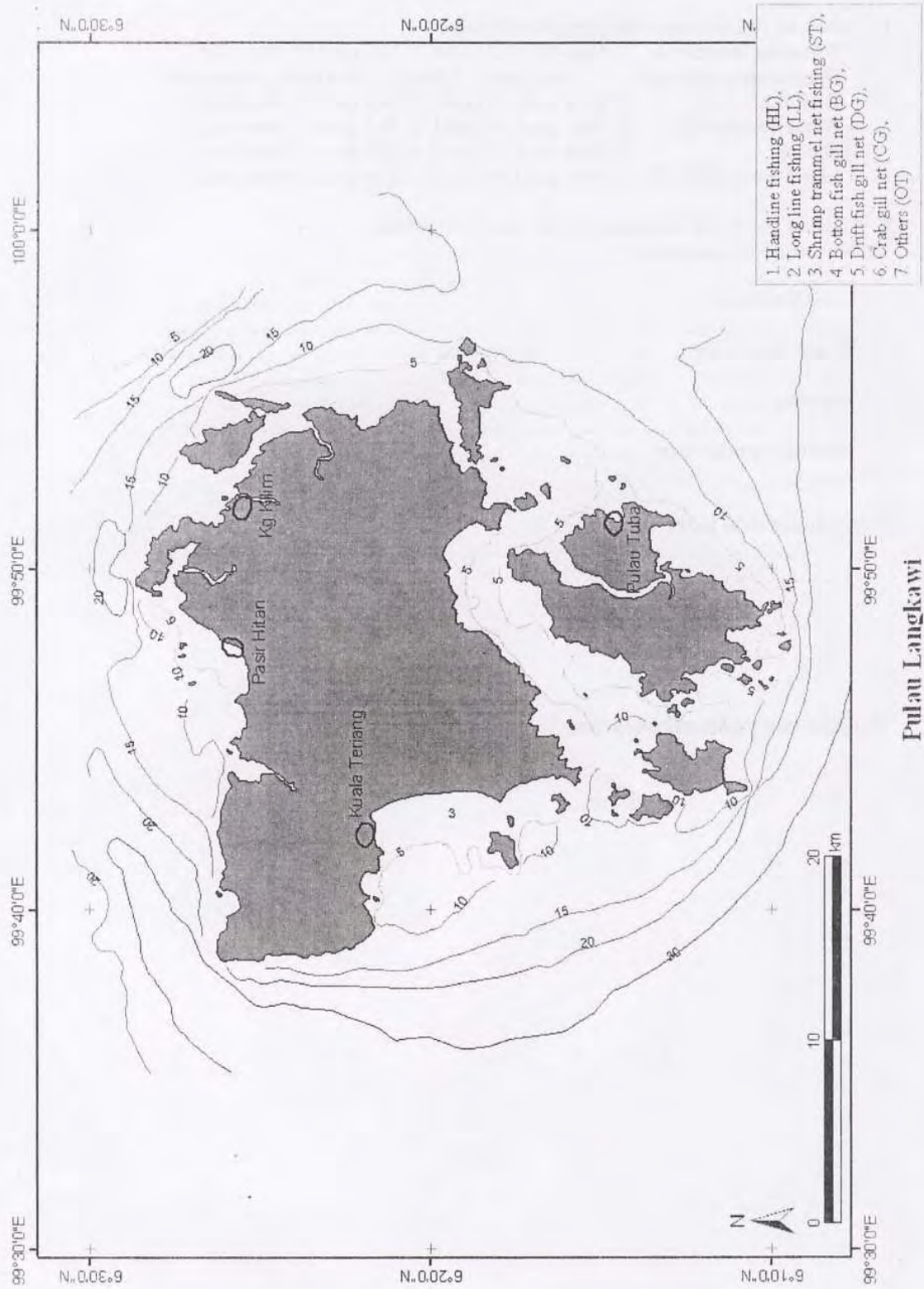
- Resources management:
-
- Local business.....
-
- Women's activity.....
-
- Training
-
- Volunteer group work
-

3. Any suggestion to the project

.....
.....
.....
.....

Thanks for your cooperation !

Fishing ground map



4b. For sale of daily catch (average quantity and market price)

To whom	Fish		Crab		Shrimp		Shellfish		Squid		Others	
	kg	RM Per kg	Kg	RM Per kg	Kg	RM	Kg	RM Per kg	kg	RM Per kg	kg	RM Per kg

5. Economics in fishing

5a. Operational cost and returns per trip on average

(1).Type of fishing gear	Operational costs (RM)						(7).Total gross sales (RM)
	(2).Fuel	(3).L.oil	(3). Food	(4).Salar y	(5).Bai t	(6).Other s	
A.							
B.							
C.							
D.							

5b Maintenance costs

a) Fishing gear.....RM/month b) Boat.....RM/year

6. Aquaculture

6.a. Fish ponds or cages for aquaculture (Pond , Cage)

(1) Species (Aquaculture)	(2) Number of cages or ponds	(3) Average size of cage or pond	(4) Stock density (Pcs. per cage or pond)	(5) Number of workers	(6) Price of a pond or a cage (RM)

6.b. Seed supply and marketing for aquaculture

(1) Species (Aquaculture)	(2)Fingering supply (from who?)	(3) Average price of fingering(RM/Pc.)	(4) Duration of culturing (month)	(5) Average total production per year (Kg)	(6) Average market price (RM/Kg)
A.					
B.					
C.					

6.c. Monthly operational cost for aquaculture

(1) Species (Aquaculture)	Operational cost (RM)				Total (6)
	(2) Feeds	(3) Medicines	(4) Labour	(5) Other materials	
A.					
B.					
C.					

Part II: KEN

1. Do you think the ARs and FEDs are effective in fishing?
 Yes No

2. Do you know the role and function of KEN in general?
 Yes No

3. Do you know activities of KEN Kuala Teriang?
 Yes No

4. If replied "yes", how do you think their activity as a whole?
 Very encouraging Encouraging
 Nothing particular Discouraging

5. If replied "yes", how do you think their attempt in establishment of the community fishing zone.
 Very encouraging Encouraging
 Not necessary Discouraging

6. Do you have any proposal on this fishing zone?
.....
.....
.....

List of Compiled data sheets

A. List of compiled data for the project operational area

<u>No</u>	<u>Data number</u>	<u>Particulars</u>	<u>Remarks</u>
<u>Part I: General information</u>			
01.	Part I – 1	Fishermen's age variation	by village / total
02.	Part I – 2	Classification by religion	by village / total
03.	Part I – 3	Marital status	by total
04.	Part I – 4	Number of family / child(ren) per household	by village / total
05.	Part I – 5	Major occupations	by village/total
06.	Part I – 6	Educational levels of fishermen	by village/total
07.	Part I – 7	Average income of fishermen	by village/total
08.	Part I – 8	Correlation of educational level and income	by total
09.	Part I – 9	Average expenditure by item	by total
10.	Part I – 10	Asset ownership by fishermen	by village/total
<u>Part II: Engagement in Fisheries Sector</u>			
11.	Part II – 1	Number of fishing boats by OBM/IBM, HP, licensed / unlicensed and make	by total
12.	Part II – 2	Sources of fishing boat supply	by total
13.	Part II – 3	Main fishing gear used	by village/total
14.	Part II – 4	Number of crew by fishing methods	by total
15.	Part II – 5	Proportion of working boat-owners	by total
16.	Part II – 6	Average fish catch per boat/trip	by total
17.	Part II – 7	Average fish catch per year	by total
18.	Part II – 8	Average fishing hours by fishing methods	by total
19.	Part II – 9	Average fishing days per year	by total
20.	Part II – 10	Fishing seasons by fishing methods	by total
21.	Part II – 11	Disposal of fish catches	by total
22.	Part II – 12	Marketing outlet of fish catches	by total
23.	Part II – 13	Average fish prices	by total
24.	Part II – 14	Economics of fishing operation by fishing by fishing methods	by total
25.	Part II – 15	Source of credit and amount	by village/total
26.	Part II – 16	Economic analysis of fishing operation	by total
27.	Part II – 17	Fishing operation map	by fishing gear / total
<u>Part III: Gender role</u>			
28.	Part III – 1	Involvement of women in fisheries	by village/total
29.	Part III – 2	Involvement of women in household works and other businesses	by village/total
30.	Part III - 3	Involvement of men in household work and other businesses	by village/total

Part IV: Participation in community activities

- 31. Part IV – 1 Membership of KEN, FA, JKKK and others by village/total
- 32. Part IV – 2 Involvement in community activities (days/hours per month/year) by village/total

Part V: Narrative analysis of the community's feature

- 33. Part V – 1 Insight to problems by village/total
- 34. Part V – 2 Insight to interests by village/total
- 35. Part V – 3 Insight to immediate needs by village/total
- 36. Part V – 4 Insight to future expectation by village/total
- 37. Part V – 5 Insight to the impact of tsunami rehabilitation by village/total
- 38. Part V – 6 Suggestion to the project operation by village/total

B. List of compiled data for Kuala Chenang

Part I: Engagement in fisheries section

- 1. Part VI – 1 Function of KEN and zoning by village

Category	Sub-category	Value 1	Value 2	Value 3	Value 4	Value 5
A	1	10	15	20	25	30
	2	12	18	22	28	32
	3	14	20	24	30	34
	4	16	22	26	32	36
	5	18	24	28	34	38
B	1	11	16	21	26	31
	2	13	19	23	29	33
	3	15	21	25	31	35
	4	17	23	27	33	37
	5	19	25	29	35	39

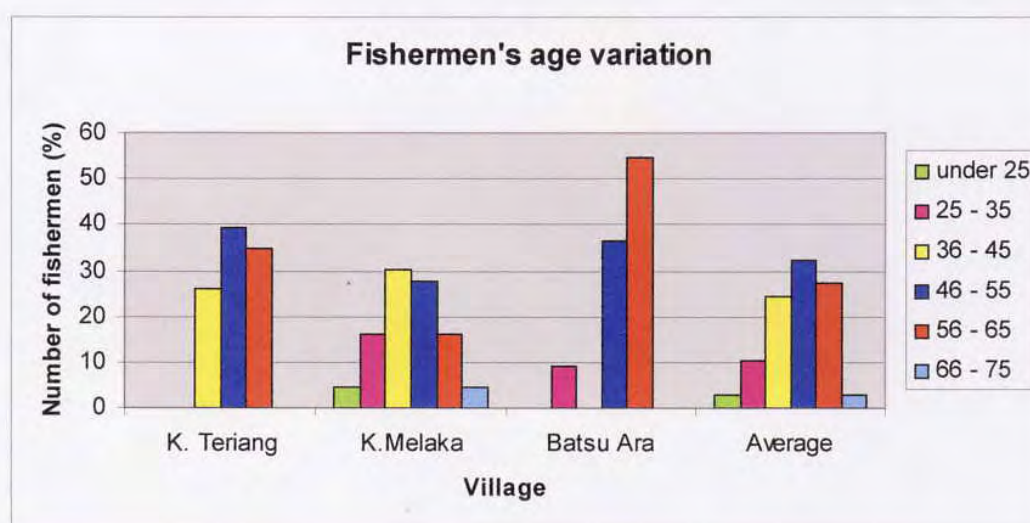


Compiled data and information**A. For the project operational area – Kuala Teriang****Part I: General information****Part I-1: Fishermen's age variation**

No.	Age group	Fishing village			Total
		K. Teriang	K. Melaka	Batsu Ara	
1	under 25	0	2	0	2
2	25 - 35	0	7	1	8
3	36 - 45	6	13	0	19
4	46 - 55	9	12	4	25
5	56 - 65	8	7	6	21
6	66 - 75	0	2	0	2
	Total	23	43	11	77

Fishermen's age variation (in percentage)

No.	Age group	Fishing village			Total	Average
		K. Teriang	K. Melaka	Batsu Ara		
1	under 25	0.0	4.7	0.0	2.6	2.7
2	25 - 35	0.0	16.3	9.1	10.4	10.5
3	36 - 45	26.1	30.2	0.0	24.7	24.5
4	46 - 55	39.1	27.9	36.4	32.5	32.3
5	56 - 65	34.8	16.3	54.5	27.3	27.2
6	66 - 75	0.0	4.7	0.0	2.6	2.7
	Total	100.0	100.0	100.0	100.0	100.0



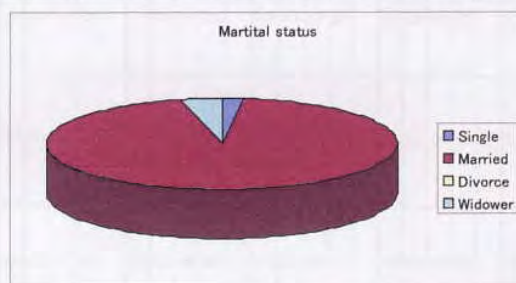
Part I – 2: Classification by religion

Annex 5

Village	Number of interviewees	Religion		
		Muslim	Christian	Buddhist
Kuala Teriang	23	23	0	0
Kuala Melaka	43	43	0	0
Batu Ara	11	11	0	0
Total	77	77	0	0

Part I – 3: Marital status

Village	Marital status				Total
	Single	Married	Divorce	Widower	
Kuala Teriang	1	22	0	0	23
Kuala Melaka	4	39	0	0	43
Batu Ara	1	10	0	0	11
Total	6	71	0	0	77

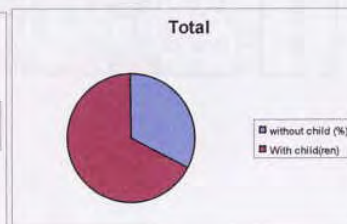
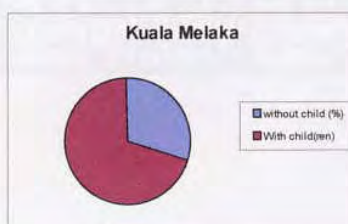
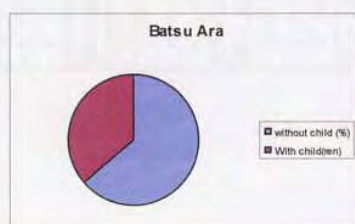


Part I – 4 - 1: Number of family / child(ren) per household

Village	Number of interviewee	Average No. of family member	Household				
			Without child		With Child(ren)		Average No. of children
			Household number	%	Household number	%	
Kuala Teriang	23	6.0	5	21.7	18	78.3	2.2
Kuala Melaka	43	5.7	13	30.2	30	69.8	2.9
Batsu Ara	11	5.7	7	63.6	4	36.4	2.3
Village total/average	77	5.8	25.0	32.5	52	67.5	2.6

Part I – 4 – 2: Family with / without child(ren)

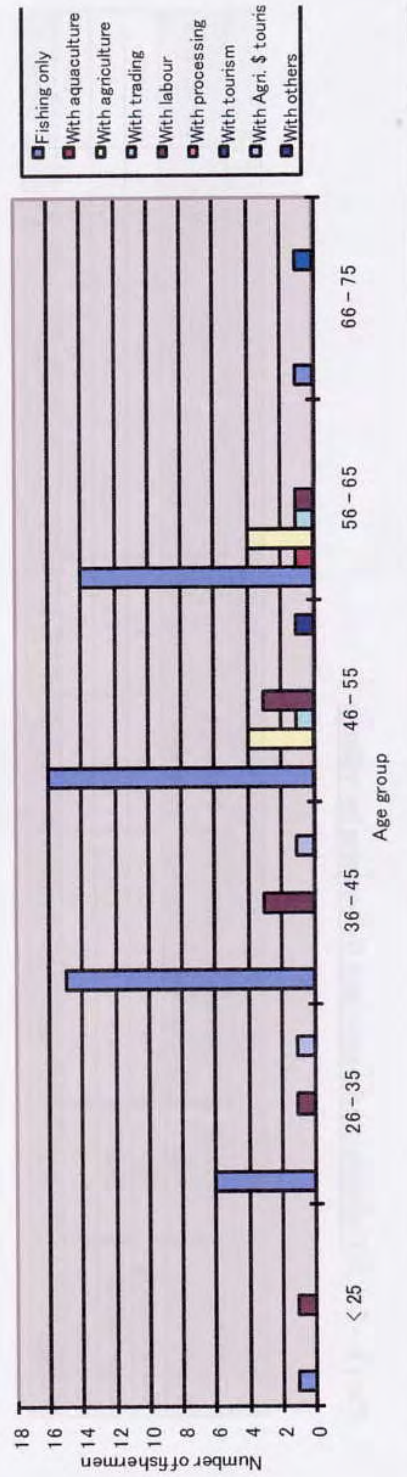
Village	without child (%)	With child(ren)
Kuala Teriang	21.7	78.3
Kuala Melaka	30.2	69.8
Batsu Ara	63.6	36.4
Total	32.5	67.5



Part I - 5 - 2: Occupation by range of age

Age range	Occupation										Total	
	Fisheries only	Aquaculture only	Combination with other profession					Agriculture & tourism	Others			
			Aquaculture	Agriculture	Trading	General labour	Processing			Tourism		
< 25	1	0	0	0	0	0	1	0	0	0	0	2
26 - 35	6	0	0	0	0	0	1	0	0	1	0	8
36 - 45	15	0	0	0	0	0	3	0	0	1	0	19
46 - 55	16	0	0	4	1	3	3	0	0	0	1	25
56 - 65	14	0	1	4	1	1	1	0	0	0	0	21
66 - 75	1	0	0	0	0	0	0	0	0	1	0	2
Total:	53	0	1	8	2	9	9	0	0	1	1	77

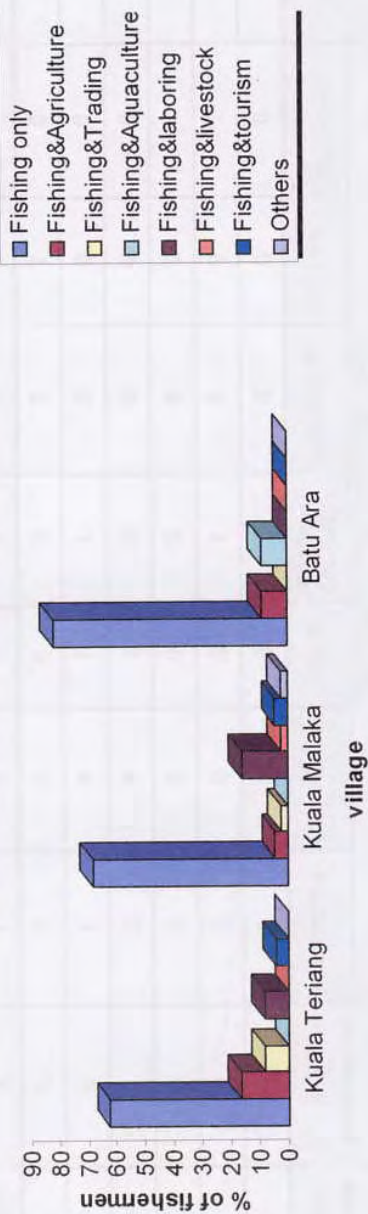
Occupation by range of age



Part I – 5 – 3: Fulltime and part-time fishermen by village

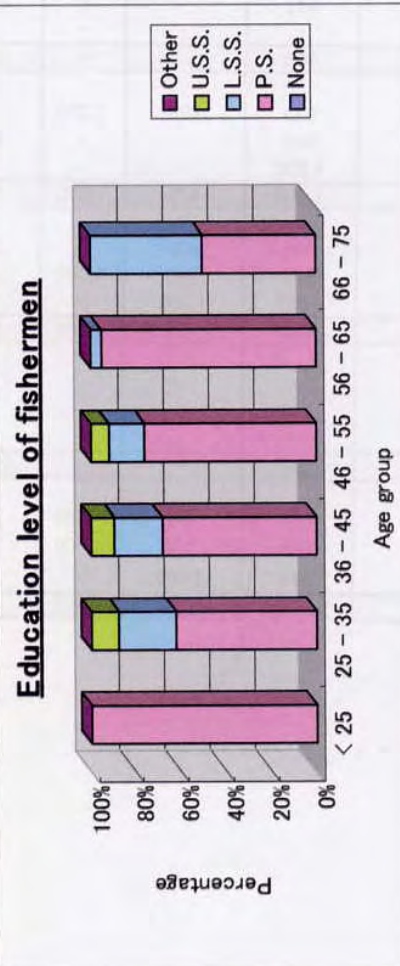
Village	Major occupations (percentage)										Total 100%
	Fishing only	Fishing & Agriculture	Fishing & Trading	Fishing & Aquaculture	Fishing & laboring	Fishing & Livestock	Fishing & tourism	Others			
Kuala Teriang	62.5	16.7	8.3	0	8.3	0	4.2	0			100
Kuala Malaka	68.2	4.5	2.3	0	15.9	2.3	4.5	2.3			100
Batu Ara	81.8	9.1	0	9.1	0	0	0	0			100
Average	68.3	8.8	3.8	1.3	11.4	1.3	3.8	1.3			100

Major occupation of fishermen by village



Part I – 6: Educational levels of fishermen

Age group	Number of interviewees	Education level (number)				Education level (%)				
		None	P.S.	L.S.S.	U.S.S.	Other	P.S.	L.S.S.	U.S.S.	Other
1	< 25	0	2	0	0	0.0	100.0	0.0	0.0	0.0
2	25 - 35	0	5	2	1	0.0	62.5	25.0	12.5	0.0
3	36 - 45	0	13	4	2	0.0	68.4	21.1	10.5	0.0
4	46 - 55	0	19	4	2	0.0	76.0	16.0	8.0	0.0
5	56 - 65	0	20	1	0	0.0	95.2	4.8	0.0	0.0
6	66 - 75	0	1	1	0	0.0	50.0	50.0	0.0	0.0
Total		0	60	12	5	0.0	77.9	15.6	6.5	0.0



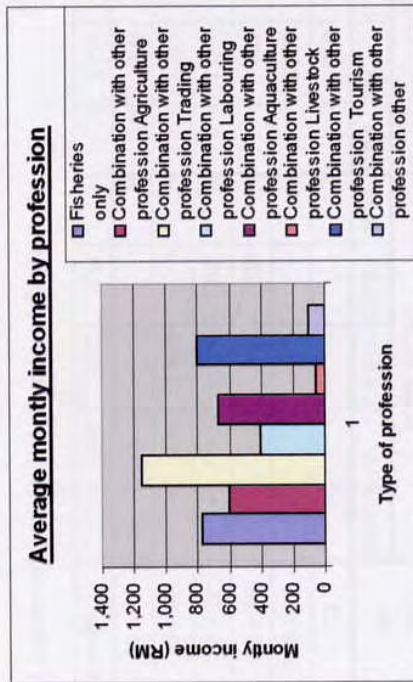
Legend:
 P.S. - Primary school graduate
 L.S.S. - Lower secondary school graduate
 U.S.S. - Upper secondary school graduate

Part I - 7 - 1: Average income of fishermen by fulltime and part-time occupation
(in RM)

Age range	Occupation								Average
	Fisheries only	Combination with other profession							
		Agriculture	Trading	Labouring	Aquaculture	Livestock	Tourism	other	
< 25									
- K. Teriang	-	-	-	-	-	-	-	-	-
- K. Melaka	650	-	-	200	-	-	-	-	425
- Batsu Ara	-	-	-	-	-	-	-	-	-
Average	650	-	-	200	-	-	-	-	425
25 - 35									
- K. Teriang	-	-	-	-	-	-	-	-	-
- K. Melaka	1,126	-	-	300	-	-	1,500	-	975
- Batsu Ara	600	-	-	-	-	-	-	-	600
Average	863	-	-	300	-	-	1,500	-	888
36 - 45									
- K. Teriang	500	-	-	800	-	-	-	-	650
- K. Melaka	812	-	-	650	-	-	100	-	521
- Batsu Ara	-	-	-	-	-	-	-	-	-
Average	656	-	-	725	-	-	100	-	494
46 - 55									
- K. Teriang	983	475	1,300	-	-	-	-	-	919
- K. Melaka	996	-	-	450	-	-	-	100	515
- Batsu Ara	1,200	-	-	-	-	-	-	-	1,200
Average	1,060	475	1,300	450	-	-	-	100	677
56 - 65									
- K. Teriang	488	500	-	350	-	-	-	-	446
- K. Melaka	950	700	1,000	-	-	-	-	-	883
- Batsu Ara	1,067	1,000	-	-	670	-	-	-	912
Average	835	733	1,000	350	670	-	-	-	718
66 - 75									
- K. Teriang	-	-	-	-	-	-	-	-	-
- K. Melaka	600	-	-	-	-	60	-	-	330
- Batsu Ara	-	-	-	-	-	-	-	-	-
Average	600	-	-	-	-	60	-	-	330
Summary									
- K. Teriang	657	488	1,300	575	-	-	-	-	755
- K. Melaka	856	700	1,000	400	-	60	800	100	559
- Batsu Ara	956	1,000	-	-	670	-	-	-	875
G. Average	823	729	1,150	488	670	60	800	100	602

Part I – 7 – 2: Average monthly income by age group

Age range	Occupation						Average
	Fisheries only	Agriculture	Trading	Labouring	Combination with other profession	other	
< 25	650	-	-	200	-	-	425
25 – 35	863	-	-	300	-	1,500	888
36 – 45	656	-	-	725	-	100	494
46 – 55	1,060	475	1,300	450	-	100	677
56 – 65	835	733	1,000	350	670	-	718
66 – 75	600	-	-	-	60	-	330
Average	777	604	1,150	405	670	800	571

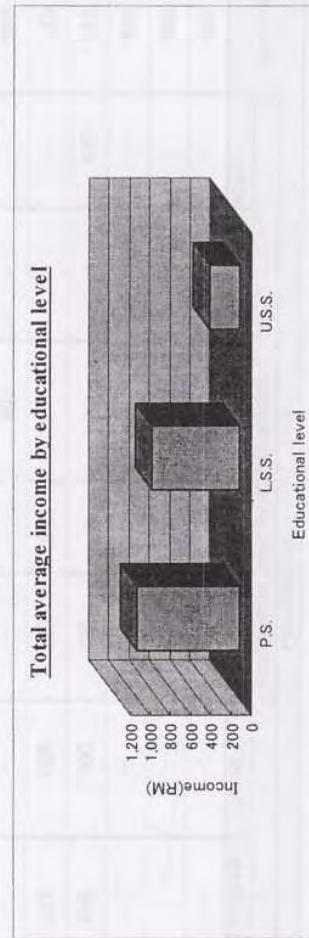


Part I - 8 - 1 : Educational level and incomes by range of age (in RM)

No.	Range of age	Village																		Average								
		Kuala Teriang						Kuala Melaka						Batsu Ara						L.S.S.			U.S.S.			Other		
		None	P.S.	L.S.S.	U.S.S.	Other	None	P.S.	L.S.S.	U.S.S.	Other	None	P.S.	L.S.S.	U.S.S.	Other	None	P.S.	L.S.S.	U.S.S.	Other	None	P.S.	L.S.S.	U.S.S.	Other		
1	< 25	-	-	-	-	-	650	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	650	-	-	-		
2	25 - 35	-	-	-	-	-	2,025	750	80	-	-	-	600	-	-	-	-	-	-	-	-	-	1,313	750	80	-		
3	36 - 45	-	675	700	400	-	839	1,267	600	-	-	-	-	-	-	-	-	-	-	-	-	757	984	500	-	-		
4	46 - 55	-	1,441	-	1,350	-	1,189	1,125	250	-	-	-	1,450	950	-	-	-	-	-	-	-	1,360	-	-	-	-		
5	56 - 65	-	507	1,200	-	-	1,293	-	-	-	-	-	1,345	-	-	-	-	-	-	-	-	1,048	-	-	-	-		
6	66 - 75	-	-	-	-	-	900	360	-	-	-	-	-	-	-	-	-	-	-	-	-	900	-	-	-	-		
Average		-	874	950	875	-	1,149	876	310	-	-	-	1,132	950	-	-	-	-	-	-	-	1,005	867	290	-	-		

Note: The average shows just indicative figures.

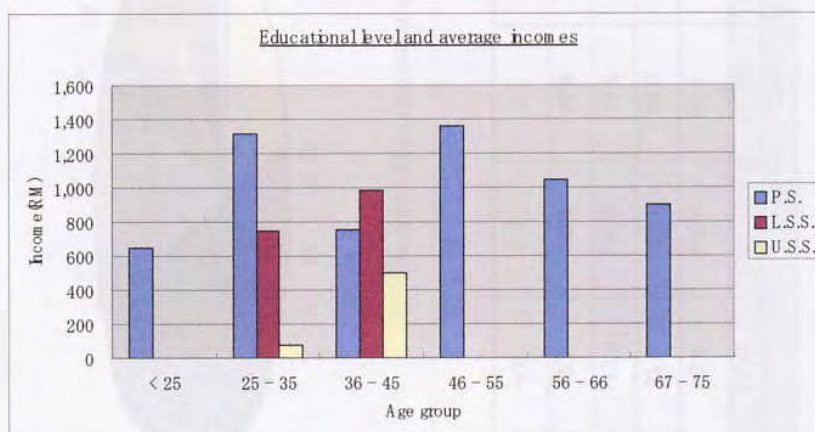
- Legend:
- P.S. - Primary school graduate
 - L.S.S. - Lower secondary school graduate
 - U.S.S. - Upper secondary school graduate



Part – I – 8 – 2: Educational level and average incomes by range of age (Consolidated)

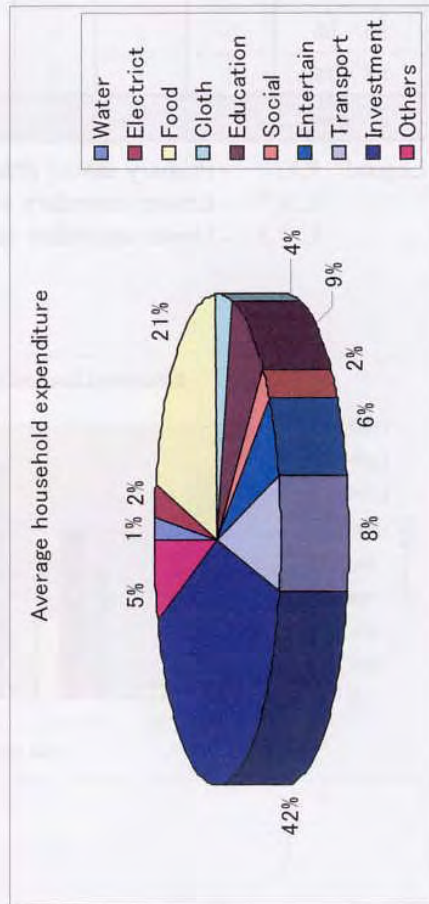
Range of age	Number of interviewees				Average income (RM)		
	P.S.	L.S.S.	U.S.S.	Total	P.S.	L.S.S.	U.S.S.
< 25	2	0	0	2	650	0	0
25 - 35	5	2	1	8	1,313	750	80
36 - 45	13	4	2	19	757	984	500
46 - 55	19	4	2	25	1,360	0	0
56 - 66	20	1	0	21	1,048	0	0
67 - 75	1	1	0	2	900	0	0
Average	60	12	5	77	1,005	289	97

Legend: P.S. - Primary school graduate
 L.S.S. - Lower secondary school graduate
 U.S.S. - Upper secondary school graduate



Part I – 9: Average expenditure by item

Village	Average expenditure (RM)											Total
	Water	Electric	Food	Cloth	Education	Social	Entertain	Transport	Investment	Others		
Kuala Teriang	31.7	45.8	429.6	76.4	160.6	51.4	131.3	194.1	641.7	30.0	1,792.4	
Kuala Malaka	31.3	40.0	421.4	57.3	207.5	66.0	186.3	121.2	660.7	175.0	1,966.7	
Batu Ara	28.6	38.4	431.8	112.6	210.0	26.7	20.0	148.2	1,227.0	125.0	2,368.2	
Total av.	30.5	41.4	427.6	82.1	192.7	48.0	112.5	154.5	843.1	110.0	2,042.4	
Percentage	1.5	2.0	20.9	4.0	9.4	2.4	5.5	7.6	41.3	5.4	100.0	



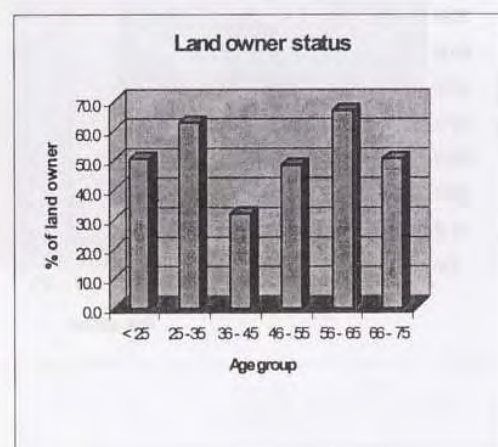
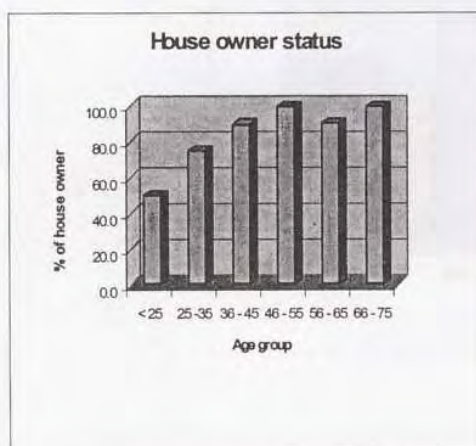
Part I – 10 -1: Asset ownership by fishermen (except fishing boats)

By numbers

Age group	Property					
	House	Land	Farm land	Live stock	Car	Motorbike
< 25	1	1	1	1	1	2
25 - 35	6	5	1	1	2	7
36 - 45	17	6	2	2	5	18
46 - 55	25	12	4	0	7	21
56 - 65	19	14	4	4	5	17
66 - 75	2	1	0	1	0	2
Summary (total)	70	39	12	9	20	67
Summary (%)	90.9	50.6	15.6	11.7	26.0	87.0

By ration (%)

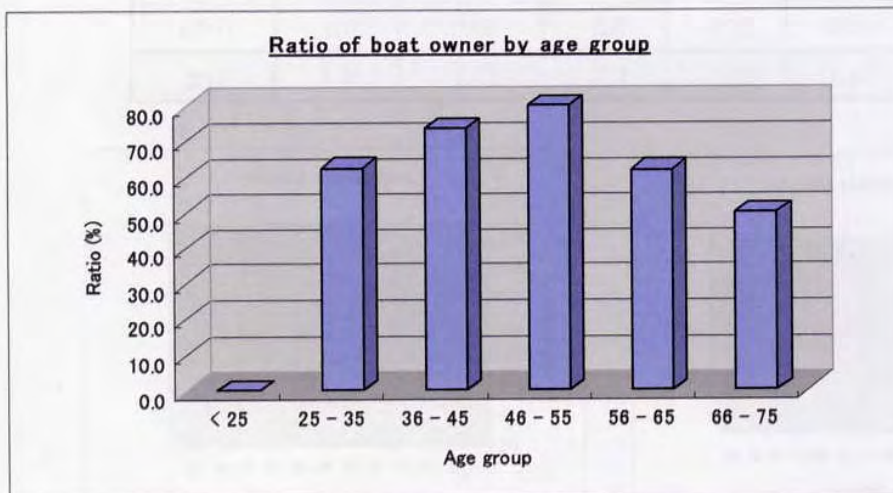
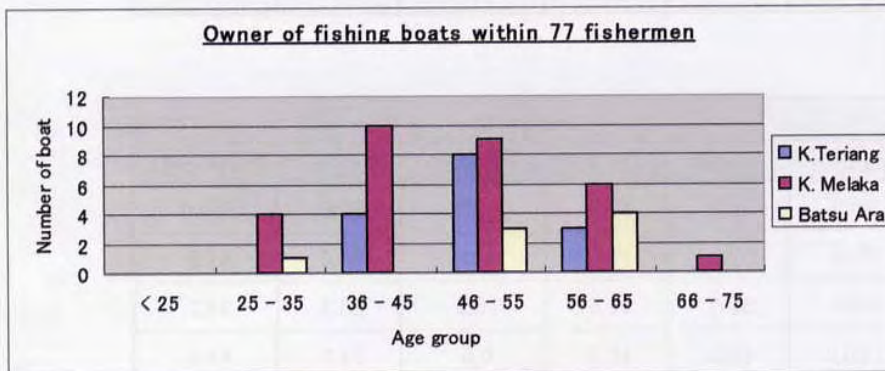
Age group	Property					
	House	Land	Farm land	Live stock	Car	Motorbike
< 25	50.0	50.0	50.0	50.0	50.0	100.0
25 - 35	75.0	62.5	12.5	12.5	25.0	87.5
36 - 45	89.5	31.6	10.5	10.5	26.3	94.7
46 - 55	100.0	48.0	16.0	0.0	28.0	84.0
56 - 65	90.5	66.7	19.0	19.0	23.8	81.0
66 - 75	100.0	50.0	0.0	50.0	0.0	100.0
Total (average)	84.2	51.5	18.0	23.7	25.5	91.2



Note: The averages just show indicative figures only.

Part I-10-2: Ownership of fishing boats

No.	Age group	Fishing village			Total	Number of interviewees	Ratio of boat owner(%)
		K. Tereng	K. Melaka	Batsu Ara			
1	< 25	0	0	0	0	2	0.0
2	25 - 35	0	4	1	5	8	62.5
3	36 - 45	4	10	0	14	19	73.7
4	46 - 55	8	9	3	20	25	80.0
5	56 - 65	3	6	4	13	21	61.9
6	66 - 75	0	1	0	1	2	50.0
Total		15	30	8	53	77	68.8

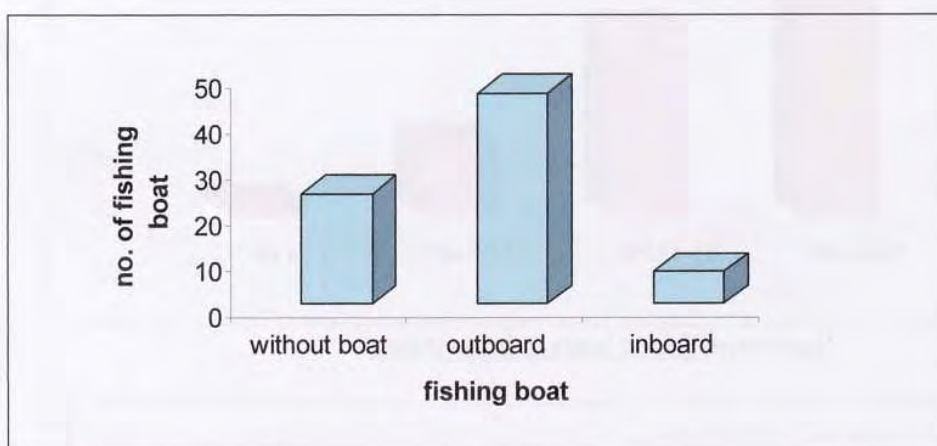


Part II : Engagement in Fisheries Sector

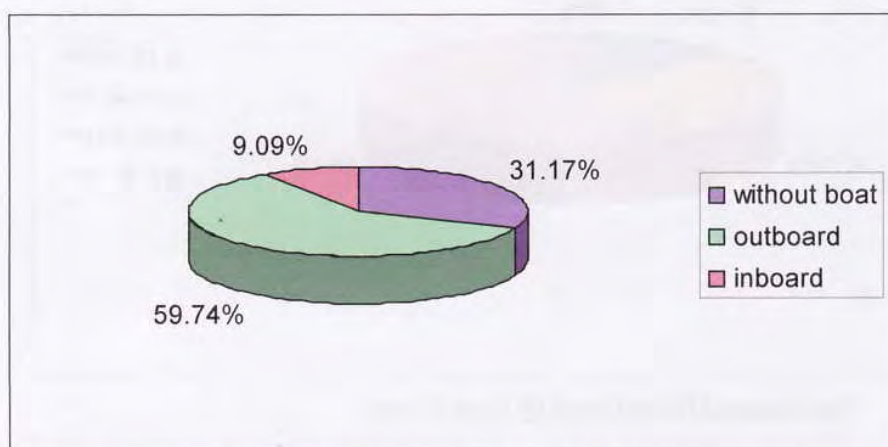
Part II-1 : Number of fishing boat by OBM/IBM, HP, licensed/unlicensed and made

a) Number of fishing boat by OBM/IBM

Village	No. of interview	Without boat	With Engine	
			Outboard	Inboard
Kuala Teriang	23	8	11	4
Kuala Malaka	43	13	28	2
Batu Ara	11	3	7	1
Total	77	24	46	7
Percentage(%)	100	31.2	59.7	9.1



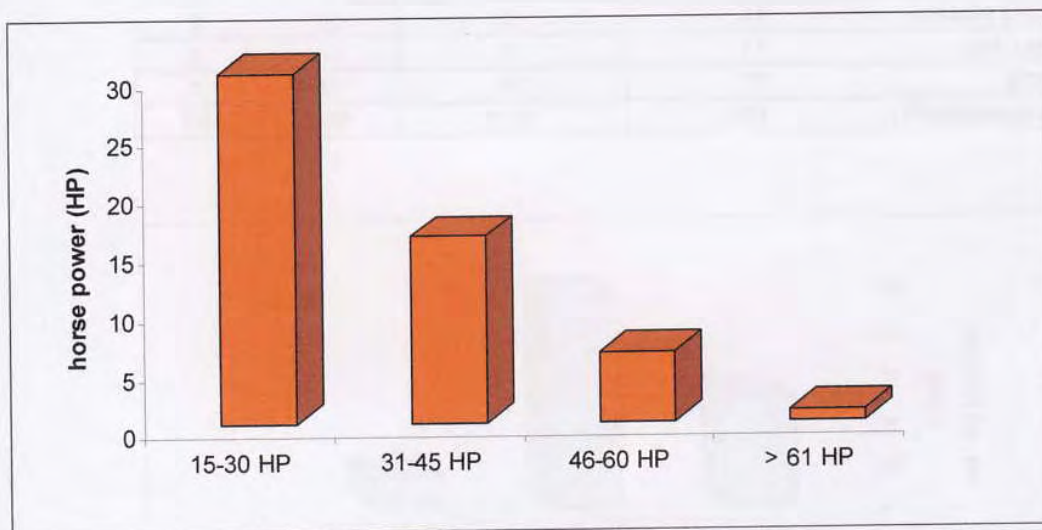
Number of fishing boat in OBM and IBM and without boat by total



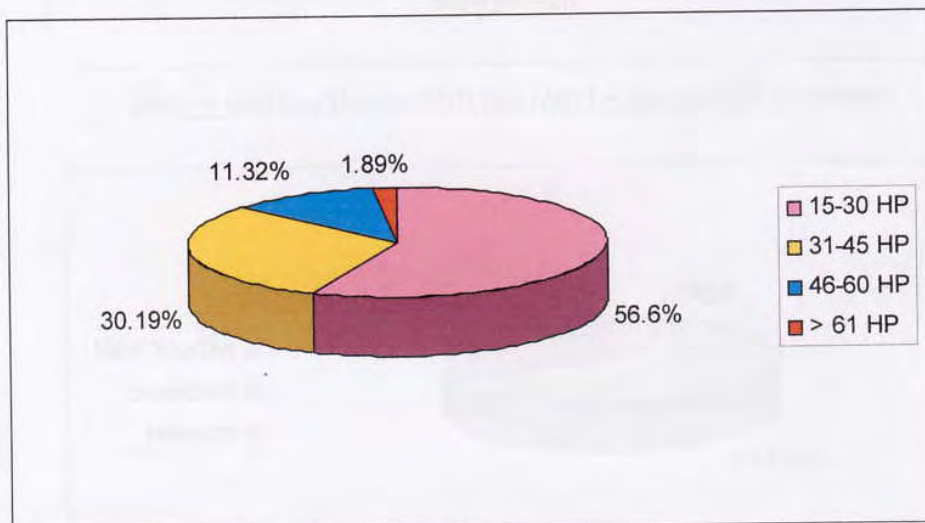
Percentage of fishing boat in OBM and IBM and without boat by total

b) Number of fishing boats by horse power (HP)

Village	Horse power			
	15-30 HP	31-45 HP	46-60 HP	> 61 HP
Kuala Teriang	5	8	2	0
Kuala Malaka	19	8	2	1
Batu Ara	6	0	2	0
Total	30	16	6	1
Percentage(%)	56.6	30.19	11.32	1.89



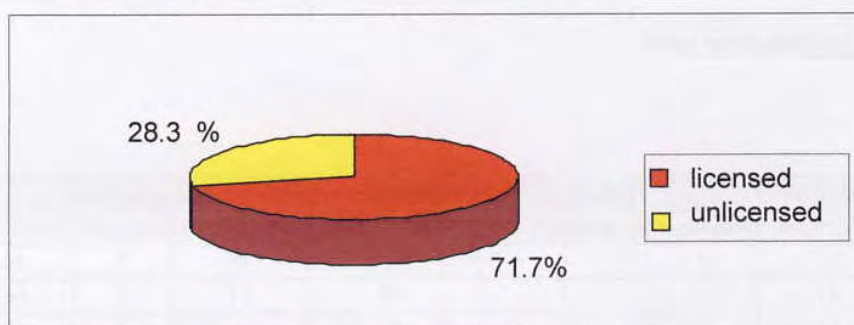
Number of fishing boats by horse power



Percentage of fishing boats by horse power

c) Number of fishing boat by licensed or unlicensed

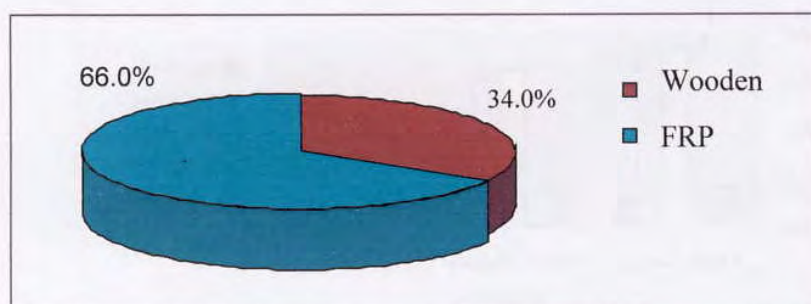
Village	Fishing boat	
	licensed	unlicensed
Kuala Teriang	11	4
Kuala Malaka	20	10
Batu Ara	7	1
Total	38	15
Percentage(%)	71.7	28.3



Percentage of fishing boat in licensed/unlicensed by total

d) Number of fishing boat by made

Village	Fishing boat	
	wooden	FRP
Kuala Teriang	4	11
Kuala Malaka	9	21
Batu Ara	5	3
Total	18	35
Percentage(%)	34.0	66.0



Percentage of fishing boat in made by total

Part II-2 : Source of fishing boat supply

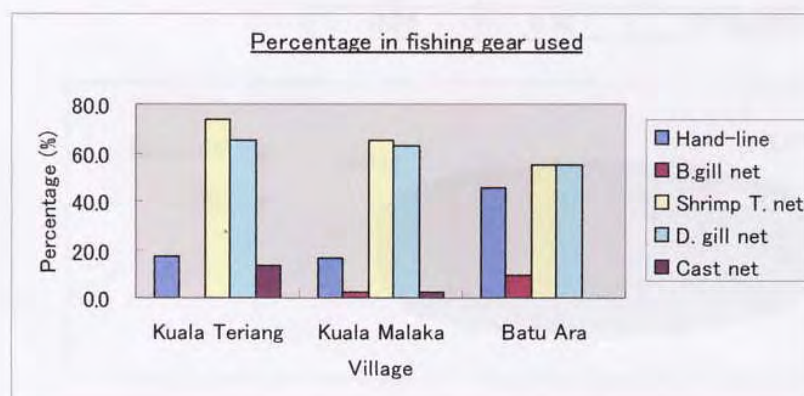
Village	Boat supply	
	Langkawi	Others
Kuala Teriang	23	0
Kuala Malaka	43	0
Batu Ara	11	0
Total	77	0
Percentage(%)	100	0

Part II - 3: Main fishing gear usedIn number

Village	Number of interviewees	Fishermen engaged in different types of fishing method					Total
		handline	bottom gill net	shrimp T. net	drift gill net	cast net	
Kuala Teriang	23	4	0	17	15	3	39
Kuala Malaka	43	7	1	28	27	1	64
Batu Ara	11	5	1	6	6	0	18
Total	77	16	2	51	48	4	121

In percentage (%)

Village	Number of interviewees	Fishermen engaged in different types of fishing method					Total
		handline	bottom gill net	shrimp T. net	drift gill net	cast net	
Kuala Teriang	23	17.4	0.0	73.9	65.2	13.0	169.6
Kuala Malaka	43	16.3	2.3	65.1	62.8	2.3	148.8
Batu Ara	11	45.5	9.1	54.5	54.5	0.0	163.6
Average total	77	20.8	2.6	66.2	62.3	5.2	157.1



Part II-4 : Average number of fishermen on board per boat by fishing method

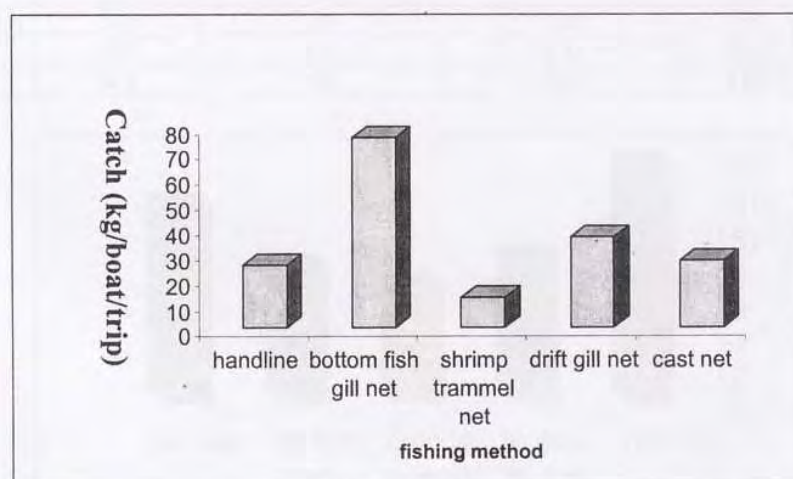
Village	Fishing methods				
	Handline	B.fish G. net	Shrimp tra.net	Drift G. net	Cast net
Kuala Teriang	2.5	-	1.6	1.9	1.5
Kuala Melaka	1.3	1.0	1.5	1.7	1.0
Batu Ara	2.0	-	1.8	2.5	-
Total (Average)	1.9	1.0	1.6	1.8	1.3

Part II-5 : Proportion of working boat-owners

Village	Boat-owner	
	working	no working
Kuala Teriang	23	0
Kuala Malaka	43	0
Batu Ara	11	0
Total	77	0
Percentage(%)	100	0

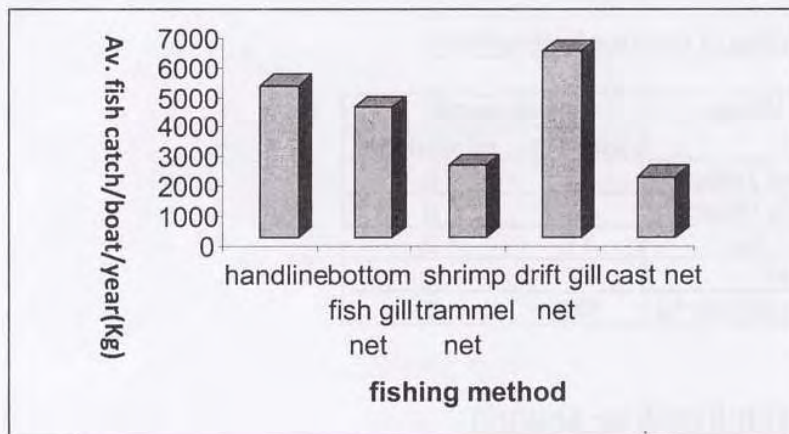
Part II-6 : Average fish catch per boat/trip

Village	Av. Fish catch (kg/trip)				
	handline	bottom fish gill net	shrimp trammel net	drift gill net	cast net
Kuala Teriang	22.5	0.0	7.9	32.3	23.3
Kuala Malaka	25.0	100.0	12.1	28.2	30.0
Batu Ara	28.0	50.0	16.8	47.5	0.0
Total av.	25.2	75.0	12.3	36.1	26.7



Part II-7 : Average fish catch per year per boat

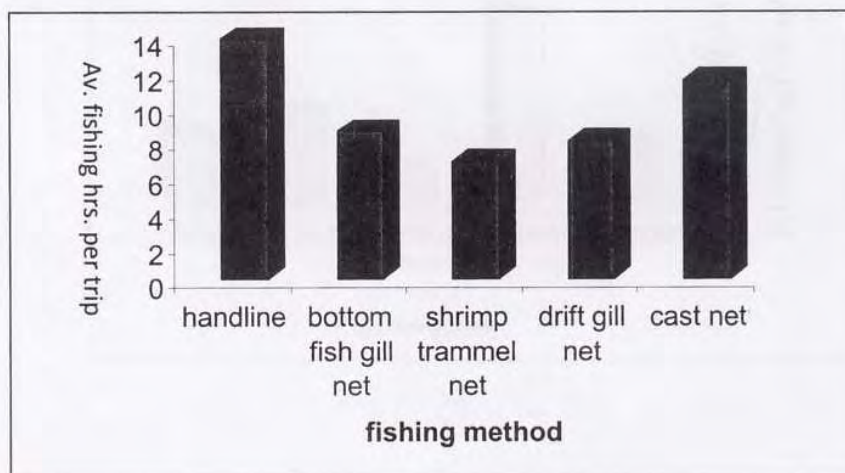
Village	Av. Fish catch per boat (kg/year)				
	handline	bottom fish gill net	shrimp trammel net	drift gill net	cast net
Kuala Teriang	5,535	-	2,107	5,105	1,943
Kuala Malaka	3,837	2,800	2,432	4,042	2,160
Batu Ara	6,000	6,000	2,783	9,660	-
Total av.	5,124	4,400	2,441	6,269	2,051



Average fish catch per year per boat

Part II-8 : Average fishing hours by fishing method

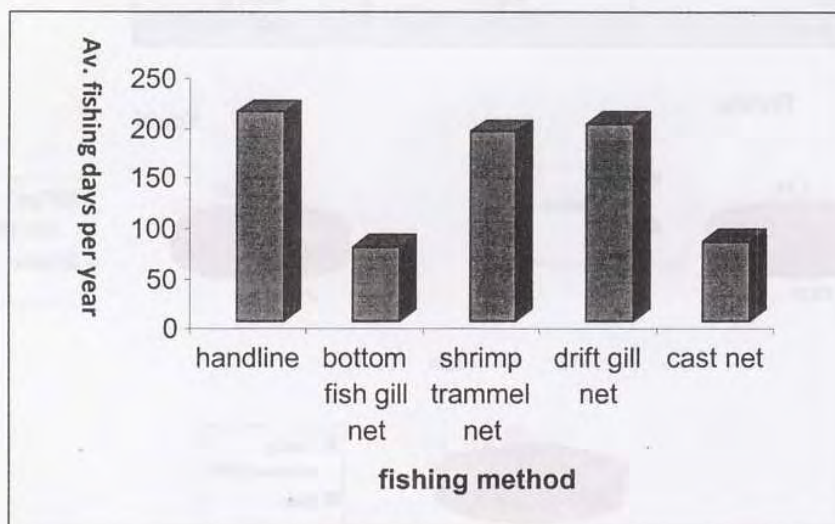
Village	No. of fishing (hours/day)				
	handline	bottom fish gill net	shrimp trammel net	drift gill net	cast net
Kuala Teriang	17.5	-	6.7	7.7	11.0
Kuala Malaka	11.1	5.0	7.4	7.7	12.0
Batu Ara	12.8	12.0	6.2	9.0	-
Total av.	13.8	8.5	6.7	8.00	11.5



Average fishing hours by fishing method

Part II-9 : Average fishing days per year

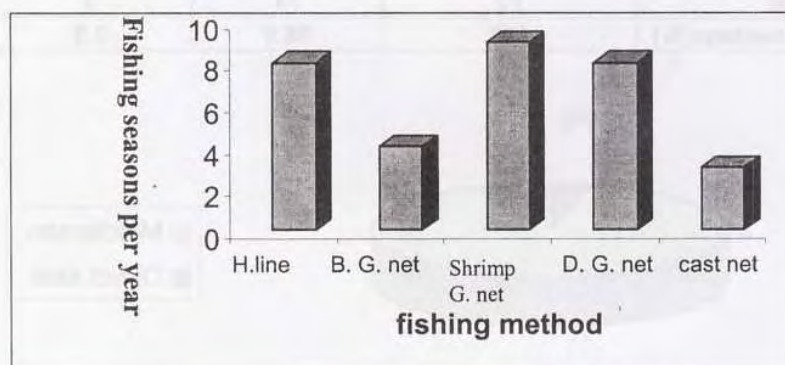
Village	No. of fishing (days/year)				
	handline	bottom fish gill net	shrimp trammel net	drift gill net	cast net
Kuala Teriang	234.3	-	190.7	208.7	84.7
Kuala Malaka	177.1	28.0	182.6	161.8	72.0
Batu Ara	213.6	120.0	191.7	218.7	-
Total av.	208.3	74.0	188.3	196.4	78.3



Average fishing days per year by total

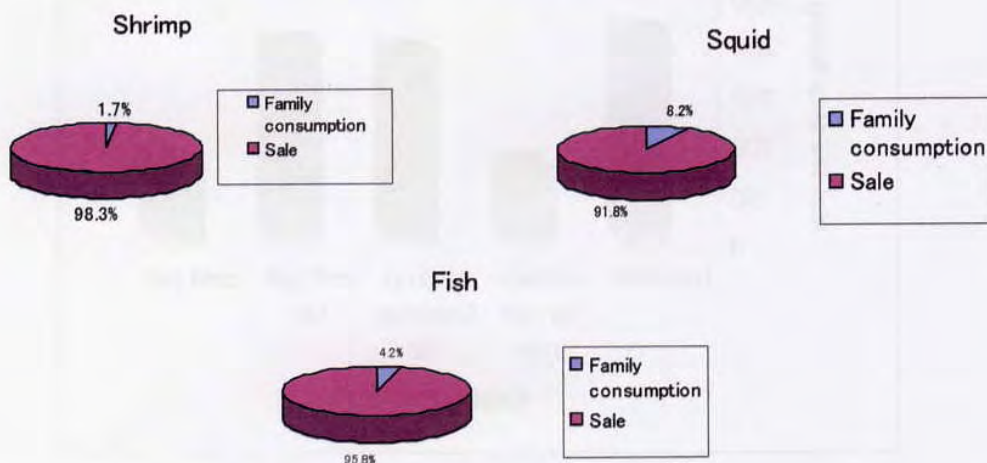
Part II-10 : Fishing seasons by fishing methods

Village	Fishing season (month)				
	handline	bottom fish gill net	shrimp trammel net	drift gill net	cast net
Kuala Teriang	5	-	8	9	3
Kuala Malaka	10	3	9	8	2
Batu Ara	9	5	9	8	-
Total	8	4	9	8	3



Part II-11 : Disposal of fish catches

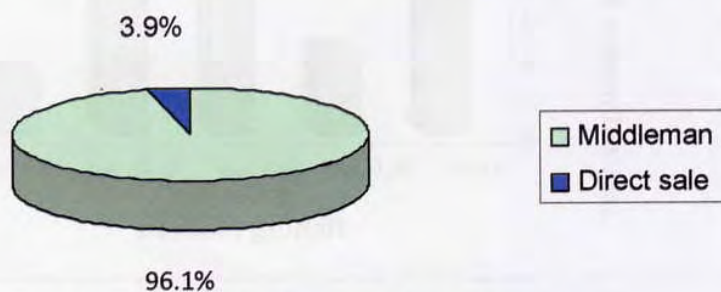
Species of fish	Daily disposal (%)	
	Family consumption	Sale
Shrimp	1.7%	98.3%
Crab	-	-
Squid	8.2%	91.8%
Fish	4.2%	95.8%
Average	3.3%	96.7%



Disposal of fish catch by species

Part II-12 : Marketing outlets of fish catches

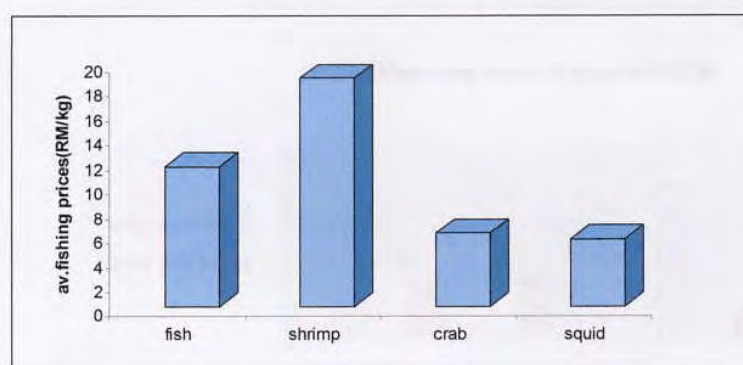
Village	No. interviewees	of	Marketing channels	
			Middlemen	Direct sale
Kuala Teriang	23		21	2
Kuala Malaka	43		42	1
Batu Ara	11		11	0
Total	77		74	3
Percentage(%)	100		96.1	3.9



Percentage of marketing outlets in fish catches

Part II-13 : Average fish prices

Village	Av. Fishing prices(RM./kg)			
	fish	shrimp	crab	squid
Kuala Teriang	11.3	18.5	-	5.0
Kuala Malaka	12.3	19.0	-	6.0
Batu Ara	10.8	18.5	6.0	-
Total av.	11.5	18.7	6.0	5.5

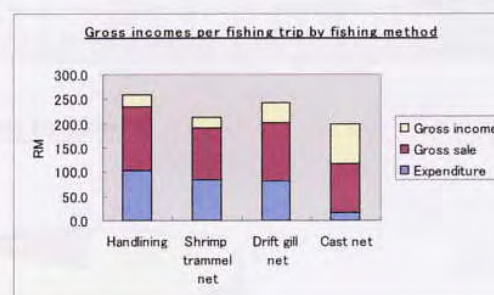
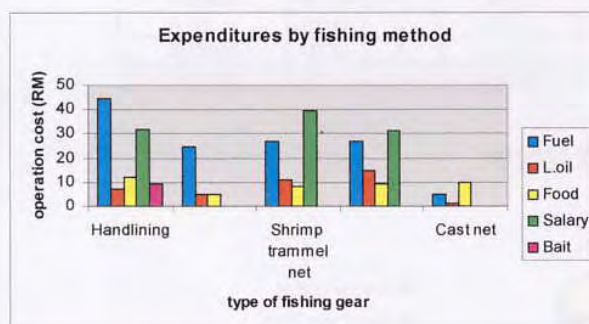


Average fish price by total

Part II-14 : Economics of fishing operation by fishing methods

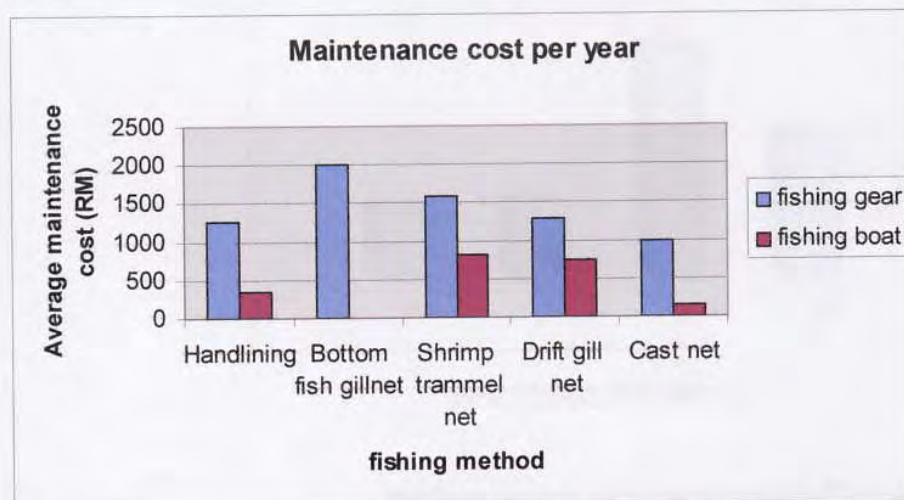
a) Itemized expenditures by fishing methods

Type of fishing gear	Operational cost per trip on average (RM)							Average gross sales	Gross income
	Fuel	L.oil	Food	Salary	Bait	Others	Total		
1. Handlining	44.4	7.2	11.9	31.7	9.3	-	104.4	130.0	25.6
2. Bottom fish gillnet	25.0	5.0	5.0	-	-	-	35.0	-	-
3. Shrimp trammel net	26.9	10.9	8.2	39.8	-	-	85.9	106.4	20.5
4. Drift gill net	26.8	14.9	9.1	31.2	-	-	82.0	120.8	38.8
5. Cast net	5.0	1.0	10.0	-	-	-	16.0	100.0	84.0



b). Average maintenance cost per year

Fishing method	Average maintenance cost per year (RM)		
	fishing gear	fishing boat	Total
1. Handlining	1,271.4	342.9	1,614.3
2. Bottom fish gillnet	2,000.0	-	2,000.0
3. Shrimp trammel net	1,577.4	822.6	2,400.0
4. Drift gill net	1,285.9	743.8	2,029.7
5. Cast net	1,000.0	150.0	1,150.0
Average	1,416.0	730.3	2,136.1

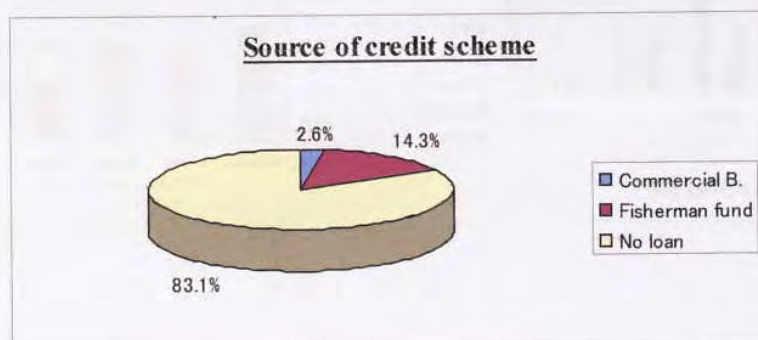


(Note: The maintenance cost of fishing gear for Bottom fish gill-net must include the one of fishing boat.)

Part II-15 : Source of credit and amount

a) Sources and amount of credit

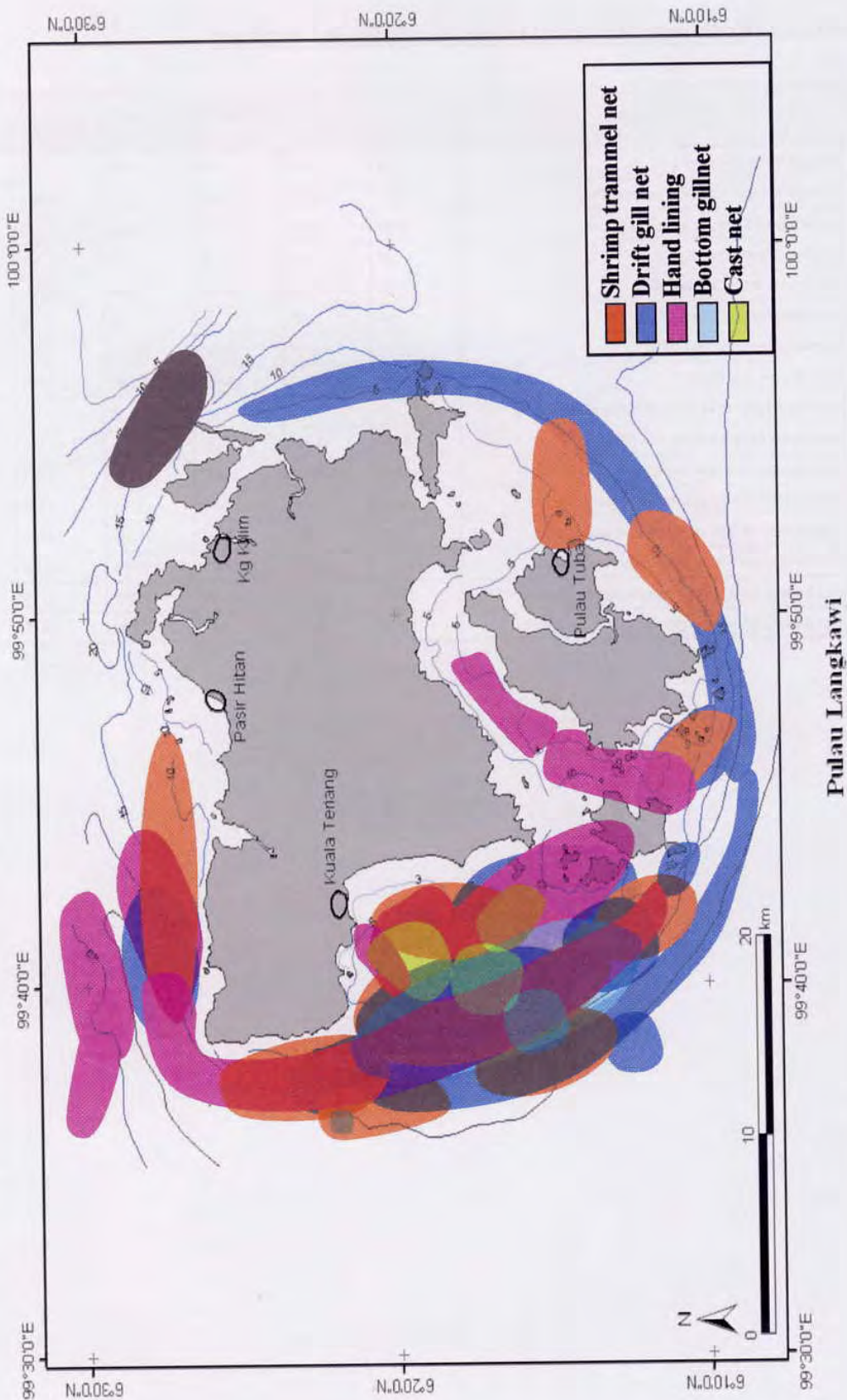
Village	Number of interviewees	Source of credit						
		Commercial Bank		Fishermen fund		Total		
		Number	Av. amount per head (RM/year)	Number	Av. amount per head (RM/year)	Number	Av. amount per head (RM/year)	
Kuala Teriang	23	2	4,000.0	3	28,466.7	5	21.7%	18,680.0
Kuala Melaka	43	0	0.0	6	11,500.0	6	14.0%	11,500.0
Batsu Ara	11	0	0.0	2	15,025.0	2	18.2%	15,025.0
Total/average	77	2	4,000.0	11	16,768.2	13	16.9%	14,803.9



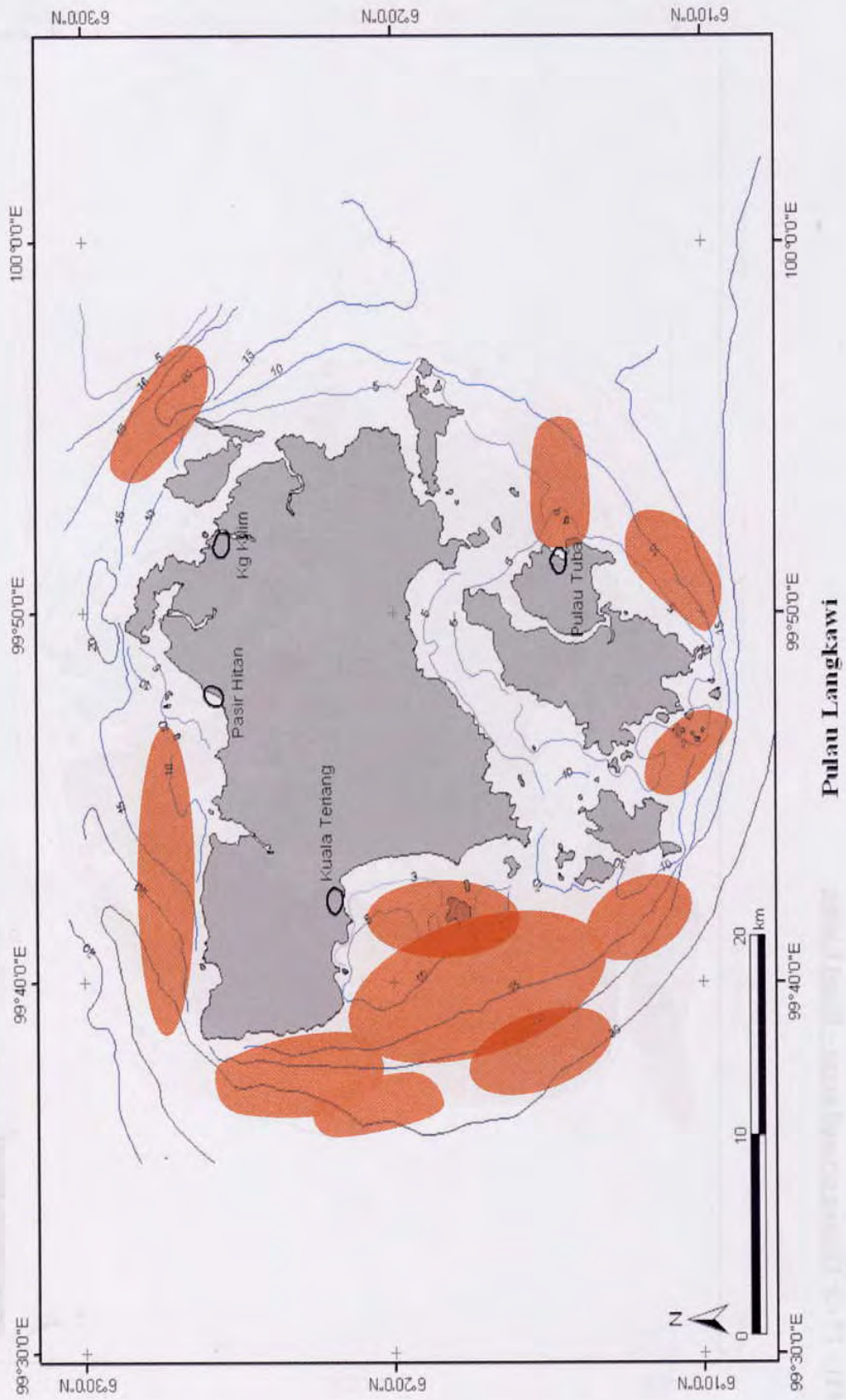
Part II-16 : Economic analysis of fishing operation in Langkawi

No.	Particulars	Fishing method					Average
		H. Lining	B. gill net	Shrimp net	Drift G.net	Cast net	
1	Average fishing days per year	208	74	188	196	78	149
2	Average fish catch per boat per year (Kg)	5,124	4,400	2,441	6,269	2,051	4,057
3	Net amount for sale per year(Kg)	4,909	4,215	2,400	6,006	1,883	3,882
4	Average fish price per Kg	12	10	19	8	6	11
5	Gross sales of fish per year (RM)	56,451	42,152	44,871	48,046	10,355	40,375
6	Operational cost per day (RM)	104	35	86	82	16	65
7	Operational cost per year (RM)	21,747	2,590	16,175	16,105	1,253	11,574
8	Net sales per year (RM)	34,705	39,562	28,696	31,941	9,103	28,801
9	Average number of all crew (including a boat owner)	3	2	3	3	2	3
10	Net income for a crew per year (RM)	8,676	13,187	7,174	7,985	3,034	8,011
11	Gross income for a boat owner per year (RM)	26,028	26,375	21,522	23,956	6,068	20,790
12	Maintenance cost for gear/boat per year (RM)	1,614	2,000	2,400	2,030	1,150	1,839
13	Depreciation for boat and engine per year (RM)	2,000	1,133	1,133	2,000	2,000	1,653
14	Net income for a boat owner per year (RM)	22,414	23,242	17,989	19,926	2,918	17,298
15	Net income for a boat owner per working month (RM)	2,802	9,297	1,999	2,491	973	3,512
16	Net income for a crew per working month (RM)	1,085	5,275	797	998	1,011	1,833

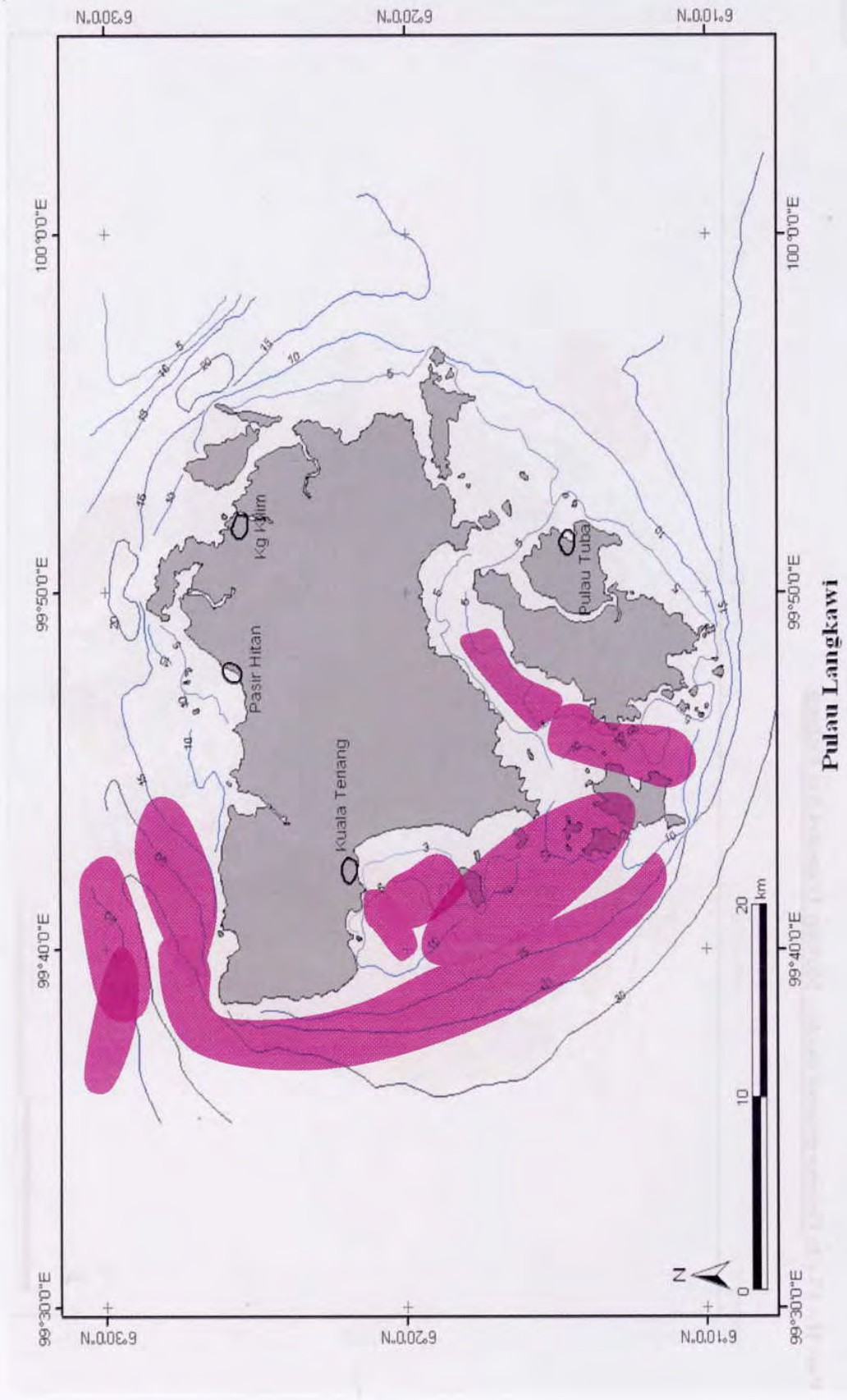
Part II - 17 - 1: Fishing ground maps - Consolidated



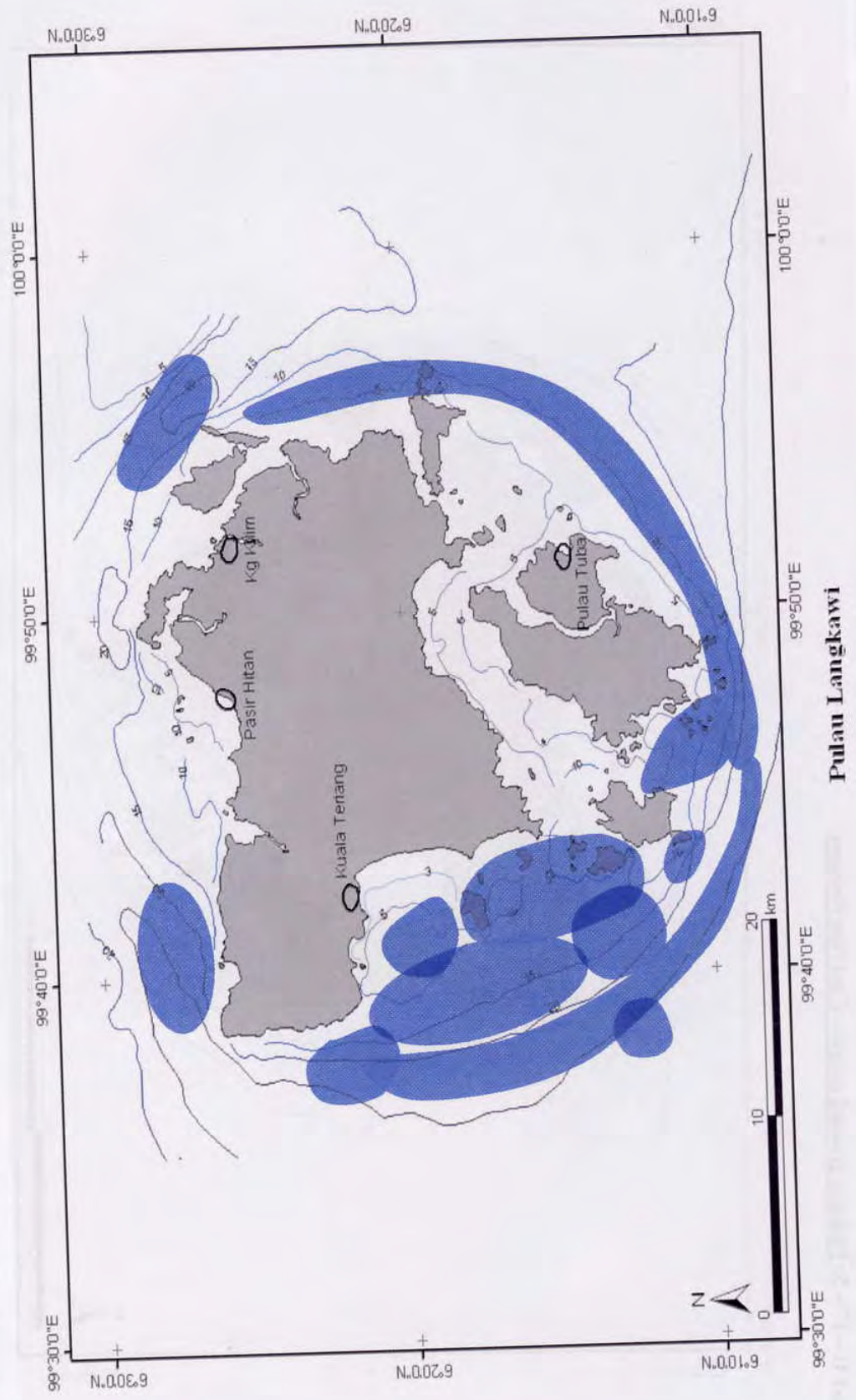
Part II – 17 - 2: Fishing ground maps – Shrimp Trammel Net Fishing



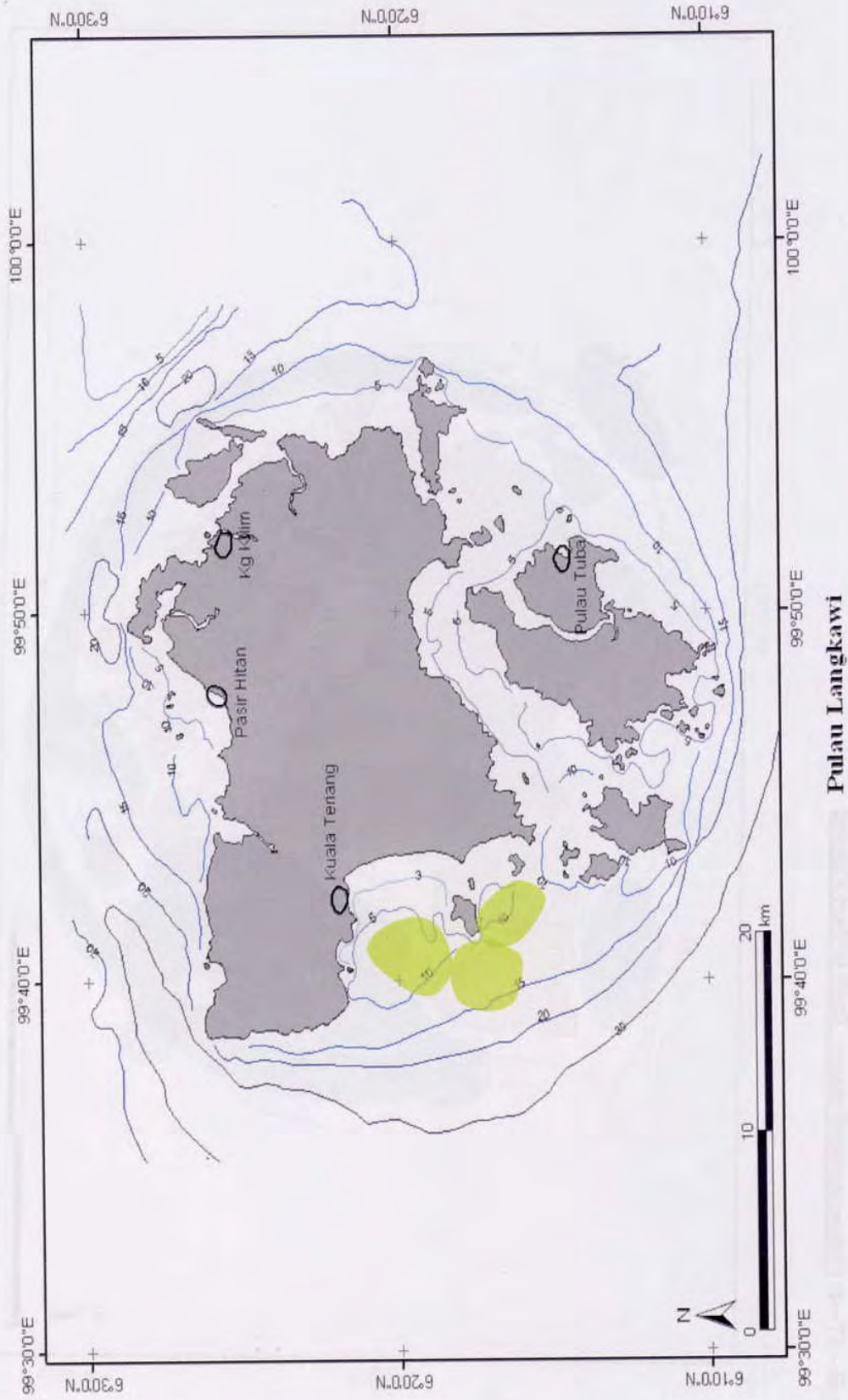
Part II – 17 - 3: Fishing ground maps – Hand Lining



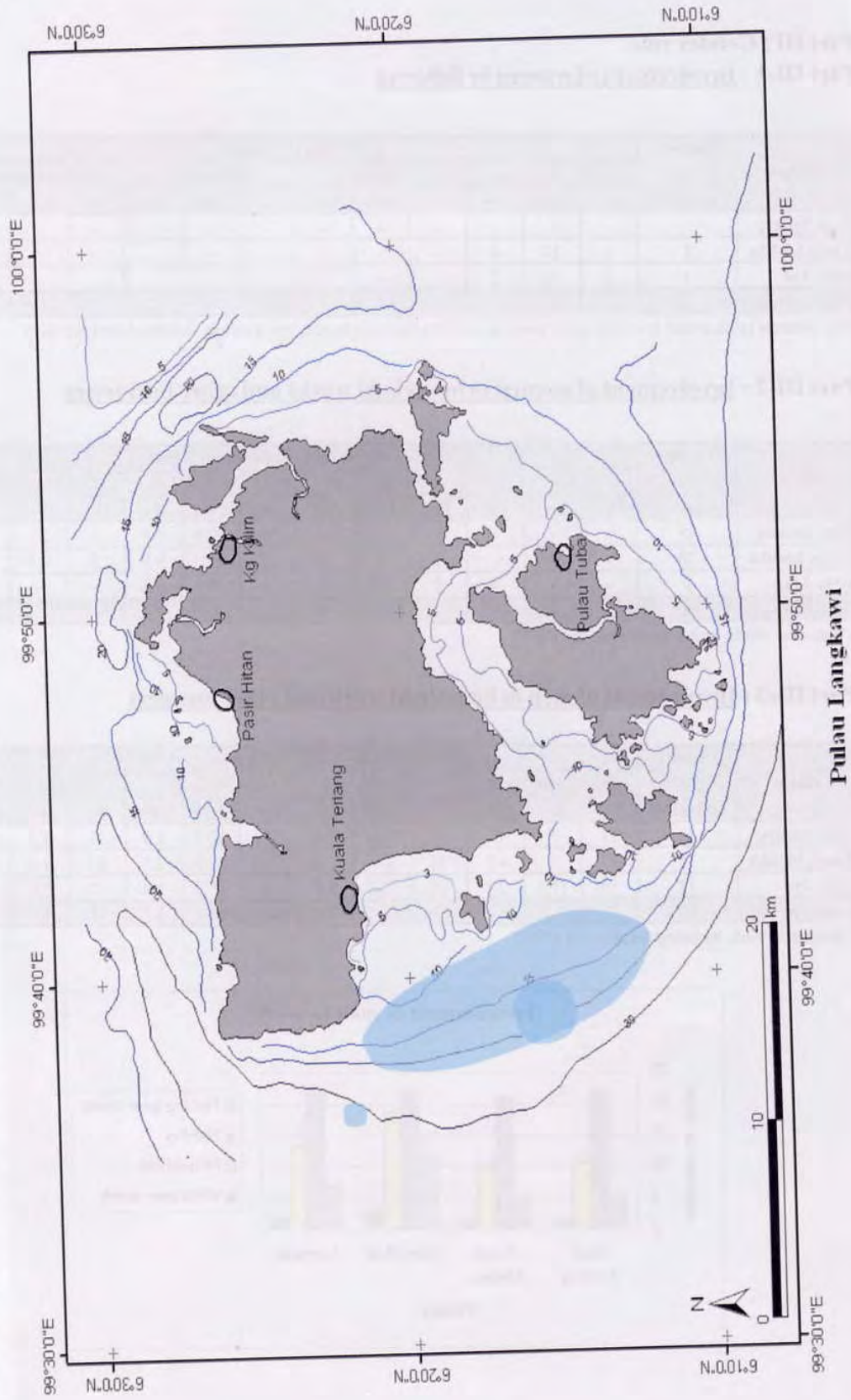
Part II - 17 - 4: Fishing ground maps - Drift Gillnet Fishing



Part II - 17 - 5: Fishing ground maps – Cast Net Fishing



Part II – 17 - 6: Fishing ground maps – Bottom Gillnet Fishing



Part III : Gender role**Part III-1 : Involvement of women in fisheries**

Village	Number of respon's	Working in fisheries											
		Fishing gear repair			Fishing			Fish trading			Fish processing		
		No.	days	hrs	No.	days	hrs	No.	days	hrs	No.	days	hrs
Kual Teriang	-	-	-	-	-	-	-	-	-	-	-	-	-
Kuala Melaka	1	1	15	4	-	-	-	-	-	-	-	-	-
Batu Ara	1	1	10	2	-	-	-	-	-	-	-	-	-
Total/average	2	2	12.5	3	-	-	-	-	-	-	-	-	-

(No: persons participated in works, days: average working days per month, hrs: average working hours per day)

Part III-2 : Involvement of women in household works and other businesses

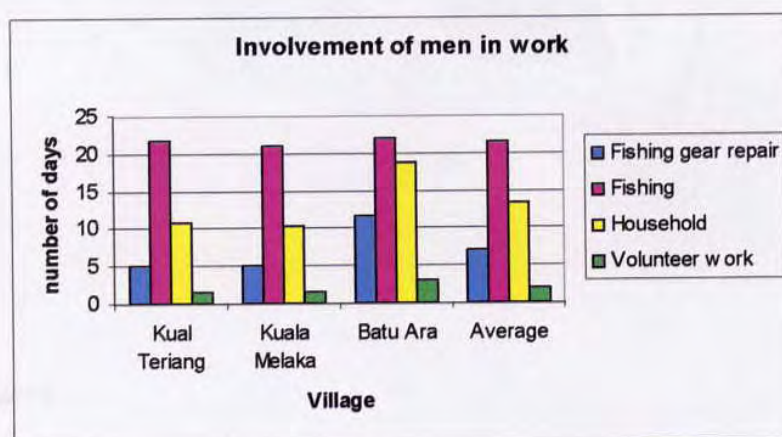
Village	Number of respon's	Working in household, fisheries and others											
		Fisheries			Other labouring			Household			Volunteer work		
		No.	days	hrs	No.	days	hrs	No.	days	hrs	No.	days	hrs
Kual Teriang	18	-	-	-	-	-	-	18	29.9	9.8	1	25	5
Kuala Melaka	38	-	-	-	1	5	6	38	30	9.8	2	2.5	6
Batu Ara	9	-	-	-	2	25	6	9	30	9.3	-	-	-
Total/average	65	-	-	-	3	15	6	65	30.0	9.6	3	13.8	5.5

(Volunteer work: including services for KEW)

Part III-3 : Involvement of men in household work and other business

Village	Number of respon's	Working in household, fisheries and others											
		Fishing gear repair			Fishing			Household			Volunteer work		
		No.	days	hrs	No.	days	hrs	No.	days	hrs	No.	days	hrs
Kual Teriang	13	13	5	4.1	18	21.6	7.6	8	10.9	2.9	11	1.5	5.1
Kuala Melaka	36	27	5	4.1	36	20.9	7.4	18	10.3	2.2	13	1.6	4.8
Batu Ara	11	10	11.5	2.1	11	21.9	8.5	6	18.7	1.8	7	3.0	3.0
Total/average	60	50	7.2	3.4	65	21.5	7.8	32	13.3	2.3	31	2.0	4.3

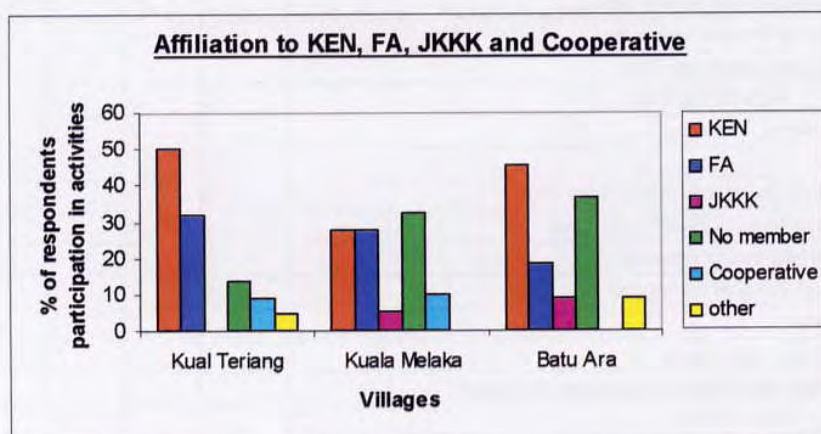
(Volunteer work: including services for KEN)



Part IV : Participation in community activities

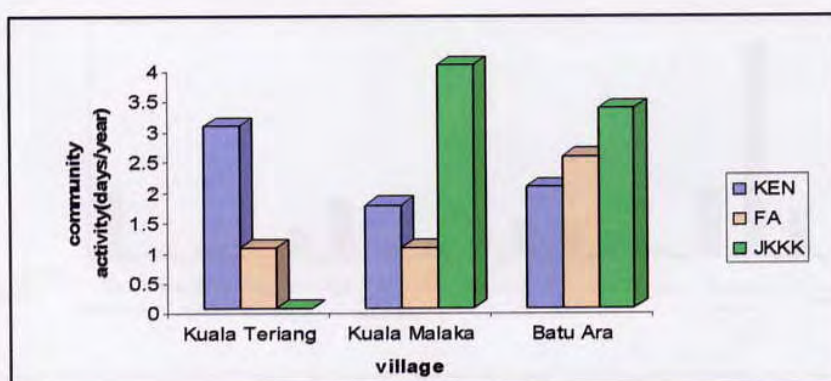
Part IV-1 : Membership of KEN, FA and JKKK

Village	Number of respon's	Member ship in groups											
		KEN		FA		JKKK		No member		Cooperative		other	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kual Teriang	22	11	50.0	7	31.8	-	-	3	13.6	2	9.1	1	4.5
Kuala Melaka	40	11	27.5	11	27.5	2	5.0	13	32.5	4	10.0	-	-
Batu Ara	11	5	45.5	2	18.2	1	9.1	4	36.4	-	-	1	9.1
Total/average	73	9	37.0	7	27.4	2	4.1	7	27.4	3	8.2	1	2.7



Part IV-2 : Involvement in community activities

Village	Community activities					
	KEN per year		FA per year		JKKK per year	
	days	hours	days	hours	days	hours
Kuala Teriang	3.0	3.4	1.0	7.0	0	0
Kuala Malaka	1.7	3.5	1.0	7.0	4.0	2.0
Batu Ara	2.0	3.5	2.5	5.0	3.3	9.0
Total/average	2.2	3.5	1.5	6.3	3.7	5.5

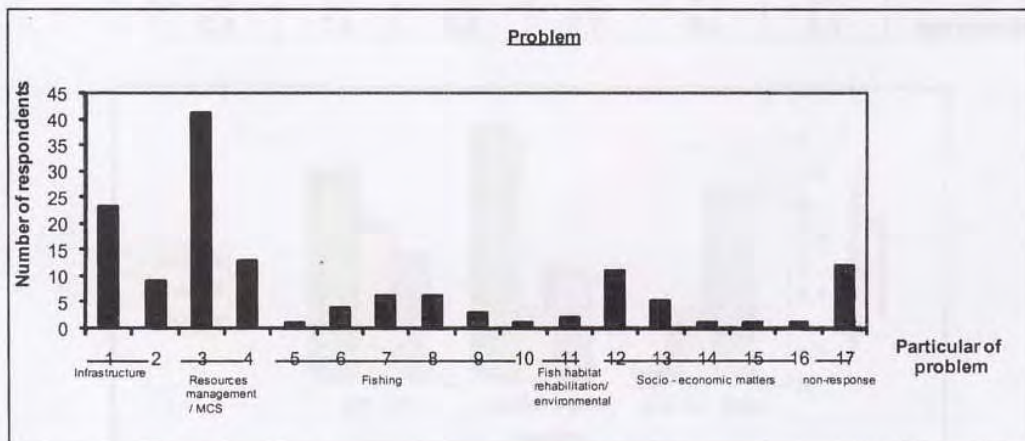


Involvement of community activity in day per year

Part V-1: Data compilation on "Problems"

Response	Name of village			Total			
	K.T	K.M	B. A.	No.	%		
No. of interviewee	23	43	11	77			
No. of response	19	36	10	65	84.4		
No. of non-response	4	7	1	12	22.6		
Percentage of response (%)	82.6	83.7	90.9	84.4			
No.	Particulars of problem						
A. Infrastructure							
1	Too shallow canals and no jetty existed						
	5	15	3	23	29.9		
2	No navigational beacons with light						
	2	6	1	9	11.7		
B. Resources management / MCS							
3	Intrusions by illegal fishing boats						
	11	26	4	41	53.2		
4	Fishery resources decreasing						
	3	7	3	13	20.0		
C. Fishing							
5	Sea conditions (weather & bottom condition)						
	0	1	0	1	1.3		
6	Issuing vessel licenses by DOF (too slow)						
	2	1	1	4	5.2		
7	Old/small fishing boats / repairing						
	4	1	1	6	7.8		
8	Lack and high prices of fishing gear						
	3	1	2	6	7.8		
9	High fuel cost						
	1	1	1	3	3.9		
10	Lack of means of sea security						
	0	1	0	1	1.3		
D. Fish habitat rehabilitation / environmental issues							
11	Pollution by village dumping						
	1	1	0	2	2.6		
E. Socio - economic matters							
12	Low income						
	4	5	2	11	14.3		
13	Lack of loan facility						
	1	4	0	5	6.5		
14	Health to stand for fishing						
	0	0	1	1	1.3		
15	Decreasing numbers of fishermen year by year						
	0	1	0	1	1.3		
16	Large family members						
	0	1	0	1	1.5		
Total:				37	72	19	128

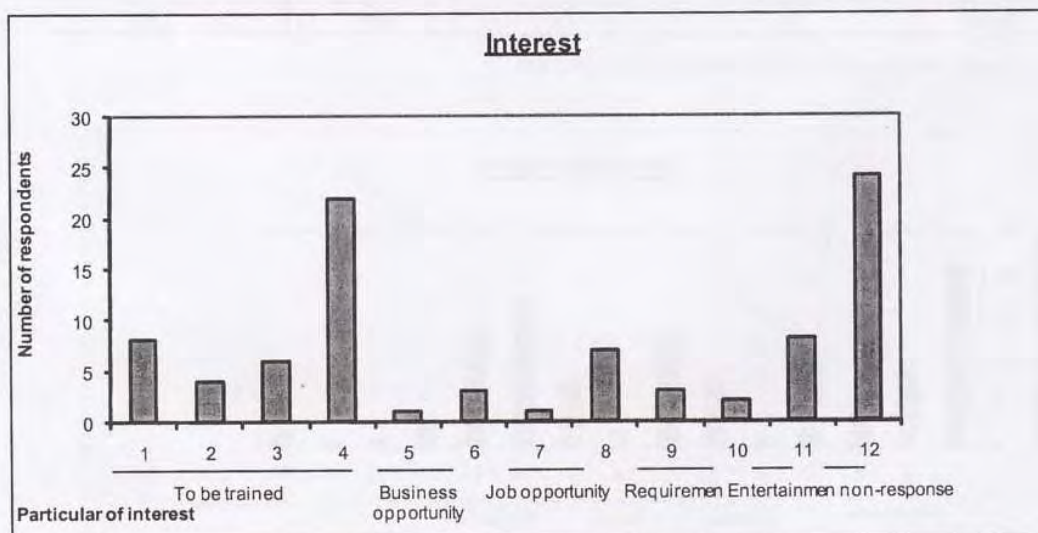
K.T. : Kuala Teriang, K.M.: Kuala Melaka, B.A.: Batu Ara



Part V – 2: Data compilation on “Interest”

Response	Name of village			Total		
	K.T.	K.M.	B. A.	No.	%	
No. of interviewee	23	43	11	77		
No. of response	15	28	10	53	68.8	
No. of non-response	8	15	1	24	45.3	
Percentage of response (%)	65.2	65.1	90.9	68.8		
No.	Particulars of interest					
	A. To be trained in:					
1	Engine repair and maintenance	0	7	1	8	10.4
2	Boat building, repair and maintenance	0	4	0	4	5.2
3	Training course in aquaculture	2	3	1	6	7.8
4	New fishing gear and methods	9	10	3	22	28.6
	B. Business opportunity					
5	Tourist business	1	0	0	1	1.3
6	Any other business	2	0	1	3	3.9
	C. Job opportunity					
7	Work as a laborer	0	1	0	1	1.3
8	Continue as a professional fisherman	0	4	3	7	9.1
	D. Requirement					
9	To procure a new fishing boat	1	2	0	3	3.9
10	To procure new fishing gear	0	2	0	2	2.6
	E. Entertainment					
11	To enjoy sports like football, badminton etc.	2	5	1	8	10.4
	Total :	17	38	10	65	

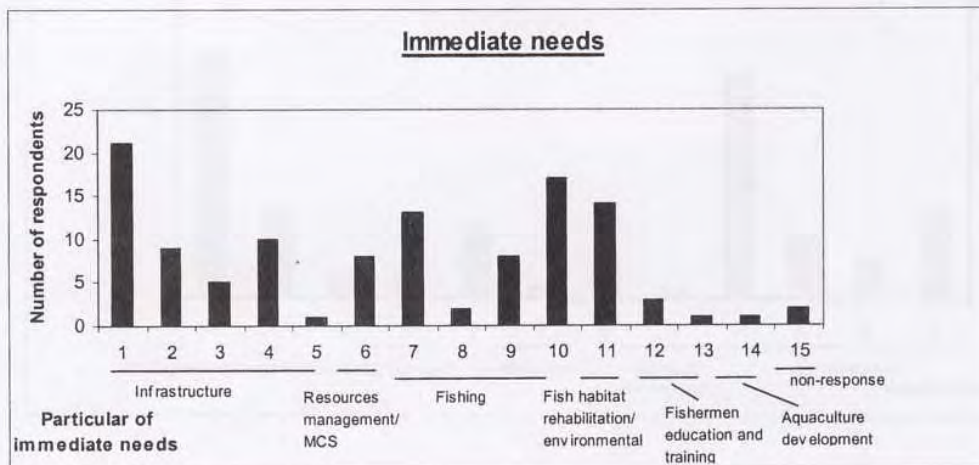
K.T. : Kuala Teriang, K.M.: Kuala Melaka, B.A.: Batu Ara



Part V – 3: Data compilation on “Immediate needs”

Response	Name of village			Total		
	K.T.	K.M.	B. A.	No.	%	
No. of interviewee	23	43	11	77		
No. of response	22	42	11	75	97.4	
No. of non-response	1	1	0	2	2.6	
Percentage of response (%)	95.7	97.7	100.0	97.4		
No.	Particulars of immediate needs					
	A. Infrastructure					
1	New jetty construction	2	18	1	21	27.3
2	Digging the water canal	1	7	1	9	11.7
3	Construction of a breakwater	2	1	2	5	6.5
4	Installation of light house / navigational beacons with light	3	6	1	10	13.0
5	Opening of a fishing gear sales store	0	1	0	1	1.3
	B. Resources management / MCS					
6	Stricter control of encroachment of illegal fishing vessels	0	8	0	8	10.4
	C. Fishing					
7	Procurement of new engines and boats	5	6	2	13	16.9
8	Getting fishing boats licensed	1	1	0	2	2.6
9	Government subsidy for fuel and equipment	2	5	1	8	10.4
10	Government loan to procure fishing equipment	4	11	2	17	22.1
	D. Fish habitat rehabilitation / environmental issues					
11	Installation of more ARs and FADs	8	5	1	14	18.2
	E. Fishermen education and training					
12	Training in aquaculture	1	1	1	3	3.9
13	Training in fish handling and quality control	0	1	0	1	1.3
	G. Aquaculture development					
14	Space for crab culturing	0	0	1	1	1.3
	Total:	29	71	13	113	

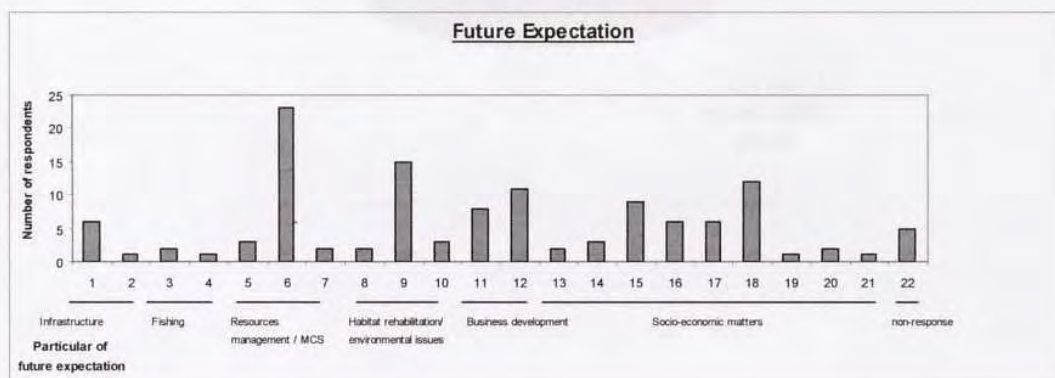
K.T. : Kuala Teriang, K.M.: Kuala Melaka, B.A.: Batu Ara



Part V – 4: Data compilation on “Future Expectation”

Response	Name of village			Total	
	K.T.	K.M.	B. A.	No.	%
No. of interviewee	23	43	11	77	
No. of response	21	40	11	72	135.8
No. of non-response	2	3	0	5	9.4
Percentage of response (%)	91.3	93.0	100.0	93.5	
No.	Particulars of future expectation				
	A. Infrastructure				
1	A deeper canal or a jetty constructed				
	2	2	2	6	7.8
2	A light house and navigational beacons constructed				
	0	0	1	1	1.3
	B. Fishing				
3	Application of new fishing technologies				
	1	1	0	2	2.6
4	Fish distribution and marketing system improved				
	0	1	0	1	1.3
	C. Resources management / MCS				
5	No illegal fishing boat encroached				
	1	0	2	3	3.9
6	Fishery resources increased				
	5	13	5	23	29.9
7	Proper zoning arrangement				
	0	1	1	2	2.6
	D. Habitat rehabilitation / environmental issues				
8	Fish habitat and environment improved				
	0	2	0	2	2.6
9	More ARs and FEDs installed				
	1	13	1	15	19.5
10	Mangrove reforestation				
	2	0	1	3	3.9
	E. Business development				
11	Aquaculture development supported by government projects				
	1	4	3	8	10.4
12	Tourist business development				
	6	5	0	11	14.3
	F. Socio-economic matters				
13	Higher education to children				
	0	2	0	2	2.6
14	Higher incomes				
	1	0	2	3	3.9
15	Continue to be professional fishermen				
	3	6	0	9	11.7
16	Succession of fishing to the next generation				
	1	5	0	6	7.8
17	Discontinue fishing profession and find other jobs				
	1	5	0	6	7.8
18	No succession of fishing to the next generation				
	5	6	1	12	15.6
19	Agriculture fields expanded				
	0	1	0	1	1.3
20	New houses constructed				
	0	2	0	2	2.6
21	New cars procured				
	0	1	0	1	1.3
Total :	30	70	19	119	

K.T. : Kuala Teriang, K.M.: Kuala Melaka, B.A.: Batu Ara

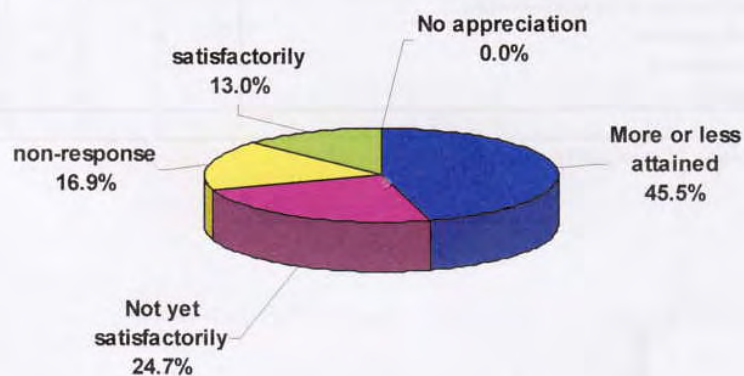


Part V – 5: Data compilation on “Tsunami rehabilitation”

Response	Name of village						Total		
	K.T.		K.M.		B. A		No.	%	
No. of interviewee	23		43		11		77		
No. of response	19		37		8		64	83.1	
No. of non-response	4		6		3		13	16.9	
Percentage of response (%)	82.6		86.0		72.7		83.1		
No.	Particulars of tsunami rehabilitation	No.	point	No.	Point	No.	Point		
A. Appreciation of the degree of achievement									
1	Yes, satisfactorily (point 5)	5	25	1	5	4	20	10	13.0
2	More or less attained (point 4)	7	28	26	104	2	8	35	45.5
3	Not yet satisfactorily (point 2)	7	14	10	20	2	4	19	24.7
4	No, far behind the expectation (point 1)	0	0	0	0	0	0	0	0.0
	Total:	19	67	37	129	8	32	64	83.1
	Average point:		3.5		3.5		4.0	3.6	

K.T. : Kuala Teriang, K.M.: Kuala Melaka, B.A.: Batu Ara

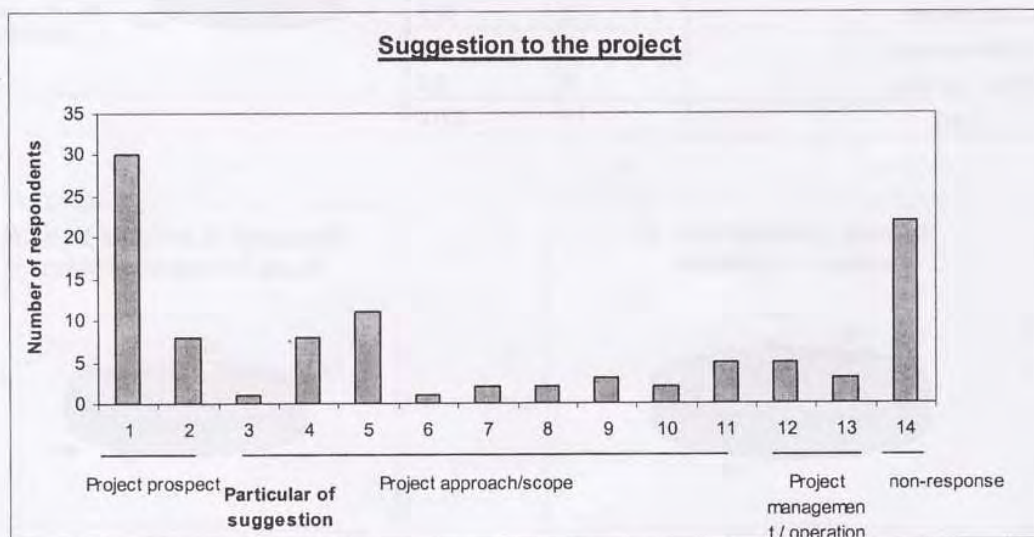
Degrees of rehabilitation from Tsunami disaster



Part V - 6: Data compilation on "Suggestion to the project"

Response	Name of village			Total	
	K.T.	K.M.	B. A.	No.	%
No. of interviewee	23	43	11	77	
No. of response	17	28	10	55	71.4
No. of non-response	6	15	1	22	28.6
Percentage of response (%)	73.9	65.1	90.9	71.4	
No.	Particulars of suggestion to the project				
	A. Project prospect				
1	The project should be continued and expand the scope.				
2	DOF should continue support to the project operation.				
	B. Project approach/scope				
3	Technical guidance provided by the project are useful.				
4	The main project approach should be fishery resources management.				
5	Installation of ARs / FADs are useful.				
6	Mangrove reforestation should be continued.				
7	Need more activities in fish distribution and marketing				
8	Strengthening the capacity of Local Enforcement Unit				
9	Implementation of zoning and fisheries management plan				
10	Training in repairing boats with FRP materials is practical.				
11	The project should coordinate construction of jetty & canal cleaning.				
	C. Project management / operation				
12	DOF should give more support in providing fishing equipment/training.				
13	The project is operated with positive participation by fishermen.				
Total :	23	40	18	81	

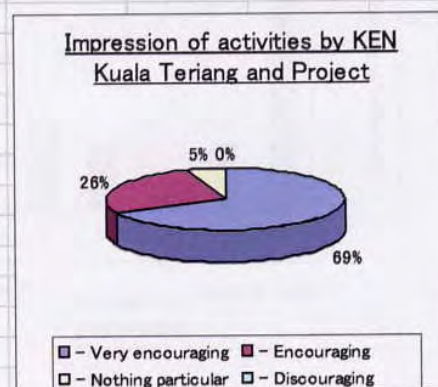
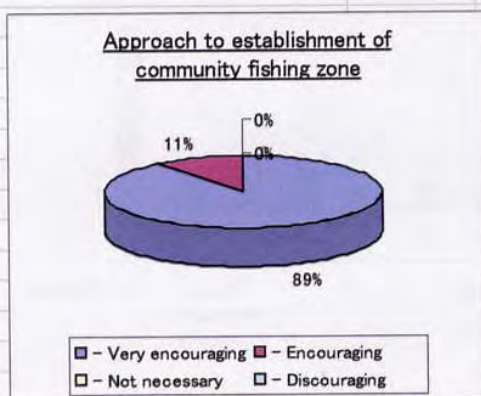
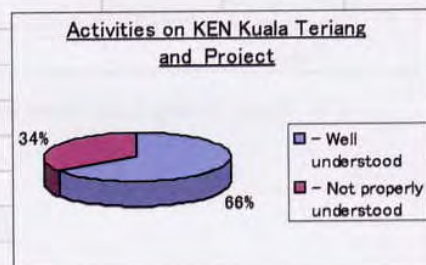
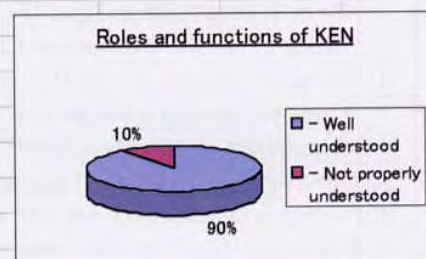
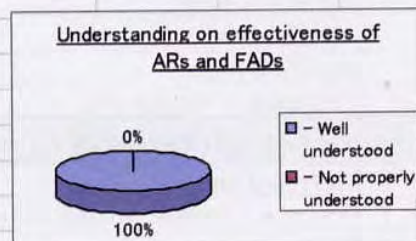
K.T. : Kuala Teriang, K.M.: Kuala Melaka, B.A.: Batu Ara



B. For the neighbouring village – Kuala Chenang

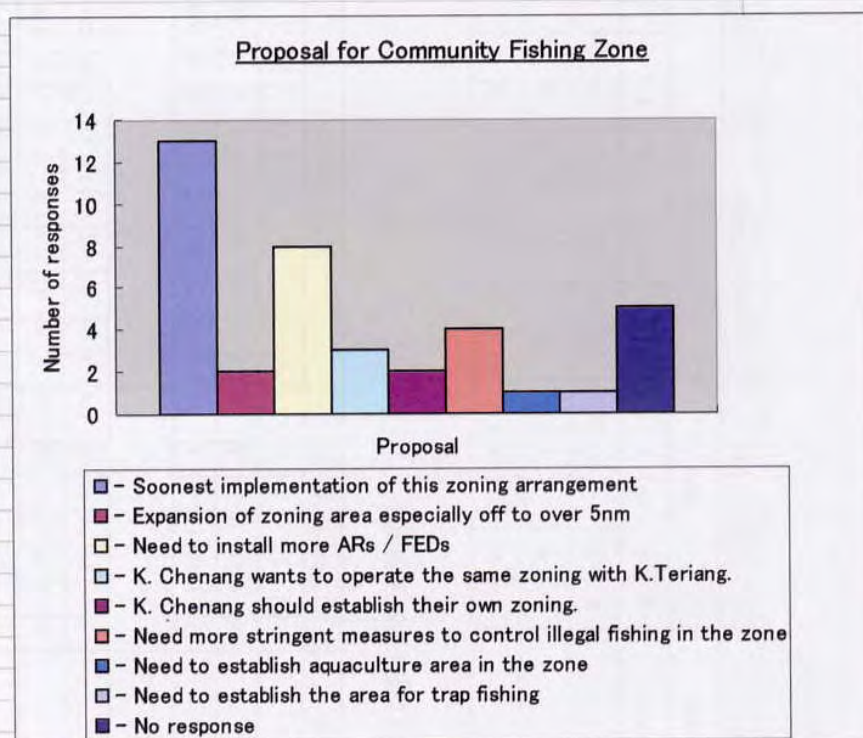
Part VI – 1: Function of KEN and zoning

Response	Number	Percent	
No. of interviewee	29	100.0	
No. of response	29	100.0	
No. of non-response	0	0.0	
No.	Particulars of question	Number	Percent
1	On effectiveness of ARs and FADs		
	- Well understood	29	100.0
	- Not properly understood	0	0.0
	Total:	29	100.0
2	On roles and functions of KEN		
	- Well understood	26	89.7
	- Not properly understood	3	10.3
	Total:	29	100.0
3	On activities of KEN Kuala Teriang and the Project		
	- Well understood	19	65.5
	- Not properly understood	10	34.5
	Total:	29	100.0
4	On impression of above activities by KEN Kuala Teriang		
	- Very encouraging	13	68.4
	- Encouraging	5	26.3
	- Nothing particular	1	5.3
	- Discouraging	0	0.0
	Total:	19	100.0
5	On approach to establish their community fishing zone		
	- Very encouraging	17	89.5
	- Encouraging	2	10.5
	- Not necessary	0	0.0
	- Discouraging	0	0.0
	Total:	19	100.0



Part VI – 1: Function of KEN and zoning (Cont'd)

Response		Number	Percent
No. of interviewee		29	100.0
No. of response		24	82.8
No. of non-response		5	17.2
No.	Particulars of question	Number	Percent
6	Proposal to this community fishing zone		
	- Soonest implementation of this zoning arrangement	13	44.8
	- Expansion of zoning area especially off to over 5nm	2	6.9
	- Need to install more ARs / FEDs	8	27.6
	- K. Chenang wants to operate the same zoning with K.Teriang.	3	10.3
	- K. Chenang should establish their own zoning.	2	6.9
	- Need more stringent measures to control illegal fishing in the zone	4	13.8
	- Need to establish aquaculture area in the zone	1	3.4
	- Need to establish the area for trap fishing	1	3.4
	- No response	5	17.2
Total:		39	



Result of Fisheries Household Survey

1. Number of fishermen

Item / Village	Kuala Teriang			Kuala Malaka			Batu Ara			Total
	0	1	2	3	T	0	1	2	3	
1. Number of household										
	0	1	2	3	T	0	1	2	3	T
	46					75				152
2. Number of fishermen										
- Full time	0	39	2	0	41	0	55	16	0	71
										32
										121
										20
										3
										144
- Part time	0	6	0	0	6	0	11	2	0	13
										2
										0
										19
										2
										0
										21
Total	0	45	2	0	47	0	66	18	0	84
										29
										2
										3
										34
										0
										140
										22
										3
										165

2. Composition of fishermen's family

Item / Village	Kuala Teriang					Kuala Malaka					Batu Ara					Total																					
	0	1	2	3	4	5	6	7	8	T	0	1	2	3	4		5	6	7	8	T																
1. Member of family																																					
	0	7	34	24	44	15	124	0	9	52	75	24	15	24	0	16	215	0	3	10	30	40	10	0	8	101	0	19	96	129	108	40	24	0	24	440	
- Male	0	7	30	42	20	20	119	0	10	52	57	48	25	6	7	0	205	0	9	24	24	0	10	0	0	0	67	0	26	106	123	68	55	6	7	0	391
- Female	1	7	15	14	5	4	46	1	10	26	19	12	5	1	1	0	75	0	9	12	8	0	2	0	0	0	31	2	26	53	41	17	11	1	1	0	152
2. Number of family members																																					
- Male	0	7	34	24	44	15	124	0	9	52	75	24	15	24	0	16	215	0	3	10	30	40	10	0	0	8	101	0	19	96	129	108	40	24	0	24	440
- Female	0	7	30	42	20	20	119	0	10	52	57	48	25	6	7	0	205	0	9	24	24	0	10	0	0	0	67	0	26	106	123	68	55	6	7	0	391
- Total	0	14	64	66	64	35	243	0	19	104	132	72	40	30	7	16	420	0	12	34	54	40	20	0	0	8	168	0	45	202	252	176	95	30	7	24	831